

Extractive Industries and the Right to Water: The Responsibility of Multinationals

Multinationals Observatory
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Executive Summary

This report is the conclusion of a series of investigations and articles on extractive industries and water published, over a year and a half, by Basta! and the Multinationals Observatory, with the support of France Libertés – Fondation Danielle Mitterrand. The focus of this work was to look at the role and responsibility of multinational corporations, as the main drivers of extractivism.

Why water?

Water is a critical input for extractive industries (mining, quarrying, oil and gas extraction). All of them consume large (sometimes very large) quantities of water. It is no accident if the issue of water has often been central in the many social conflicts spurred by mining or fossil fuel projects in recent years across the planet, in the context of a global commodity boom.

The reason for this is simple: water is a vital resource, both for drinking and hygiene and because it supports traditional livelihoods, through agriculture or fishing. The destruction or degradation of water sources is often rightly seen as a matter of life and death, especially in regions where water is scarce and therefore has a special importance in the local culture and social organization. In addition, many of the indirect, cascading impacts of extractive activities, such as downstream pollution or water scarcity, make themselves felt through water.

Fracking, tailings dams, pollution... The multiple impacts of extractives industries on water

The impacts of extractive industries on water resources are multiple and often severe: overexploitation of surface or ground water sources; pollution; destruction of glaciers, forests or wetlands - but also issues related to large-scale water transfers, hydroelectric dams to power mining operations, pollution of land and air, or the effects of extractive activities on local climatic conditions.

The impacts and risks of unconventional hydrocarbon developments, such as shale gas, for water resources are significantly higher than those of conventional extraction.

Dams retaining toxic wastewater from mining or oil operations also represent a significant risk to water resources, as illustrated by major accidents in recent months, from Mount Polley in Canada to Samarco in Brazil.

True and false solutions

The responses developed by corporations to address these issues - including 'corporate social responsibility'-style approaches and technological solutions such as

desalination and wastewater treatment - have not demonstrated their effectiveness, particularly over the long term.

Experience shows that even where regulations exist on paper to protect water sources and mitigate the negative impacts of extractive industries, such rules are rarely enforced in practice, because of the imbalance of power, resources and capacity between multinational corporations on the one hand and public authorities and local communities on the other. Similarly, scientific monitoring of the impacts of extractive industries on water and access to relevant information are usually insufficient.

The right to water, a political right

Even though it is relatively recent and currently lacking enforcement mechanisms, the notion of the “human right to water”, recognised by the United Nations in 2010, can empower communities and local authorities which seek to prevent or mitigate the impacts of extractive projects on their water sources. The notion of a right to water already seems to underlie many legal battles between communities and oil or mining companies worldwide.

To achieve this purpose, however, the notion of the right to water must be taken in a broad, non-restrictive sense. The mere delivery of a quota of drinking water to communities neighbouring extractive operations is charity – not the recognition of a human right, nor does it address the many issues faced in practice by communities. The right to water must be seen as a political right, that is to say, it should involve respecting the autonomy and at least a degree of self-rule for communities, and their right to decide their own future and that of their land.

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Introduction

The extraction of minerals and fossil fuels (coal, oil and gas) is the basis of modern industrial economies. From the outset of modern times, the natural resources of the planet have been exploited to serve the development and rise in living standards of Western countries. Despite the apparent shift towards a service-based or ‘digital’ economy, the intensive extraction of mineral or energy resources continues to this day, ever farther from the eyes of consumers, especially when they live in Europe.

The development of extractive industries (mining, quarrying, oil and gas extraction) has significantly accelerated worldwide in the early 2000s because – among other reasons – of the growth of China and other emerging countries. This “extractivist boom” resulted in the revival or expansion of existing operations and in the opening of new mines or new oil and gas drilling sites, including in areas previously untouched by these industries. These developments have caused many social conflicts, particularly in Latin America. Indigenous, farming or traditional communities have actively resisted extractive projects because of their likely impact on their environment, their health, their livelihood and their lifestyle, as well as the forced displacements they often involve. The issue of water was invariably at the heart of these conflicts.

In this context, France Libertés - Fondation Danielle Mitterrand initiated in 2014 a call for proposals on “extractive industries and the right to water”, the objective of which was *“to support stakeholders who, facing extractive activities, work to promote and protect the right to water, to preserve this Common Good and to encourage its sustainable management”* and to *“learn from these projects, about the threats on the right to water due to extractive activities, as well as the action taken to protect this right and to mitigate the risks”*.¹

With the support of France Libertés, *Basta!* and the Multinationals Observatory (both published by the French nonprofit Alter-médias) have undertaken to explore, through a series of investigations and shorter articles, the impacts of extractive industries on water resources over the globe and the role and responsibility of the main drivers of extractivism: transnational corporations. This report is the conclusion of this work. Some of the articles published along the way are added as an appendix.

¹ http://www.france-libertes.org/IMG/pdf/guidelines_-france_libertes-2014.pdf

Why water?

Water is critical to all extractive industries: it is used in some extraction methods such as hydraulic fracturing, for the washing and treatment of minerals, and for transport. Mining, quarrying and oil and gas operations, with the associated infrastructure, consume very large quantities of water, both directly and indirectly.

While extractives industries have a range of adverse impacts on communities and their environment, water has a special importance, for several reasons.

The first reason is simple: water is life. It is a vital resource - not only for drinking and hygiene, but also because it supports communities' livelihoods, through agriculture or fishing. A threat to water is therefore likely to be seen as a matter of life and death. This is especially true in contexts where access to safe drinking water is problematic and waterborne diseases are a daily risk, as is the case in many poor communities in developing countries affected by mining or oil and gas projects. And it is even more the case in regions where water is a scarce and most precious resource. The struggle of the people of southern Algeria against shale gas - the first environmentalist and anti-extractivist social movement in the history of this country - almost entirely revolves around the issue of water².

Beyond its immediate vital and symbolic importance, there is a second reason why conflicts and resistance to extractive projects often revolve around the issue of water. Many indirect, cascading impacts of extractive activities make themselves felt through water. The degradation or destruction of water sources affects the integrity of local ecosystems as a whole, and by extension the people that depend on these ecosystems. Moreover, it is through water that operations on a specific site can have consequences further (and sometimes very far) downstream. Similarly, impacts on water sources sometimes make themselves felt over a long period of time, as can be observed even in France: many regions are still confronted with the toxic legacy of past mining activities, as in Salsigne or in the former uranium mines of Limousin. The memory of this heritage is often the first reason why local residents refuse the opening of new mines, as it is currently proposed³.

² Sophie Chappelle and Olivier Petitjean, « Shale gas: how Algerians rallied against the Regime and foreign oil companies », 10 March 2015, <http://multinationales.org/Shale-gas-how-Algerians-rallied-against-the-Regime-and-Foreign-Oil-Companies>.

³ Ivan du Roy and Sophie Chappelle, « De la Bretagne au Limousin, les compagnies minières débarquent en France », 12 September 2013, <http://www.bastamag.net/De-la-Bretagne-au-Limousin-les>.

The many ways extractive industries affect water

Over-extraction

Extractive industries are water intensive. They use large quantities of water for their extraction processes or for treatment.

To take a few examples:

- Hydraulic fracturing requires millions of litres of water to drill just one well - in some cases, as in Ohio, up to 40 million litres.
- French company Areva said in 2009 it had already pumped 270 billion litres of water from local aquifers since the 1970s for its mining operations in Niger.
- In Colombia, oil company Perenco extracts 9 barrels of water from local ecosystems to produce one barrel of oil.
- The Los Filos gold mine in the Guerrero State of southern Mexico, uses 418.8 million litres of water every day just for the leaching process (tons of extracted minerals being sprayed with water and sodium cyanide to separate gold from rock detritus)⁴.

In some cases, this water is not returned to the natural environment; in other cases it is returned to nature but no longer fulfils the same function (e.g. water discharged into a river further downstream, with the effect of drying up nearby wells). Often, as we shall see later, it is returned to the environment, but heavily polluted.

The problem is obviously more acute when extractive projects are located in water scarce regions, as is the case of the Chilean copper mines or Areva's uranium mines in Niger.

The shale gas industry and more generally all unconventional fossil fuels (which require the use of hydraulic fracturation, or "fracking") are particularly problematic in this regard. Unconventional fossil fuel extraction consumes much more water than conventional drilling. The exact figure varies from place to place, but it is estimated that each fracking operation requires an average of between 15 and 25 million litres of water, and sometimes much more. At the same time, numerous reports and studies have highlighted the fact that unconventional fossil fuels reserves are often located in

⁴ These figures are taken from: Olivier Petitjean, « Comment la fracturation hydraulique pollue l'eau des villes et des campagnes américaines », 10 November 2015, <http://multinationales.org/Comment-la-fracturation-hydraulique-pollue-l-eau-des-villes-et-des-campagnes>; Greenpeace, « Left in the dust. Areva's radioactive legacy in the desert towns of Niger », 2010, <http://www.greenpeace.org/international/en/publications/reports/Left-in-the-dust/>; Nadège Mazars, « Pollution, Drought and Threats: the Disturbing Cocktail of Colombia's Oil Industry », 21 December 2015, <http://multinationales.org/Pollution-Drought-and-Threats-the-Disturbing-Cocktail-of-Colombia-s-Oil>; Marie-Pia Rieublanc, « Le Mexique va-t-il se vider de son eau au profit des multinationales ? », 30 October 2015, <http://multinationales.org/Le-Mexique-va-t-il-se-vider-de-son-eau-au-profit-des-multinationales>.

arid or water-stressed regions such as Texas in the US, Mexico, Argentina, South Africa , Algeria, or Australia⁵.

Even in a water-rich country such as Canada, extractive industries' water needs may push local resources to their limit, as highlighted by Canadian journalist Edward Struzik⁶: in total, the oil sands require the extraction of no less than *“170 million cubic metres of water taken annually from the Athabasca River alone. That is approximately half of the total amount of water that the city of Toronto (population 2.5 million) uses in the same period of time. Unlike the city of Toronto, which treats wastewater and returns it to the natural system, oil sands and fracking companies return none of the water they use to the natural cycle. The wastewater is too toxic and therefore subject to a zero discharge policy. (...) Water diverted for current and approved oil sands operations, for example, amounts to 2.5 percent of the natural flow of the Athabasca River. This percentage can be as high as 10 percent in winter, when water volumes in the river are at their lowest. Scientists predict that it will get much worse if oil sands production triples to 5.2 million barrels per day by the year 2030. The amount of water diverted from the Athabasca River, he says, could grow to as high as 30 percent of the natural flow by then. The percentage, however, could be even higher if climate change continues to diminish glaciers and snowpack that send massive amounts of meltwater into the Peace and Athabasca River system, (...), so much so that some people in the oil sands industry concede that they may face a water shortage crisis in the future.”*

Destruction of glaciers, forests, wetlands...

Extractive projects, sometimes simply because of their considerable land footprint, lead to the destruction of rivers or critical water sources – either directly or indirectly. If the Conga project in Peru has sparked such resistance among local communities, it is because it would destroy five lagoons, traditional sources of water. The mining project, which would extend over 3,000 hectares, threatens to *“destroy the complex local water system, which channels rainwater runoff while supplying fields and villages all around with freshwater”*⁷.

Similarly, the projected open-pit gold mine Pascua Lama, straddling the border between Chile and Argentina at the top of the Andes, represents a direct threat for the local glaciers, a vital source of water for human consumption and agriculture downstream. This is why this project has been the object of an intense political and legal battle, unresolved to this day.

⁵ See for example Ceres, « Hydraulic Fracturing & Water Stress: Water Demand by the Numbers », <http://www.ceres.org/resources/reports/hydraulic-fracturing-water-stress-water-demand-by-the-numbers/view> and World Resources Institute, « Global Shale Gas Development: Water Availability & Business Risks », <http://www.wri.org/publication/global-shale-gas-development-water-availability-business-risks>.

⁶ Edward Struzik, « In Alberta and Downstream, the Heavy Toll of the Oil Sands Industry on Water and the Environment », 18 June 2015, <http://multinationales.org/In-Alberta-and-downstream-the-heavy-toll-of-the-oil-sands-industry-on-water-and>.

⁷ Simon Gouin, « Conga : quand l'or du Pérou attire de nouveaux conquistadors », 9 September 2013, <http://multinationales.org/Projet-Conga-quand-l-or-du-Perou>

In Colombia, the progressive expansion of the El Cerrejón mine also resulted in the destruction or diversion of rivers⁸: *“To access the coal underneath one of the few rivers that remain, the company plans to divert its course on 26 km, no less!”* In the Appalachian Mountains, in the United States, the destructive mining technique known as “mountaintop removal” involves blowing off the tip mountains to extract the underlying coal. It has already led to the disappearance of several thousands kilometres of water streams⁹.

Besides mountains, extractives industries contribute to the destruction of another fundamental element in hydrological cycles: forests. As recalled by a recent report published by environmental group FERN during the international climate conference in Paris, coal mining has a double negative impact for the global climate: first because of its combustion, which emits greenhouse gas, but also because of deforestation it causes. According to the report, no less than 12 million hectares forests are still threatened by coal mining projects today¹⁰.

In much the same way, oil companies active in the Casanare region of Colombia, such as Perenco, destroy the unique “ponds” that are characteristic of this region, with cascading impacts on biodiversity and on the economic activities that have developed in this ecosystem, including extensive cattle breeding¹¹. *“The vast grassland plain studded with palm groves, gives rise, when flooded, to a number of shallow rivers that flow throughout the region. It is a water-rich area even when water is sucked into the ground over the summer months. The Colombian Orinoco Basin, which includes the Casanare, contains about one third of the country’s water reserves. Casanare is home to the llanera tradition, a culture built around extensive cattle breeding. [But] droughts –previously uncommon in the region – have become more frequent. Last year’s drought killed more than 20,000 animals (both wild and farmed) in the area of Paz de Ariporo (...). Groundwater extraction by the oil industry is seen as responsible for the drying up of ‘summer’ marshes, which even during the dry period used to retain some water. Crucial to sustaining an ecological balance, these ponds provide water to livestock and wildlife in a region where it is not unusual for the temperature to reach 40°C in the shade.”*

The former wetlands of Alberta, Canada, have met a similar fate¹². *“Before tar sands companies arrived on the scene, the wetlands of northern Alberta comprised at least fifty percent, and possibly as much two-thirds of the boreal landscape in which the oil sands are located. These wetlands south of the delta supported a wide range of plants,*

⁸ Nolwenn Weiler, « Colombie : la plus grande mine de charbon à ciel ouvert du monde maltraite les communautés et l’environnement », 12 November 2015, <http://multinationales.org/Colombie-la-plus-grande-mine-de-charbon-a-ciel-ouvert-du-monde-maltraite-les>.

⁹ Olivier Petitjean, « Crédit agricole : comment la ‘banque verte’ soutient l’une des sources d’énergie les plus sales qui soient », 30 October 2014, <http://multinationales.org/Credit-agricole-comment-la-banque>.

¹⁰ FERN, « Coal’s hidden ‘double whammy’: global map reveals 12 million hectares of forest at risk », <http://www.fern.org/node/5987>.

¹¹ Nadège Mazars, « Pollution, Drought and Threats: the Disturbing Cocktail of Colombia’s Oil Industry », 21 December 2015, <http://multinationales.org/Pollution-Drought-and-Threats-the-Disturbing-Cocktail-of-Colombia-s-Oil>.

¹² Edward Struzik, « In Alberta and Downstream, the Heavy Toll of the Oil Sands Industry on Water and the Environment », 18 June 2015, <http://multinationales.org/In-Alberta-and-downstream-the-heavy-toll-of-the-oil-sands-industry-on-water-and>.

including many of western Canada's wild and rarest orchids; hundreds of species of birds; untold number of insect species; as well as a range of large mammals, including woodland caribou, moose, wolves, and grizzly bears. No one knows how biologically diverse these ecosystems were because inventories and assessments were never conducted before or during construction of the oil sands operations. (...) What we do know is those wetlands that have been mined by the oil sands industry are no longer filtering water, sequestering carbon and nurturing the complex web of plants and animals they used to support."

Pollution

In addition to their high consumption of water, mining and fossil fuel operations are a major cause of pollution of this resource, in a number of ways.

First, in the case of underground mines, toxic elements released by extractive operations can be found in groundwater. The aquifer that supplies drinking water to the town of Arlit, Niger, has been contaminated by the mining operations of Areva. Test samples have revealed a level of radioactivity in excess of up to 110 times the recommendations of the World Health Organization (WHO)¹³.

It's even worse with unconventional hydrocarbons: toxic substances naturally present in the ground add up to those used for fracking. In the US, there has been much talk about the contamination of groundwater by methane (with images of tap water catching fire at the touch of a match). In Australia, tests near the gas drilling sites of Santos in the Pilliga forest have shown groundwater was contaminated with heavy metals, including uranium¹⁴.

Pollution can also arise from the direct or indirect discharge of wastewater from mining or oil operations into water bodies. This wastewater is often stored in ponds, and seeps into the ground because of poor insulation and maintenance, or overflows in case of heavy rain events. According to a compilation by the Associated Press, (incomplete since no data was available for some states, such as Pennsylvania), nearly 700 million litres wastewater from oil and gas operations have been dumped into the natural environment since 2009 in the United States, whether by accident or deliberately¹⁵.

Solid mine waste, also loaded with toxic substances, is another potential source of water pollution. Precipitations and runoff carry toxic dust into water bodies

¹³ Sophie Chapelle, « Areva au Niger : développement ou prédation durable ? », 26 October 2009, <http://multinationales.org/Areva-au-Niger-developpement-ou>.

¹⁴ Olivier Petitjean, « Gladstone LNG, l'autre mégaprojet australien d'une entreprise française qui menace (entre autres) la Grande barrière de corail », 8 April 2015, <http://multinationales.org/Gladstone-LNG-l-autre-megaprojet-australien-d-une-entreprise-francaise-qui>.

¹⁵ Lauren McCauley, « Fracking Fallout: New Analysis Reveals Over 100 Million Gallons of Toxic Wastewater Spilled Since 2009 », 8 September 2015, <http://www.commondreams.org/news/2015/09/08/fracking-fallout-new-analysis-reveals-over-100-million-gallons-toxic-wastewater>.

downstream, as can be observed in France around the former gold mines of Chatelet (Limousin) and Salsigne (Aude)¹⁶.

Finally, the transport of minerals or hydrocarbons, by boat, truck or oil and gas pipelines, may also become a source of pollution, in case of accident or if infrastructures are not well maintained, as demonstrated recently, in Peru, by the gigantic oil spill from a ruptured pipeline¹⁷. Similarly, the population of the Niger Delta have suffered decades of repeated oil spills.

Poor mining dams safety

The risk of pollution from mining dams deserves special attention. There have been in recent months several major accidents across the globe involving the rupture of poorly maintained dams and the resulting discharge of toxic waste over dozens or even hundreds of kilometres downstream. In August 2014, in Canada, the collapse of a tailings dam at the Mount Polley mine caused water contamination throughout the region. The accident was described as the “*biggest mining disaster ever in Canada*”¹⁸. Around the same time, in Mexico, tens of thousands of cubic meters of copper sulphate and heavy metals spilled into the Sonora River, whose waters turned orange over more than 150 kilometres¹⁹. In August 2015, US Environmental Protection Agency inspectors accidentally caused the rupture of a mining dam in the state of Colorado, contaminating the Animas River (a tributary of the Colorado River). Three states and the Navajo nation had to declare a state of emergency²⁰. And in November 2015 in Brazil, two mining dams belonging to Samarco (a subsidiary of Vale and BHP Billiton) ruptured, causing dozens of deaths and the dumping of toxic waste along the Rio Doce basin all the way down to the ocean²¹.

These incidents highlight the long-term risks created by mining dams, especially after the mines are closed down and they are no longer maintained. There are currently thousands of mining dams in the world²². In a context like that of northern Chile – a

¹⁶ Simon Gouin, « Salsigne : A Century of Mining, 10,000 Years of Pollution? », 26 January 2015, <http://multinationales.org/Salsigne-A-Century-of-Mining-10-000-Years-of-Pollution>

¹⁷ France Libertés, « Catastrophe pétrolière au Pérou : l'entreprise PetroPerú récidive ! », 1st March 2016, <http://www.france-libertes.org/Catastrophe-petroliere-au-Perou-recidive.html>.

¹⁸ Jocelyn Timperley, « Canada : un désastre écologique met en évidence les risques du boom minier », 8 September 2014, <http://multinationales.org/Canada-un-desastre-ecologique-met>.

¹⁹ Marie-Pia Rieublanc, « Le Mexique va-t-il se vider de son eau au profit des multinationales ? », 30 October 2015, <http://multinationales.org/Le-Mexique-va-t-il-se-vider-de-son-eau-au-profit-des-multinationales>.

²⁰ Julie Turkewitz, « Colorado Spill Heightens Debate Over Future of Old Mines », New York Times, 16 August 2015, <http://www.nytimes.com/2015/08/17/us/animas-river-colorado-mine-spill-epa.html>

²¹ Raf Custers, « Rupture d'un barrage au Brésil : BHP Billiton et Vale impliqués dans un désastre environnemental historique », 24 November 2015, <http://multinationales.org/Rupture-d-un-barrage-au-Bresil-BHP-Billiton-et-Vale-impliques-dans-un-desastre>.

²² James Regan et Susan Taylor, « Brazil dam collapse reignites debate over storing mining waste », Reuters, 19 November 2015, <http://www.reuters.com/article/us-brazil-damburst-technology-idUSKCN0T909G20151120>.

region prone to earthquakes (and, increasingly, heavy rain episodes), the risks are further increased²³.

Drinking Water Systems

If mining or oil companies often enjoy priority access to large amounts of water, it is often not the same for communities around mining or drilling sites, especially if they get their water from groundwater or rivers that are polluted or drying up.

There are also risks for collective drinking water systems. This is the case in Australia, where Sydney's drinking water system is threatened both by a coal mine project and by the expansion of coal seam gas operations²⁴. Some rural Texas cities also have seen their water sources depleted by shale gas operations. The city of Barnhart, for example, was obliged, during a dry spell in 2013, to get its drinking water through tanker trucks²⁵.

In the United States, urban water systems are exposed to contamination at two levels. First, when hydraulic fracturing operations take place near water sources that communities get their drinking water from. For instance, a fracking permit has been issued along the Meander Reservoir, a huge artificial lake dug up in the 1930s which is the single source of drinking water for the city of Youngstown, Ohio. Second risk: the wastewater from fracking is discharged, untreated or insufficiently treated, into rivers which are then used as a source of drinking water²⁶.

In France itself, a fluorite mine project in Antully (Burgundy) not only is located upstream of a drinking water intake, but will also mainly use tap water for its own needs²⁷.

Other Consequences

Mining and oil and gas operations can also impact water resources in indirect ways:

- *Large scale water transfers*. Extractive industries' thirst for water can result, where local resources are insufficient or over-exploited, in the development of large-scale,

²³ Anne Le Bon, « Chili : quand l'industrie minière assoiffé les villages et pollue l'environnement », 17 November 2015, <http://multinationales.org/Chili-quand-l-industrie-mini%C3%A8re-assoiff%C3%A9-les-villages-et-pollue-l-environnement>.

²⁴ Our Land Our Water Our Future, « Protecting Sydney's Water Catchments from Coal and Gas », https://d3n8a8pro7vhm.cloudfront.net/sunriseproject/pages/174/attachments/original/1409888537/Land_Water_Future_Water_Briefing.pdf?1409888537

²⁵ Olivier Petitjean, « Comment la fracturation hydraulique pollue l'eau des villes et des campagnes américaines », 10 November 2015, <http://multinationales.org/Comment-la-fracturation-hydraulique-pollue-l-eau-des-villes-et-des-campagnes>.

²⁶ Ibidem.

²⁷ Nolwenn Weiler, « En Bourgogne, bientôt la première nouvelle mine française depuis 30 ans? », 18 May 2015, <http://multinationales.org/En-Bourgogne-bient%C3%B4t-la-premi%C3%A8re-nouvelle-mine-fran%C3%A7aise-depuis-30-ans>.

inter-basin water transfers, which can have dramatic consequences on water systems²⁸.

- *Air pollution* (eg coal dust or acid rain) impacts the quality of rainwater harvested by local communities. In Nigeria, near the drilling sites of Total, local residents complain they no longer are able to harvest and use rainwater, as they traditionally did, because of the practice of gas flaring²⁹.

- The *water-energy nexus*. Mining operations require massive amounts of electricity. This electricity is generated either by thermal power stations which have their own impacts on water resources, or by large hydroelectric dams that destroy hydrological systems and cause a host of negative social and environmental impacts.

- *Privatisation*, when companies are able to monopolize water resources even as local people don't have access to this precious resource. This is the case in Mexico, where 9 million people lack access to water while multinational beverage, mining, energy or food companies have accumulated concessions allowing them to extract millions of cubic meters of water every day³⁰. In Chile, a law passed under the military dictatorship of General Pinochet has established the private ownership of water; so that a mining company, Soquimich, was able to buy out the water rights of most residents of the village of Quillagua, which had already suffered from the dumping of toxic wastewater from mining³¹. The impacts of extractive industries may also serve the interests of private water operators in an indirect way, by forcing communities to use their services to secure their drinking water supply, as shown by the example of the city of Dimock, Pennsylvania, in the US, which contracted a private water company after its water sources were contaminated by fracking.

- The *feedback effects of climate change* (of which extractivism itself is one of the main causes) on water resources. Deforestation or open pit mining on mountaintops, as in the Conga and Pascua Lama projects, are a cause of local climate changes. "*When the mountaintop is destroyed to make way for the mine, local wind currents are altered, and rainclouds are blown further away*", explains Julia Cuadros Falla, of Peruvian organization CooperAcción³².

To conclude this section, one should note that the pursuit of extractivism in the coming years will unfortunately only lead to even more serious consequences for

²⁸ See WWF, « Water transfers between river basins », http://wwf.panda.org/about_our_earth/about_freshwater/freshwater_problems/infrastructure/water_transfers/. And, specifically about Chile : Marianela Jarroud et Orlando Milesi, « Piping the Waters of Southern Chile to the Thirsty North », 5 May 2014, <http://www.ipsnews.net/2014/05/piping-waters-southern-chile-thirsty-north/>.

²⁹ Olivier Petitjean, « Envahis par le gaz : les paysans du Nigeria face à Total », 4 November 2014, <http://multinationales.org/Envahis-par-le-gaz-les-paysans-du>.

³⁰ Marie-Pia Rieublanc, « Le Mexique va-t-il se vider de son eau au profit des multinationales ? », 30 October 2015, <http://multinationales.org/Le-Mexique-va-t-il-se-vider-de-son-eau-au-profit-des-multinationales>.

³¹ Anne Le Bon, « Chili : quand l'industrie minière assoiffe les villages et pollue l'environnement », 17 November 2015, <http://multinationales.org/Chili-quand-l-industrie-mini%C3%A8re-assoiffe-les-villages-et-pollue-l-environnement>.

³² Simon Gouin, « Conga : quand l'or du Pérou attire de nouveaux conquistadors », 9 September 2013, <http://multinationales.org/Projet-Conga-quand-l-or-du-Perou>

water resources, as companies will have to turn to mineral deposits of lower quality (thus requiring more treatment) or to riskier unconventional hydrocarbons.

The right to water, a tool for resistance and alternatives?

On 28 July 2010, the UN General Assembly adopted a resolution declaring the right to water a basic human right. To what extent can this legal concept of the “human right to water” be utilized by communities, groups and NGOs that oppose extractive projects, or try to force businesses and governments to mitigate the impacts of these projects?

A right under construction

The international recognition of the right to water is recent. While some countries explicitly mention the right to water in their constitution, very few have introduced operational legal mechanisms to enforce it.

Moreover, the public reference to the right to water seems largely confined to certain regions of the world - mainly Latin America and Europe. In the old continent, the reference to the right to water is usually associated with the resistance to water privatisation (eg the Right2Water European Citizens’ Initiative or the “Right to water” movement in Ireland). It is primarily in Latin America that the concept of the right to water is promoted in the context of resistance to extractive projects. Finally, ironically perhaps, some of those very countries that were the first to include the right to water in their constitutions – such as Mexico or Ecuador – have then adopted legislations that have been hotly contested as restricting the right to water of local communities against multinationals and encouraging new extractive developments.

The need for a broader conception of the right to water

Given the scale and variety of the impacts of mining or oil and gas operations on water resources, focussing on the sole issue of access to drinking water for direct human consumption is not sufficient. In many cases, companies responsible for mining or oil and gas operations that are extremely destructive of water resources nonetheless deliver drinking water to local communities by tanker trucks. For instance, the company in charge of the El Cerrejón coal mine in Colombia barely delivers a litre of water per day per person to neighbouring communities, and residents say the water is of very poor quality³³. This kind of delivery of drinking water is more like a gesture of charity than like the recognition of a human right, and does not constitute a response to the hardships endured by communities in terms of access to drinking water, livelihoods (agriculture, fisheries) and living in a healthy environment.

³³ Nolwenn Weiler, « Colombie : la plus grande mine de charbon à ciel ouvert du monde maltraite les communautés et l’environnement », 12 November 2015, <http://multinationales.org/Colombie-la-plus-grande-mine-de-charbon-a-ciel-ouvert-du-monde-maltraite-les>.

In other words, the right to water must include the right to a degree of autonomy or “sovereignty” over water – much in the same way that peasant movements such as La Via Campesina speak of food sovereignty rather than just food security. In the Andean countries, local communities should not only access drinking water, but also be able to continue fishing or to practice traditional forms of agriculture. Similarly, is the “right to water” of the inhabitants of Salsigne, in France, truly effective if they have access to drinking water but can neither eat the vegetables they grow or swim in local rivers³⁴?

Legal battles

Even in the absence of specific legal mechanisms to implement the right to water, there are several examples of national or international judicial procedures that suggest it is possible to achieve a form of legal recognition of the right to water as a means to prevent a new mining or oil project, or to force companies to repair the damage they have done.

To give just one example, the Colombian Constitutional Court recently issued a landmark judgment annulling a set of mining and oil concessions in the country’s *páramos* (high-altitude wetlands). The Court said in its statement that the law providing for these concessions “*ignored the constitutional duty to protect areas of special ecological importance [and] put at risk the fundamental rights of the entire population to access good quality water*” and was therefore unconstitutional. The *páramos* are the source of 70% of Colombia’s water³⁵.

The issue of the right to water is also central to judicial proceedings brought by communities against multinational oil companies. This is the case of the highly publicized legal battle between Chevron and its Ecuadorian victims, which will be discussed below. This is also the case of proceedings brought by the Achuar community of Peru in the United States against Occidental Petroleum (Oxy), which resulted in a legal settlement in 2015³⁶.

³⁴ Simon Gouin, « Salsigne : A Century of Mining, 10,000 Years of Pollution? », 26 January 2015, <http://multinationales.org/Salsigne-A-Century-of-Mining-10-000-Years-of-Pollution>

³⁵ David Hill, « Colombian court bans oil, gas and mining operations in páramos », *The Guardian*, 21 February 2016. <http://www.theguardian.com/environment/andes-to-the-amazon/2016/feb/21/colombia-bans-oil-gas-mining-paramos>.

³⁶ « Des indigènes péruviens gagnent une bataille juridique contre une multinationale pétrolière », 12 March 2015, <http://multinationales.org/Des-indigenes-peruviens-gagnent-une-bataille-juridique-contre-une>.

Inadequate responses

Faced with criticism about their negative impacts on water resources, companies and governments have developed a range of responses to mitigate these impacts and prevent conflicts with local communities. Can these responses be sufficient?

Is “clean” mining actually possible?

The first type of response developed by mining, oil and gas companies belongs to the tradition of “corporate social responsibility” (CSR). It is subject to the same kind of criticism as all CSR-type approaches, particularly the disconnection between commitments and procedures at the level of the parent company and the reality of operational decisions and practices. To take just one example, the owners of the El Cerrejón coal mine have touted their “social responsibility” among investors and public authorities, and even received a UN award, in total contradiction with the testimony of local residents and NGOs³⁷.

Moreover, it would be an illusion to think that a mine or an oil drilling site does not involve have negative consequences for the environment and local communities. “Clean mining” or “clean oil” do not and cannot exist, in spite of the claims of the companies seeking to open new mines in France at the moment. Even under optimal conditions, a mining site generates residues without economic utility, waste rock, which needs dealing with, as no solution is optimal or 100% secure. Moreover, any industrial project carries inherent risks of accidents, leaks, etc. Under these conditions, the only answer truly available to mining and oil companies is compensation (usually financial) for the damage they have created. But “compensation” of any kind will always be insufficient in relation to phenomena such as the drying up of rivers or groundwater pollution. How can it be possible to calculate an “adequate” financial compensation when the only option for local residents is to move to the city, where that money is sure to evaporate rapidly? Eventually, “compensation” can be a way for multinationals not to change anything to their practices while buying themselves a good conscience and social peace.

The challenge of the long-term

The responses developed by companies have another fundamental flaw: they say nothing about what will happen when the mines cease their operations, or when they are acquired by another company. In Salsigne, the successive changes in the

³⁷ Nolwenn Weiler, « Colombie : la plus grande mine de charbon à ciel ouvert du monde maltraite les communautés et l’environnement », 12 November 2015, <http://multinationales.org/Colombie-la-plus-grande-mine-de-charbon-a-ciel-ouvert-du-monde-maltraite-les>.

ownership of the mine have left the French state having to bear the costs of environmental remediation³⁸.

The problem is exactly the same with the measures implemented by the mining and oil companies to ensure access to drinking water for communities adjacent to their mining or drilling sites: what happens when these firms leave, and the ecosystems have suffered irreversible damage? In the Cajamarca region of Peru, a mine that has been in operation for twenty years has totally destroyed the natural system of water supply. Thousands of cubic meters of water used by the mine are processed through a treatment plant before being sent to the town of Cajamarca for drinking water. “*After the mine closes, who will be taking care of this artificial system?*”, asks a local political leader. Only genuine environmental restoration - expensive and not always possible - is a sustainable solution.

Technological Solutions

To address the impacts of their activities on water resources, mining and oil multinationals are increasingly turning to technological solutions, whether to secure their supply of water (eg through desalination technologies) or to decontaminate their wastewater.

In Texas, some shale gas companies increasingly use treated municipal wastewater for their own needs³⁹. It remains to be seen, however, whether this solution can be viable at a larger scale, since it still creates competition between water users (as a portion of this wastewater was previously reused for irrigation) and there are still long-term sustainability issues (since the water sold to oil companies is not returned to the environment).

In Chile, faced both with environmental conflicts and climate change, mining companies are increasingly turning to desalination: “*South of Antofagasta, BHP Billiton is building the largest seawater desalination plant on the continent – with a processing capacity of 2500 litres of water per second - to supply one of its copper mines. According to estimates from the Chilean Committee on Copper (Cochilco), desalination will stabilize the mining industry’s freshwater demand at around 550 million annual cubic meters.*” Desalination, however, is not without its own environmental issues - including high energy needs and the pollution caused by the extremely saline waste separated from the water.

The market for the treatment of the wastewater generated by extractive industries is now a priority target for private water companies. In Canada, Veolia has been contracted by Shell to build the Carmon Creek tar sands production plant, promising a “near-zero” impact on water resources. According to experts, the lack of detailed information on the technology raises questions about the reality of those promises,

³⁸ Simon Gouin, « Salsigne : A Century of Mining, 10,000 Years of Pollution? », 26 January 2015, <http://multinationales.org/Salsigne-A-Century-of-Mining-10-000-Years-of-Pollution>

³⁹ Anna Driver, « In downturn, frackers turn to toilet water in drought-prone Texas », *Reuters*, 21 August 2015, <http://www.reuters.com/article/us-pioneer-natl-rsc-fracking-water-idUSKCN0QQ0CA20150821>.

beyond the media hype⁴⁰: *“Shell’s water conservation strategy at Carmon Creek looks very good on paper. (...) But Shell and Veolia aren’t the only companies making environmentally friendly claims such as this. According to the Canadian Association Petroleum Producers, a lobby group that promotes the interests of the energy industry in Canada, oil sands operations already recycle 80 to 95 per cent of the water they use. Canadian scientist Karlis Muelenbachs, a geochemist and a leading authority on identifying the unique carbon fingerprint or isotopes of shale and conventional gases, suggests that the public should be very careful in interpreting what this really means.”*

In water stressed areas, technological solutions are promoted by companies in order to secure their “social license to operate”, suggesting that it would at least be possible for them to minimize their impacts on water resources. Oil companies such as Shell or Total have dodged the questions raised by communities and NGOs about the water necessary to frack for shale gas in South Africa or Patagonia by referring to technologies such as desalination. In addition to the doubts about their effectiveness, all these technologies involve significant additional costs. Therefore, apart from specific contexts such as that of Chile, where desalination seems economically viable, actual achievements are very few. With the fall in oil prices, Shell and Veolia have had to abandon their Carmon Creek project in the fall of 2015.

⁴⁰ Edward Struzik, « Cleaner Oil Sands? Shell and Veolia's Carmon Creek Project », 23 June 2015, <http://multinationales.org/Cleaner-Oil-Sands-Shell-and-Veolia-s-Carmon-Creek-Project>.

Questions and challenges

Science

A general difficulty encountered by communities or citizens' organizations confronted with extractive projects is the lack of adequate knowledge and information about the state of water resources and the impacts of extractive operations.

Sometimes this knowledge is simply not available. Thus, for Julia Ko, an oil sands specialist, “*there is limited understanding of the detailed hydrology and geology in the oil sands region, impacts of regional development on groundwater, or how much groundwater can be withdrawn without causing harm*⁴¹.”

In other cases, the information available is extremely partial, for example when no initial baseline studies have been undertaken before the implementation of a project, or when only a small number of potential water contaminants are tested, as is the case in the United States, even though fracking operations use thousands of different chemicals.

Sometimes, finally, the scientific information exists, but it is not made available to the public or even to regulators. In many cases, companies themselves are in charge of the environmental monitoring of their own operations, or pay the laboratories responsible for this monitoring. They are thus able to conceal information if they wish so, especially if the dissemination of this information can have significant legal and financial consequences.

Fortunately, struggles against extractive projects are often associated with the emergence of a “citizen science”. Committed citizens become experts in the highly technical issues and become able to challenge the arguments of extractive companies. They are able to monitor water quality and the ecological integrity of ecosystems. In some cases, this “citizen science” can count on the support of professional scientists, whether they work for public research institutions or independent laboratories such as Criirad in France. But scientists are often discouraged to study the negative impacts of extractive industries by public authorities, or to collaborate with public interest groups or local communities.

What good are regulations if they are not enforced?

Another widespread problem is the actual enforcement of existing regulations supposed to protect water sources. This touches on the fundamental issue of the relationship (and the balance of power) between multinational corporations and public authorities. How can the latter effectively control the activities of mining and oil companies, and do they even want to? The failure to effectively enforce regulations can have different causes: it can be an issue of collusion between the private sector,

⁴¹ Edward Struzik, « Cleaner Oil Sands? Shell and Veolia's Carmon Creek Project », 23 June 2015, <http://multinationales.org/Cleaner-Oil-Sands-Shell-and-Veolia-s-Carmon-Creek-Project>.

politicians and civil servants; it can be an issue of lack of capacity within public administrations; there can be an issue with the way the regulations and standards are designed. There's no point in adopting ambitious standards and objectives if there are no adequate control and enforcement mechanisms, as evidenced by the successive regulations introduced in Alberta: *“New rules put in place in May 2015 limit the amount of tailings that can be accumulated and they compel companies to invest in technology to reduce the amount of wastewater that goes into tailings ponds. They establish thresholds to identify when companies must act to prevent harm to the environment. And they require companies to post financial security to deal with potential remediation issues. Oil sands critics are skeptical. When similar rules were put in place in 2009, the companies were unable or unwilling to comply. The new rules also rely on technological solutions that don't exist⁴².”*

There is a wealth of evidence that mining and oil firms routinely circumvent existing regulations. Total and Shell in Argentina are a good example: *“All this might have gone unnoticed if a local landowner had not sued Total. The oil company had set up on her land, without consulting her, a reservoir collecting wastewater from hydraulic fracturing. Judicial proceedings revealed many blatant violations of environmental regulations by Total and provincial authorities, but it does not seem to have changed anything in practice: the oil company continues its drilling without meeting the conditions imposed by judges⁴³.”* *“Shell's and Total's environmental impact studies [in Patagonia] deliberately fail to indicate - as is theoretically required - the source of their water and how they will treat it. In that way, they are exonerated, thanks to this casual 'omission', to implement the seemingly strict regulations put in place by the province of Neuquén, which prohibit the use of drinking water sources for fracking⁴⁴.”*

In Colombia, local communities and social organisations complain of the collusion between the oil industry and regulators: *“Companies are granted environmental licenses fairly quickly compared to farmers who have to wait several months to get authorisation to cut down a tree on their land. Ulvio Martín Ayala, Chair of the Cospacc executive board, is frustrated at the role of monitoring bodies. ‘They hand out environmental licenses as fast as they can. It's thanks to them that we're being stripped of all our natural resources so quickly. [...] Most environmental studies are done from the office. They don't actually visit the sites. Nor do they analyse the environmental impact studies.’ Basically, the monitoring bodies work from the offices in Bogotá, slapping an ‘ecologically approved’ stamp on companies whose actual onsite operations and repercussions have barely been investigated. ‘We received more than 500 complaints in 2014, concerning various wells in the Casanare. Corporinoquia has not made any investigation into who is accountable’⁴⁵.”*

⁴² Edward Struzik, « In Alberta and Downstream, the Heavy Toll of the Oil Sands Industry on Water and the Environment », 18 June 2015, <http://multinationales.org/De-l-Alberta-a-l-Arctique-le-lourd-tribut-environnemental-des-sables-bitumineux>

⁴³ Olivier Petitjean, « Ruée sur le gaz de schiste argentin : Total veut imposer sa loi », 16 May 2014, <http://multinationales.org/Ruee-sur-le-gaz-de-schiste>

⁴⁴ Olivier Petitjean, « Gaz de schiste : Shell veut fracturer la planète », 14 October 2014, <http://multinationales.org/Gaz-de-schiste-Shell-veut>

⁴⁵ Nadège Mazars, « Pollution, Drought and Threats: the Disturbing Cocktail of Colombia's Oil Industry », 21 December 2015, <http://multinationales.org/Pollution-Drought-and-Threats-the-Disturbing-Cocktail-of-Colombia-s-Oil>.

Similar problems can be encountered even in industrialised countries like Denmark or Australia, with seemingly stronger and competent environmental administrations, as evidenced by the saga of Total's shale gas operations in Denmark⁴⁶.

Trade agreements and arbitration

Trade and investment treaties with investor-state disputes settlement (ISDS) mechanisms are a growing issue. ISDS is contested by civil society organisations because it enables multinational corporations to sue governments that would introduce new environmental or social regulations, if these regulations have an impact on their profits. Several emblematic cases suggest that water protection regulations are among the main targets of ISDS procedures initiated by multinationals. The most infamous example is the ISDS procedure initiated by Pacific Rim against the government of El Salvador, after it put out a moratorium on new mining licenses in 2008 to protect the country's water sources⁴⁷. Another example is the Canadian firm Lone Pine Resources, which sued the province of Quebec under NAFTA (North American Free Trade Agreement) for its de facto moratorium on shale gas exploration⁴⁸.

⁴⁶ Anders Vang Nielsen, « Fracturer chez les gens heureux : Total, le gaz de schiste et la 'démocratie modèle' du Danemark », 7 September 2015, <http://multinationales.org/Fracturer-chez-les-gens-heureux-Total-le-gaz-de-schiste-et-la-democratie-modele>.

⁴⁷ Gabriel Labrador, « Le Salvador devra-t-il verser 301 millions de dollars pour avoir préféré une eau propre à l'or ? », 20 April 2015, <http://multinationales.org/Le-Salvador-devra-t-il-verser-301-millions-de-dollars-pour-avoir-prefere-une>.

⁴⁸ Olivier Petitjean, « Québec : un petit village attaqué par l'industrie pétrolière pour avoir voulu protéger son eau », 10 September 2014, <http://multinationales.org/Quebec-un-petit-village-attaque>.

Conclusion: The right to water, a political right

The right to water - especially in the context of mining and oil and gas projects and the conflicts they trigger - is fundamentally political in nature, for a number of reasons.

First, the right to water can not be reduced to charity; it is not simply because a company delivers drinking water to local communities to offset its pollution that their 'right to water' is actually respected.

Second, water cannot be separated from all the other social and environmental dimensions of a community's traditional land and livelihood that get impacted by extractive operations. The struggle of the Ecuadorian victims of Chevron-Texaco is exemplary in the way they chose to focus on collective claims and on environmental restoration, rather than on individual compensation, in order to remain on their land rather than moving to the city. *"We are not fighting for money, but for environmental remediation. We thought: what good is money if our water and land are contaminated?"*, says Pablo Fajardo, lead attorney for the victims⁴⁹.

Third, in the context of struggles against extractive projects, it seems evident that claiming the right to water is primarily about claiming a "right to land" – a right to stay in one's own land, and not have it destroyed by corporations. This is obviously the case for indigenous communities, but the same could be said of the action of local groups in industrialised countries. In the US, for example, local anti-fracking groups similarly seek to have local authorities pass "community bills of rights" asserting community rights against oil companies⁵⁰.

Finally, the effective defence of the right to water ultimately requires political rights. For indigenous or traditional communities, it relies on the right to some form of sovereignty. For communities across the world, it requires the right to information, to political participation, and access to justice. Only these political rights can establish a fair relationship and balance of power between multinationals on the one hand and communities on the other, and allow the latter to decide whether an extractive project should, or not, be implemented at all and, if so, under what conditions.

⁴⁹ Olivier Petitjean, « Injustice sans frontières ? Chevron contre l'Équateur », 21 May 2015, <http://multinationales.org/Injustice-sans-frontieres-Chevron-contre-l-Equateur>.

⁵⁰ Olivier Petitjean, « Emplois contre pollution ? Le dilemme de Youngstown face au gaz de schiste », 13 November 2015, <http://multinationales.org/Emplois-contre-pollution-Le-dilemme-de-Youngstown-face-a-l-industrie-petroliere>.

Appendix:
**A Selection of Articles on Water
and Extractive Industries**

Salsigne: A Century of Mining, 10,000 Years of Pollution?

25 January 2015, by Simon Gouin

The French town of Salsigne, in the Aude department, was home to France's main goldmine and the largest arsenic mine in the world. A century of intensive mining has radically altered the landscape and affected the health of workers and locals. Despite environmental remediation carried out by the State, pollution is still widespread today, and will remain so for several thousand years. And it's not over: a new wave of industrialists are being drawn to what wealth remains underground.

A few kilometres north of Carcassonne, in the Aude, lies an almost idyllic landscape: plunging hills, Cathar castles, woods, vineyards and a river that flows through the valley. At first glance, one doesn't notice the old headframe once used to transport miners into the galleries. And one is even less aware that the immense surrounding hills are actually artificial. Nor do we imagine that hidden beneath the shrubs that cover them are thousands of tons of mine tailings containing arsenic particles and other chemicals.

Salsigne's past is lurking beneath the ground, under its hills, along the winding river valley. The region has, for a long time, been a gigantic playground for mining companies, which extracted gold, arsenic and lead. It was the first goldmine in Western Europe and the last surviving goldmine in France. It was another world. All that remains of the mine, which closed in 2004, is one or two chimneys, gaping holes, a collective memory . . . and a cemetery of harmful waste.

Gold and . . . arsenic

A century of mining doesn't just end with a click of one's fingers. The pollution is everywhere: in the earth, in the air and in the water, and is due to chemicals used to process the ore and arsenic, present in the form of very fine dust found in the earth. This dust is swept up by streams that flow into the Orbiel, a tributary of the Aude River, which in turn flows into the Mediterranean.

Where does arsenic come from? It is naturally present in the region along with other minerals including gold. But due to the extraction and crushing of thousands of tons of the mountain's rocks, arsenic has spread throughout the valley. This is called the "coffee effect". *"In its natural form, arsenic is confined within large blocks of stone, so its impact on the environment is low,"* explains François Espuche, Chairman of the environmental protection organization Gratte-Papiers. *"But by crushing it into a fine dust, the amount that comes into contact with water is multiplied."* Through streams and rivers, arsenic is flowing throughout the valley, reaching potentially dangerous levels. The danger is not always visible, but sometimes the pollution is obvious, as when the stream water turns a strange color, as it did in January 2013. *"For 300-500 meters, the water was orange,"* recalls François Espuche.

Upstream is the Montredon storage site where 600,000 tons of waste, including 90,000 of arsenic, are stored. Local groups called in the media and contacted the police, who then called Onema, the French Agency for Water and Aquatic Environments. Samples were taken. The Prefect of Aude, Eric Freysselinard, former chief of staff to Interior Minister Nicolas Sarkozy, was quick to allay concerns to the local media: *"This is a natural oxidation process which has nothing to do with Salsigne."* The results of tests carried out by BRGM (Bureau de Recherches Géologiques et Minières), the public geological survey agency entrusted by the French State to "restore" the mine, indicated there was 30-45 micrograms of arsenic per liter of water. Although this was above the 10 microgram standard for drinking water, there was apparently no need to panic. However, over the following weeks, the results of two other tests are published – one in the newspaper *Le Midi Libre*, which talked of 1526 micrograms of arsenic per liter of water. And the other was a further embarrassment for Onema, with a result of 4469 micrograms, i.e., 450 times more than the WHO drinking water standard! *"We are*

dealing with very toxic levels,” said toxicologist André Picot in the newspaper *Le Canard Enchaîné*. Eric Freysselinard has been transferred to Strasbourg, where he is managing internships at the ENA (École Nationale d’Administration).

A marked increase in cancer rates

Why did Freysselinard attempt to keep such obvious pollution under wraps? To protect the government, responsible for cleaning up the site? To avoid paying hundreds of thousands of euros to mitigate the pollution? *“The government has made no attempt to address the issue,”* says Guy Augé, Chairman of the Salsigne Residents’ Association. *“People are left to their own devices: they’re the ones that have to come up with the answers.”*

Yet Salsigne’s pollution problem is nothing new. Every year, since 1997, the Prefect of Aude has issued the same decree, citing unsafe concentrations of lead, arsenic, cadmium and mercury. The decree cites that is unsafe to consume vegetables (root vegetables and leaf vegetables including cabbage, spinach, lettuce, lamb’s lettuce, chard and celery), to use rainwater or river water to water one’s garden, to swim in the river, and care should be taken with dust, especially around children. These are the recommendations with which the locals are faced. *“People know what needs to be done,”* says Guy Augé. The tap water, however, is clean: it comes from high up in the Black Mountains, 7km from Salsigne, in an area unaffected by the pollution. A network built in 1930 made Salsigne the first town in the region to be equipped with running water.

Despite the measures in place, the locals are the first victims of this polluted environment. In January 2006, *La Dépêche*, one of the three local newspapers exposed what has for years been kept quiet: *“More people die of cancer in Salsigne than elsewhere.”*

The figures speak for themselves: more than 11% of cancer-related deaths, irrespective of the cancer type. And for certain cancers, such as those of the lungs or the stomach, this figure is doubled or even tripled. Arsenic, cadmium, chrome and nickel are the culprits. A total of 10,000 individuals are affected, primarily former miners and their families.

Arsenic and poison gas

120 years of surface and subsurface mining. Thousands of tons of rocks that have been dislodged, crushed and treated with chemicals in order to extract valuable minerals. The main French goldmine was also the world’s leading producer of arsenic, used both for manufacturing glass and for poison gas, used on the world’s various battlefields.

“I wish I’d said no to that money,” says Robert Montané today, a former miner and union representative. *“When I was hired in 1975, there was much that was attractive about the job,”* he adds. *“The work was varied and there was a spirit of solidarity amongst the miners, especially in regards to the risks of the job.”*

This atmosphere of solidarity is evident in the testimonies gathered by Claude Gironis, a former police officer. His father was a miner, his mother a company secretary. He compiled the stories and photos of the residents of La Combe du Saut into a book. 150 people lived here, next to the factory where the minerals were processed. In these photos we witness the life of a place that is now deserted: fairs, festivals, carnivals. A sense of diversity with immigrant populations from North Africa, Spain, Italy and Poland. The smiles of women. And miners proudly posing for the camera. *“This little community was happy, despite how tough the conditions were,”* says Claude Gironis.

The locals had work and were well paid. Before, they used to cultivate the land. With the mining industry, their purchasing power increased. In La Combe du Saut, they had toilets and electricity. It was almost enough to block out the smoke from the two huge chimneys, the smell, and the fine white dust that regularly settled on their houses. The workers inhaled chemicals from the mine and the factory everyday. The women, responsible for washing the miners’ clothes, were also on the frontline. The children would play in mountains of arsenic as if it were sand. The risks were known very early on, and the first to know were the authorities. As early as 1932, the Prefecture of Aude and the Minister

of Commerce and Industry wrote: *“Salsigne represents 800 workers, i.e.; 3000 individuals. If the factory is causing damage, this is not without affecting the prosperity of the region for the benefit of local trade.”*

Work or life?

In Salsigne, employment and economic prosperity were put before the environment and the health of the local people throughout the 20th century. In the late seventies, at the instigation of the toxicologist Henri Pézerat (who would go on to play a leading role in the asbestos scandal), occupational diseases affecting the region’s miners were recognized, mainly “primary bronchial cancers”. But while miners were dying, no one breathed a word, neither employees, nor unions, nor companies. Employment had to be maintained, whatever the cost.

One worker dared go against the grain and broke the law of silence. This was in 1995, when the reserves were dwindling and the unions were fighting to keep jobs at all costs. The business had just been split into several smaller companies (one of which was a subsidiary of an Australian mining group), which, through new processes, were attempting to extract several kilos worth of gold and minerals out of the mining waste. *“We tried to get the 20 million francs that we had been promised for Salsigne’s remediation,”* recalls Max Brail, in an office of the Lastours town council, a village of 165 people where he has been the mayor for more than twenty years.

In order to revive business, it was not enough for the company SEPS, where Max Brail was employed, to treat waste from the mine. It also incinerated Canal+ set-top boxes and lithium batteries from the army, sent all the way to Salsigne. The incinerator for which Max Brail and his colleagues were responsible was not suitable for such waste. *“The smoke was sickening and the system for extracting arsenic didn’t work,”* he remarks. *“I myself was intoxicated and ended up in hospital. Our own lives were in danger as was the environment in which we lived.”* In an interview with the local press on the 30th of May 1995, Max Brail spoke out against the polluted environment and the risks for the workers. Upon his arrival at the factory the next day, he was dismissed for serious misconduct.

“I was both an employee at the factory and the Mayor of Lastours. Was I, as an employee, supposed to keep quiet in order to keep food on the table? What was my responsibility as a mayor if I didn’t speak out? I knew I was potentially putting my workmates’ jobs on the line, but it’s not always easy to foresee what will come next [...] I had two options: either to go through with what I believed in, prepare myself psychologically for the onslaught, and find myself on the dock . . . but time would tell. Or put a bullet in my head. At the time it was very difficult to speak out against working conditions, because employment was presented as a guarantee for the future, but the only future I saw was that our jobs were killing us.”

Max Brail lost his job, some of his friends and his reputation. Three CGT trade unionists accused him of burying waste from the mine without consent. He was eventually proven innocent. *“Now people say to me: ‘you saved our lives’ ”*, he says. *“It was a very difficult time but I feel no remorse.”* Some of his co-workers died. *“We don’t even know some of the stuff we inhaled.”* Max Brail has a perforated nasal wall due to inhaling sulphide and arsenic dust, as do many of his former co-workers. *“I loved my job: it was man against matter. There was a feeling of great pride in operating the incinerator around the clock.”*

The French State comes to the rescue of private companies

The mine slowed down its activity. SEPS organized its own bankruptcy following the revelation of the pollution generated by the mine. The Australian mining group that owned the company Mines d’or de Salsigne (“Salsigne Goldmines” – MOS) left in 2004. The mining adventure may have come to an end, but the waste remains: nearly ten million tons of rock polluted with arsenic, lead or sulphur are stored in various places. They are covered with stones and earth before being revegetated. Sometimes geomembranes are installed underneath in order to prevent groundwater pollution.

For over a century, private companies have lined up to get their hands on Salsigne’s hidden riches. Yet it is the French State that oversees and finances the site’s safety infrastructure, first through ADEME

(French environment and energy management Agency) and then through BRGM, whose subsidiary Coframines was the mine's largest shareholder in 1980. The initial total cost for the mine's remediation was estimated at 125 million euros. However, the private companies that mined the site made no contribution. *"The main concern of officials at DRIRE (Regional Directorate for Industry, Research and Environment, whose duties were taken over in 2010 by the DREAL and DIRECCTE) has been to protect industrialists,"* says Guy Augé, of the Salsigne Residents' Association.

From a "strictly confidential" agreement signed in 2001 by the Prefect of Aude and the company MOS, we learn that the French State agreed to take on the responsibility of the remediation of the site exploited by the Australian company, despite the fact that the company was supposed to assume remediation costs. In addition, the French government also made financial contributions to the pension funds of the company's employees.

Why did the French State show such partiality to the Australian company mining in Salsigne? In 2001, the Australian industrialist threatened to close shop. *"The State's primary concern was to maintain employment for as long as possible,"* declared mine inspector general François Barthélémy to the TV magazine *Envoyé spécial* in 2013, when he was in charge of the case. Nothing has changed in a hundred years: as in 1932, employment is deemed more important than the environment and the health of locals.

"They made a start, but everything has been left to fall apart."

After a century of upheaval, nature is now slowly reclaiming Salsigne. It is hard to tell whether the surrounding hills are natural or artificial. Everything has become green again. Yet just a few meters underground, the chemicals have not disappeared. The signs that indicate that the site is dangerous and/or private are very discreet. Water flows into ditches, which are supposed to be inspected by BRGM. But the shed that was used for this purpose has been pillaged. The electronic system used for measuring the level of toxic chemicals in the water no longer works. *"They made a start, but everything has been left to fall apart,"* says an observer of Salsigne's history.

Faced with a limited budget, the French government has to make some choices: should it continue to spend astronomical amounts on cleaning up Salsigne? Or should this money be invested elsewhere? The BRGM, in charge of rehabilitating the site, did not wish to answer our questions or allow us to visit the waste treatment plant in La Combe du Saut. Are the measures undertaken by the French government enough to ensure the safety of the area's residents? Will the artificial land set-up be able to withstand the heavy rainfall that the South-East of France is now regularly subjected to? In 2009 heavy rainfall caused the collapse of a dam enclosing a tailings pond full of end waste. One thing is certain: the pollution is far from going away. *"Every year, seven tons of arsenic are released into the Orbiel, a tributary of the Aude, which then flows into the Mediterranean,"* alerts François Espuche. The BRGM and academics estimate that, after a century of intense mining, the region will remain polluted for at least 10,000 years!

Another challenge in terms of safety is how much of the region's history will be remembered. *"In a hundred years there will be people that will come and do motocross or quad biking in the hills. They won't know that they are stirring up toxic dust,"* warns former miner Robert Montané. Tourists walking in the area are often unaware that the path leads them to a former site where toxic waste is stored. And there are few signs that warn of the dangers they are exposed to.

Will the mine be reopened?

The curse that plagues the region of Salsigne is far from being over. *"I'm sick of carrying the flag,"* stated former miner Robert Montané, in 2013, at a conference held around the mine. *"He carries the flag at the funerals of his former colleagues affected by cancer,"* explained one of the participants. As cancer can appear many years after being exposed to chemicals, there may be many more of these victims. Yet mining in the region could resume. A short drive from Salsigne, the Linnon dam traps water that flows down from the mountain. Officially, this reservoir is used to fight forest fires. Unofficially it keeps pollution out. Sometimes people come to fish here. *"New trout are introduced on Fridays. The following Wednesday, those that have not been caught are dead, floating on their backs,"*

says a local. At the end of October, when the reservoir is at its lowest, the walls are covered in a thick white layer of arsenic. Several meters above, one can make out the former mine of Loubatière between the trees.

This is the site that two entrepreneurs have set their sights on: Olivier Bernard and Sébastien d'Arrigo, partners in the company Or&Vintage, specializing in precious metal trading. It would seem that approximately 30 tons of gold and rare earth elements are still buried there. The estimated mine life is thirty years. With a selling price of around 30,000 euros per kilo of gold, the industrialists are hoping to convince many investors to join them in their venture, in particular from the City of London. But this time of course everything will be environmentally responsible. Chlorination will replace "cyanidation". There's even talk of using a derivative of corn starch, which works in the same way as cyanide but without its drawbacks. *"Today industrial activity doesn't have to impact negatively on ecology, nor do we have to forgo our citizen obligations,"* stated the two associates to the newspaper *La Dépêche* last April.

In these times of persistent unemployment, the job argument will certainly be put forward in the economically devastated region. The enormous global demand for minerals and the unconcealed desire of French authorities, particularly the former Minister of Industrial Recovery, Arnaud Montebourg, to redevelop the mining sector in France, could reignite gold fever in the underbelly of the Black Mountains. It's as if history were eternally repeating itself, mocking the lessons of the past.

Simon Gouin

Shale gas: how Algerians rallied against the Regime and Foreign Oil Companies

10 March 2015, by Olivier Petitjean, Sophie Chapelle

Protests erupted last year in Algeria against government-approved shale gas exploration. The drilling sites are particularly contentious as they are located near Saharan towns and oases, and threaten already scarce water resources. Fifty years after the former colonial power conducted nuclear tests in the Algerian Sahara, the French State, Total and other multinational companies were accused of interference. *Basta!* and the Multinationals Observatory explored the issues around this environmental justice movement and the role of the French oil giant.

In Algeria, unprecedented demonstrations calling for democracy and environmental justice have been targeting the Algerian government, the French giant Total, and several other multinational oil companies. A citizen movement against shale gas exploration has been rattling the country since December 31st 2014. The movement, which began near the drilling sites in Ain Salah, a town of 50,000 inhabitants deep in the Sahara, accuses the French oil multinational of hydraulic fracturing – or fracking – in their territory, even though it has been banned in France since 2011. It has spoken out against the irresponsibility of the public company Sonatrach and the Algerian government, which is burdening the region with serious pollution risks. Despite government attempts to quell the movement, it has continued to gather momentum. In March 2015, *Basta!* and the Multinationals Observatory published a report on Total and Algerian shale gas, which investigates the role of Total, as well as that of both Algeria and France, and highlights the issues at hand.

It all starts with the Algerian Ministers of Energy and the Environment and their visit on 27 December 2014, to the Ahnet basin, 1200 km south of Algiers, deep in southern Algeria. They had come to meet an audience of journalists and celebrate the "success" of the first pilot shale gas project conducted by the Algerian company Sonatrach. A new hydrocarbons law enacted in 2013 now makes it legal to exploit shale gas in the country. The people of Ain Salah soon discovered the "first" drilling site, and learned about the project through the press. The next thing they knew, social networks cited that foreign companies including Halliburton, Schlumberger and Total were drilling at the site.

Duplicity and lack of transparency

Total indeed won a tender on the 22 December 2009 to acquire a 49% interest (the greater part going to the Algerian company Sonatrach) in the "Ahnet exploration and exploitation license". Total hoped to begin drilling in 2015 and estimated the license would deliver the equivalent of 700 million barrels of oil. Negotiations with the Algerian government commenced in 2011. But just as alter-globalization organizations and ecologists in France were about to embark on a campaign demanding that Total withdraw from the concession and cease fracking, they found a surprise waiting for them. In late January 2015, as the Ain Salah protests spread to Algiers, Total suddenly announced that it would be no longer be partaking in the Ahnet concession. Why the sudden turn-around?

Total says that it was unable to reach an agreement on tax and trade conditions for the exploitation of the gas well. Yet "*the dates don't add up,*" an Algerian observer notes. A license was granted in late 2009 for a five-year period. It was not due to expire until late 2014, not in June, as stated by the multinational. Total was unwilling to clarify its statement when contacted by *Basta!* and the Multinationals Observatory.

Keeping fracking under wraps

In late February, as attempts to clamp down on the citizen movement intensified in Ain Salah, the Green MEP José Bové published an article that questioned the French giant's claims. "*Just the fact that Total is considering drilling for shale gas in the desert illustrates once again that this company is reprehensible.*" On the 2nd of March, Total denied its involvement on Twitter: "*Total is neither producing nor drilling, and has not requested a license.*"

The oil company maintains that it is no longer involved in exploring “shale gas” options in Algeria. But it says nothing about “tight gas”, another unconventional gas trapped in very compact rocks, the access to which also requires fracking. It is tight gas that is hidden in the Ahnet concession. If Total had got to the point of negotiating the commercial operating conditions with Algeria, exploratory drilling would have taken place. How else could have they estimated “probable” gas reserves under dunes to the west of Ain Salah? And even if it pulls out of Ahnet, the company is still the signatory of another tight gas concession agreement in Timimoun, in Western Algeria, (participating interest of 37.5% for Total, 51% for Sonatrach and 11.25% for Cepsa, a Spanish company) with plans to start production in 2017. Although the Total subsidiary in Algeria acknowledges its involvement, it is quick to evade the issue as soon as the question of the use of fracking comes up.

“Total is trying to gain time by playing with words,” says Hacina Zegzeg, involved in the movement in Ain Salah. *“We are demanding a cessation of fracking.”* Algerian activists see the government’s decision to open access to shale gas as a symbol of the influence of oil multinationals. The main objective of Sonatrach’s pilot drilling project seems to be proving that shale gas reserves exist in order to lure in foreign companies. This represents a way to ensure the exploration is invested in (and financed) by others – which is also a way to cover part of the costs ... and the associated risks.

Water “more sacred than oil”

The issue at hand is that fracking makes severe demands on Sahara’s scarce water resources. Dangers include intensive water use and pollution of groundwater and surface water – issues that are fuelling the citizen movement in Ain Salah. In this dry region, water pollution is *“a question of life or death,”* says Hocine Malti, a former Sonatrach executive. The population’s main source of income is derived from agriculture, which, without irrigation of palm groves, would suffer intensely.

The official request for a moratorium on shale gas, co-signed by Algerian experts and sent to President Abdelaziz Bouteflika on 21 February, highlights the environmental risks – water pollution, air pollution, earthquakes – as well as health risks. *“The primary demand is that investments do not have any ramifications on water,”* says Ghazi Hidouci, Algeria’s former minister of Economy and Finance (1989-1991). *“The locals know that water is more sacred than oil.”*

Lethal chemicals

Sonatrach pledges that it has mastered the fracking method. The company has been drilling for oil in Hassi Messaoud (North-East of Ain Salah) since 1956. Between 2006 and 2010, it allegedly drilled approximately 50 wells per year using fracking methods in this area. *“Like other wells, these drilling sites have reached the water table without resulting in any negative impacts on the environment,”* argues Said Sahnoun, Acting CEO of Sonatrach. The company also claims that it does not skimp on environmental protection measures. However, experience shows that there is still a significant proportion of defective wells, even in the U.S. Unconvinced by the Algerian authorities’ statements, the people of Ain Salah decided to visit the drilling site on February 3rd, 2015. Photos and videos posted on social network sites reveal the absence of facilities to treat water and drilling mud, leading the people of Ain Salah to blow the whistle on Sonatrach’s claims.

Activists also discovered the presence of chemicals such as Ezefflo110, which is used for fracking. These extremely hazardous substances were sitting on pallets when they should be stored securely. This was enough evidence to doubt Sonatrach’s ability to handle waste management and storage of lethal chemicals. A number of bags belonging to Halliburton were also proof that the company has been active on the site. Apparently the company provides technical support for hydraulic fracturing and is not directly involved as an operator.

Is the Algerian Sahara just France’s experimental playground?

The fears of Ain Salah’s residents are exacerbated by the fact that this is not the first time the region has been used for technological experiments. For the Saharan people, the pilot fracking project is a painful reminder of the terrible period of French nuclear testing in Reggane, southern Algeria in the 1960s. The local people still feel much resentment. *“I gather that they are carrying out experiments,”* says a resident of Ain Salah. *“Like our co-citizens in Reggane, we are the stomping ground for French*

experiments.” “Up until now, the anniversary of the tests were met with absolute silence,” remarks Ghazi Hidouci. “This year there was an uproar. The Saharan people gave themselves a voice; they came out and expressed themselves. It turned political.”

Half a century later, tensions are running high at the idea of the former colonial power’s potential intervention in Algeria. A number of locals refer to the draft partnership agreement between the Algerian President and the French Minister of Foreign Affairs Laurent Fabius, which made a noise in the media in 2012. The agreement would make it possible for French firms to experiment with alternative techniques of hydraulic fracturing in Algeria. *“There is, to our knowledge, no such agreement,”* said a French diplomatic source. *“Our bilateral dialogue with Algeria does not include any discussion of shale gas.”* It would seem that the recent remarks of the Ambassador of France in Algiers on *“strengthening the French-Algeria partnership”*, with reference to shale gas, were distorted.

Police crack-down on the people of Ain Salah

The Algerian government has not responded to the moratorium request of the Ain Salah citizen movement submitted on 21 February, 2015. Leaders have issued contradictory statements, playing down the issue by declaring that it only concerns experimental pilot projects, soon to be completed, and that any decision regarding shale gas will not be made for several years. However, other speeches have tended to evoke shale gas as a done deal.

At the time of the nation-wide demonstrations against shale gas on 24 February, 2015, Abdelaziz Bouteflika was more frank, confirming his will to *“grow”* and *“benefit”* from all hydrocarbons including shale gas, which he called a *“gift from God”*. On 28 February, the 62nd day of the protest, after citizens were informed of a second exploration well in which the Halliburton company was potentially using fracking methods, violent clashes broke out between police forces and Ain Salah protestors. *“Attempts to quell the movement continued into the city, where attacks were made on Resistance Square, a symbol of the citizen movement,”* reported French groups opposed to oil, shale gas, and coal.

“Laying the groundwork for ecological thinking in Algeria”

Behind the Algerian government’s appetite for unconventional hydrocarbons is its apprehension that the conventional resources on which the country is extremely economically dependent are being depleted. For many, the regime’s political stability depends on it being able to buy civic peace while maintaining an adequate budget for social spending. The paradox, however, lies in investing in shale gas exploration, taking a number of financial and environmental risks, while everywhere else in the world, people are pushing back against shale gas and hydraulic fracturing.

“Algeria’s energy future is not in shale gas but in optimizing conventional resources, developing renewable energies, energy efficiency and focusing on a diverse mix of energy sources,” wrote the demonstrators of Ain Salah to President Bouteflika. Such assertions have been gradually spreading like wildfire through the country, from one end of the Sahara to the other. *“There are different think tanks on the environment and on sustainable development. We are laying the groundwork for ecological thinking in Algeria,”* anticipates an activist. Will the green democracy win out over the khaki tyranny?

Sophie Chapelle and Olivier Petitjean

In Alberta and Downstream, the Heavy Toll of the Oil Sands Industry on Water and the Environment

23 June 2015, by Edward Struzik

In Alberta, Canadian and international oil companies, including Shell and Total, develop oil sands deposits at a frantic pace. Despite the current oil price slump, they still hope to triple production by 2030. While there is much talk of its greenhouse gas emissions, the oil sands industry also has heavy, lesser-known impacts on water resources and biodiversity. The consequences of excessive water extraction and pollution are beginning to be felt downstream, perhaps all the way to the Arctic Ocean. Against a backdrop of climate change and melting glaciers, the uncontrolled development of the oil sands in Alberta could affect a large part of the Canadian North. First part of an exclusive report on oil sands and water by Canadian journalist Edward Struzik.

Two hundred kilometres downstream of northern Alberta's massive oil sands operations, an aboriginal man by the name of Joe Wandering Spirit lives in a single room cabin with a wild house cat and a team of sled dogs that he keeps tied up when he is not hunting, trapping or fishing. Here in the heart of the Peace-Athabasca, one of the world's largest freshwater deltas, living in a wilderness that is half land and half water is never safe for a seventy-five year old man like him. During the annual spring break up of ice, meandering rivers and streams can back up and abruptly overflow their banks.

Fifty years ago, when construction of the first commercial oil sands operation was just beginning, more than 400 aboriginal people made a modest living in this swampy 3,000 square kilometre ecosystem. Summers in the delta and on Lake Athabasca to the east served up enough fish to supply not only their domestic needs, but also a small commercial fishery. Autumn came with hundreds of thousands of geese and ducks flying south to stage for several days before continuing on with their migration. In winter, there were plenty of moose, caribou and bison to hunt. By the time spring arrived, there were tern, gull, duck, and goose eggs to collect and enough muskrat to fill up a boat in a day. Muskrat and birds' eggs, in turn, supplied a steady source of food for mink, lynx, coyotes, wolves and other fur-bearing predators.

The ecological significance of the Peace-Athabasca delta is undisputed. In 1922, when the Canadian government created Wood Buffalo, Canada's largest national park, 80 percent of the delta was included in the boundaries. In 1982, UNESCO, the United Nations Educational, Scientific and Cultural Organization, designated Wood Buffalo and the Peace Athabasca a United Nations World Heritage Site and a Ramsar Site of International Significance.

“The Global Prize for Unsustainable Development”

As internationally significant a wilderness as it is, the delta is slowly dying. Climate change, hydroelectric dams, pollution, and massive amounts of river water that are being diverted for fracking and for oil sands extraction have so taken their toll on the ecological integrity of this region that Wandering Spirit is now the only person left living there year round. The commercial fishery is dead due, in part, to lesions and deformities that make some of the fish unfit for sale. Trout that used to be caught on this lower part of the Athabasca River have disappeared. So too have most of the caribou. Muskrat populations have declined so badly that the aboriginal people have given up trapping them. Birds are being affected as well. The population of waterfowl such as scaups and scoters have declined by 70 per cent or more since the 1950s. The eggs of Ring-billed Gulls collected in 2012 contained 139 percent more mercury than they did in 2009.

“There is nothing on this planet that compares with the destruction going in this part of the world,” said David Schindler, a world-renowned Canadian scientist who has been conducting research in the

region for more than 20 years. *“If there were a global prize for unsustainable development, the oil sands would be the clear winner.”*

A Thirsty Industry

In spite of promises by industry and by government to reduce water use in the oil sands, and to restore the wetland landscapes that has been mined to depths of more than 200 metres, the continuing demise of the delta will be inevitable if oil sands companies triple production, as they promise to do by the year 2030. That's because it requires a tremendous amount of water to separate oil from the sand. For every barrel of oil produced in the mining of bitumen, at least 2.6 barrels of water are withdrawn from the Athabasca River, or from groundwater aquifers to extract the oil. For in situ operations, where steam is used to separate the oil from the sand below and pump the bitumen to the surface, freshwater use is less, but still significant.

This amounts to 170 million cubic metres of water taken annually from the Athabasca River alone. That is approximately half of the total amount of water that the city of Toronto (population 2.5 million) uses in the same period of time. Unlike the city of Toronto, which treats wastewater and returns it to the natural system, oil sands and fracking companies return none of the water they use to the natural cycle. The wastewater is too toxic and therefore subject to a zero discharge policy. Instead, wastewater that is not recycled is injected back into the aquifers, or stored in tailings ponds.

Toxic Man-Made Lakes

These man-made lakes currently cover an area that is three quarters the size of the city of Paris. They are so massive that migrating birds sometimes make the fatal mistake of landing on them.

As the volume of water in the oil sands tailings ponds grow, water in the Athabasca River inevitably declines. Water diverted for current and approved oil sands operations, for example, amounts to 2.5 percent of the natural flow of the Athabasca River. This percentage can be as high as 10 percent in winter, when water volumes in the river are at their lowest.

This is one reason why the flooding that is required to fill the delta's large shallow lakes has not occurred in any meaningful way since 1997. Following the big flood that occurred that year, 55 percent of the north end of the delta, which is recharged by the Peace River, was covered in water or shallow marshes. By 2014, that figure had fallen to 33 percent. The south end of the delta, which is recharged by the Athabasca River, is in better shape, but it, too, is steadily becoming drier.

Scientists predict that it will get much worse if oil sands production triples to 5.2 million barrels per day by the year 2030. The amount of water diverted from the Athabasca River, he says, could grow to as high as 30 percent of the natural flow by then.

Western Canada Drying Out

The percentage, however, could be even higher if climate change continues to diminish glaciers and snowpack that send massive amounts of meltwater into the Peace and Athabasca River system. Scientists recently reported that British Columbia's 17,000 glaciers — both in the Rockies and along the Pacific coast — are losing 22 billion cubic meters of water annually. That's equivalent to refilling a 60,000-seat football stadium 8,300 times. Mountain snowpack and glaciers in Alberta are diminishing as well, so much so that some people in the oil sands industry concede that they may face a water shortage crisis in the future.

The future for the delta looks so grim that the Mikisew Cree Nation recently called on UNESCO to place Wood Buffalo and the Peace Athabasca delta on its list of “World Heritage Site In Danger”. The list is intended to increase international awareness of the threats to a site and to encourage counteractive measures by the governments that oversee them.

“We are already deeply concerned about the impact of industrial activity on our traditional lands within the Peace-Athabasca Delta in Wood Buffalo National Park,” Mikisew Chief Steve Courtoireille wrote in a letter to UNESCO. “Those threats are growing with the proposed Site C dam in British Columbia and with oil sands expansion. We are using every possible means before it is too late to save the land that has supported our people for millennia.”

Wetland Destruction

Declining river water levels, however, are not the only problem the region faces. Before tar sands companies arrived on the scene, the wetlands of northern Alberta comprised at least fifty percent, and possibly as much two-thirds of the boreal landscape in which the oil sands are located. These wetlands south of the delta supported a wide range of plants, including many of western Canada’s wild and rarest orchids; hundreds of species of birds; untold number of insect species; as well as a range of large mammals, including woodland caribou, moose, wolves, and grizzly bears. No one knows how biologically diverse these ecosystems were because inventories and assessments were never conducted before or during construction of the oil sands operations.

What we do know is those wetlands that have been mined by the oil sands industry are no longer filtering water, sequestering carbon and nurturing the complex web of plants and animals they used to support. This is especially important because landscape changes caused by currently approved tar sands mining operations will release 11.4 million to 47.3 million metric tons of carbon, according to a study done by Canadian scientist Suzanne Bayley. These changes, she says, will also reduce the former wetlands’ ability to sequester carbon by as much as 7.2 million metric tons annually.

Mountain of Liabilities

Joe Wandering Spirit knows better than anyone else the changes that the oil sands have brought to the region. What worries him and other aboriginal people living downstream even more is the possibility that an earthen wall that contains those tailings ponds will collapse some day and send a wall of toxic water downstream.

Wandering Spirit is not alone in thinking this. In 2012, an expert panel commissioned by the Rosenberg International Forum on Water Policy predicted that this will likely happen. *“If such a breach occurred in the winter and tailings liquid were to get into the Athabasca River under the ice,”* the panel concluded, *“it would be virtually impossible to remediate or clean-up. . . . A large spill, such as would occur in a major breach of a tailwater pond dike, could threaten the biological integrity of the lower Athabasca River, the Peace-Athabasca Delta, Lake Athabasca, the Slave River and Delta, Great Slave Lake, the Mackenzie River and Delta, and perhaps also the Beaufort Sea. It would have an unprecedented effect on human society in the Northwest Territories.”*

To date, the Canadian and the Alberta governments and the oil sands industry have moved very slowly in dealing with the mountain of environmental liabilities that could cost as much as \$13 billion in reclamation costs. The Alberta government has also tried to silence John O’Connor, a doctor who has serviced the 900 aboriginal people living downstream of the oil sands for 15 years, after he raised concerns about higher than normal rates of rare cancers and other health problems. Dr. O’Connor merely suggested that more study was needed to determine whether these health problems were related to oil sands pollution.

Dr. O’Connor fought and won a long battle against the government when it tried to have his medical licence revoked. But in May of 2015 he lost his right to treat people in the community when a government health agency told him that his services were no longer required.

Health concerns aside, even the Alberta government and oil sands supporters are beginning to realize that operating under the status quo is no longer acceptable, especially when the U.S. has closed the door on sending Alberta’s bitumen south via the Keystone Pipeline.

Calls for a moratorium

New rules put in place in May 2015 limit the amount of tailings that can be accumulated and they compel companies to invest in technology to reduce the amount of wastewater that goes into tailings ponds. They establish thresholds to identify when companies must act to prevent harm to the environment. And they require companies to post financial security to deal with potential remediation issues.

Oil sands critics are skeptical. When similar rules were put in place in 2009, the companies were unable or unwilling to comply. The new rules also rely on technological solutions that don't exist.

Given all that has happened in the past, a growing number of scientists and economists in Canada and the United States suggest the best way to move forward is for the Canadian and Alberta governments to order a moratorium on future developments of the oil sands.

In a commentary recently published in the scientific journal *Nature*, scientists Wendy Palen and seven colleagues argue that the drama over tailings ponds and pipelines such as Keystone and the Gateway pipelines obscures a larger problem — what they describe as “a broken policy process”. Both Canada and the United States, they say, treat oil-sands production, water use, transportation, climate and environmental policies as separate issues, assessing each new proposal in isolation. A more coherent approach, they say, evaluates all oil-sands projects in the context of broader, integrated energy and climate strategies, is sorely needed.

“The Canadian oil sands are vast, and production has more than doubled in the past decade to more than 2 million barrels per day,” Palen recently said in an interview. “The rush to develop this resource has outpaced sound analysis of the impacts on the environment, human health, and the global climate system. Until the cumulative effects are considered in a transparent, public manner, further development should be halted.”

Edward Struzik

Cleaner Oil Sands? Shell and Veolia's Carmon Creek Project

23 June 2015, by Edward Struzik

Shell and Veolia, an oil and gas major and a water company, have joined forces to design a new, 'ecological' oil sands plant at Carmon Creek, on the Peace River in Alberta, Canada. According to them, this new plant will have almost zero impact on water resources. But many experts are skeptical, and there is little detail about their exact plans. Meanwhile, the starting date for the plant seems to have been postponed until at least 2019. Second part of Edward Struzik's report on oil sands and water.

When I first approached Bob Cameron about Royal Dutch Shell's plan to build an environmentally friendly oil sands plant at Carmon Creek not far from where he lives in northwestern Alberta, he had to cut short the conversation because he was taking care of a neighbour's house, pets and horses. Cameron is 65 years old. He was born in Alberta, and he has been living in the Peace River region of that province in Canada for most of his life. The white beard, the baseball hat and the blue jeans he often wears makes him look like the fisheries technician and the forester he once was before establishing the one-person mobile sawmill company he has been operating for the past 25 years.

Like many of his neighbours, some of whom work in the oil and natural gas industry, Cameron is actively involved in the community. In his spare time, he acts as chairman for the Mighty Peace Watershed Alliance, a multi-sector, not-for-profit society committed to planning for an ecologically sustainable lake and river system while ensuring economic and social stability. The Alliance is not remotely radical like Greenpeace. The government of Alberta recently designated his organization as the official Watershed Planning and Advisory Council (WPAC) for the Peace/Slave River Basin under the government's Water for Life Strategy.

"Wild West" Mentality

To suggest that Cameron and his neighbours in the region are concerned about the future of the Peace River watershed, which drains into the Peace Athabasca delta, Great Slave Lake, the Mackenzie River and the Mackenzie delta in the Canadian Arctic, would be an understatement. Over the past several years, they have addressed local and provincial governments, the energy industry, and government's energy regulator (Alberta Energy Regulator) to listen to their concerns about the "wild west" mentality that prevails in the oil sands and hydraulic fracturing (fracking) industries in the region. They are convinced that the region's rivers, lakes and groundwater will dry out or become polluted if this overuse and abuse of water is allowed to continue.

No one in government, or the regulatory system in Canada, however, is willing to ground-truth the claims that oil and gas companies are making about the amount of water they are diverting and contaminating. And no one, it seems, is evaluating the cumulative impacts that all of these energy developments will have on the rivers and lakes in this part of the world.

"People here are concerned," Cameron told me when we talked again a few days later. "And they aren't operating in a location away from the action like the folks at the Alberta Energy Regulator are in their nine story office building in downtown Calgary. They have neighbours and acquaintances who tell them what's really going on and it isn't going according to the way the nice words on paper say it is supposed to be."

The oil and gas industry's thirst for water

Oil sands developments and fracking for shale gas, oil and coalbed methane are the fastest growing industries in western Canada. The oil sands have proven reserves of 168 billion barrels, making them the third-largest proven crude oil reserve in the world, after Saudi Arabia and Venezuela. According to the Alberta Geological Survey (AGS), there are 15 prospective shale gas formations in the province, five of which may contain up to 1,291 trillion cubic feet (TcF) of shale gas. That's more than enough gas to heat every home in Canada for a decade.

Extracting these unconventional reserves of oil and gas and coalbed methane is extremely profitable for multinational oil sands companies such as Total, Suncor, and Syncrude, and for waste and water treatment giants like Veolia. But it comes at a price to the environment.

Oil sands not only emit greenhouse gases that contribute to global warming, they use a tremendous amount of water to separate bitumen from the sand. For every barrel of oil mined from bitumen deposits, at least 2.6 barrels of water are withdrawn from rivers, lakes or from groundwater aquifers. For in situ operations, where steam is used to separate the oil from the sand below and pump the bitumen to the surface, freshwater use is less, but still significant.

Hydraulic fracturing is also a thirsty business. Depending on geology and how deep a frack must be, as much as 60,000 cubic metres of water is mixed with sand and toxic chemicals before it is injected into shale formations at high pressure during the start-up phase, which can last for several days. This shatters the rock so that pockets of natural gas, oil or condensates such as benzene, toluene, xylenes and ethylbenzene can escape from below. Many of these shale deposits also contain significant amounts of carbon dioxide, hydrogen sulfide and in some cases, radioactive materials that can migrate to the surface during the drilling process.

Best Practice?

At Carmon Creek, Shell plans to extract the bitumen with a technology known as Steam Assisted Gravity Drainage (SAGD). Although it requires less water than mining and some other in situ technologies, it still requires approximately a half-barrel of water to produce a barrel of oil. Shell plans to produce 80,000 barrels a day at Carmon Creek.

Shell's water conservation strategy at Carmon Creek looks very good on paper. When Shell awarded the contract to the French company Veolia in 2014, Antoine Frérot, Chairman and CEO of Veolia Environnement, claimed that the water co-produced with the oil recovered from underground will be treated and re-used to generate the steam that is necessary to inject in the ground. This approach, he stated, maximizes the amount of process water recycled to approximately 99 per cent.

Shell and Veolia aren't the only companies making environmentally friendly claims such as this. According to the Canadian Association Petroleum Producers, a lobby group that promotes the interests of the energy industry in Canada, oil sands operations already recycle 80 to 95 per cent of the water they use.

"It isn't going the way it is supposed to be"

Canadian scientist Karlis Muelenbachs, a geochemist and a leading authority on identifying the unique carbon fingerprint or isotopes of shale and conventional gases, suggests that the public should be very careful in interpreting what this really means.

"One rarely recovers half of the water used in steam injection to so called "thief zones -" fractured, cavernous or highly permeable underground formations," he explained.

"Are they (Shell/Veolia), for example, claiming that they can recover 99 per cent of all the water that is injected into the ground? Or is it that 99 per cent of the water which returns with the bitumen (discounting the water lost to thief zones, leaks etc)? Or is it 99 per cent of the water used on site (surface plus underground)? . . . This is outside my circle of knowledge, but 99 per cent recovery and recycle of water from a steam injection plant seems impossible."

Bill Donahue is a lawyer, scientist, and director of Science and Policy for Water Matters, an independent non-government organization with expertise and resources to address watershed issues in Alberta.

He and colleague Julia Ko recently wrote a report that challenges the claims that oil sands companies make about water use and recycling.

“In many cases, claims are made that up to 95 per cent of water used is recycled,” said Donahue. “However, these calculated recycle rates are based on how much non-saline water is used (i.e., fresh water that is of similar quality to that found in lakes and rivers), and do not consider the amount of saline water used in the total mix of fresh and saline water.”

“Oil sands companies can just decide to change their minds”

Another problem, he says, is that saline groundwater that companies like Shell are pumping out of aquifers to produce steam is largely unmonitored and its use unaccounted for in the oil sands region.

“In situ oil sands operations could augment their operations with substantial amounts of saline water that is neither recycled nor accounted for and still report a 95 per cent recycle rate for water use. For this reason, total water use and recycling by in situ oil sands operations remain hard to quantify, and the potential for over-exploitation of saline groundwater is significant. Rather than using the calculated recycle rate, we advise that the make-up rate be used instead to characterize water use by in situ projects, because it reflects the total amount of water (saline and non-saline) consumed by steam production and losses in the bitumen-bearing formations, and other on-site uses or disposal.”

According to Donahue, it is not uncommon for oil sands companies to back away from prior commitments about water use and recycling once they are operational and discover that they do not have enough saline groundwater to produce the steam they need. When this happens, he says, the risk is that they can then apply for a routine administrative change to their water licences. If granted, which is often the case, it would give them the licence to withdraw freshwater from rivers, lakes, streams or other sources. By doing this, a company could break their earlier promise to not use freshwater that may have resulted in the project approval, and then simply change their mind without having to face the opposition that they would have faced if they’d initially proposed to use freshwater.

Robin Gervais is a councilor for the local government in Fox Creek, which depends heavily on the energy industry for jobs and taxes. As much as he appreciates the revenue the industry brings to the region, he is unhappy with the current situation, the lack of transparency and the “wild west” mentality that prevails over the use of water resources and fracking practices.

Impunity

Gervais has taken photos of fracking companies pumping water out of fish-bearing streams that have almost run dry. He keeps a record of the growing number of earthquakes that some scientists say are connected to fracking operations. Increasingly, many of these earthquakes come in swarms of 15 or 20.

Gervais is also not alone in wondering whether anything will change for the better when the chairman of the government’s energy regulator, which is supposed to “ensure the safe, orderly and environmentally responsible development” of energy resources in Alberta, is a founding member of the Canadian Association of Petroleum Producers (Gerry Protti also worked for energy companies such as Encana Corporation, PanCanadian Energy, PanCanadian Petroleum and Cenovus before the provincial government of Alberta appointed him to the position.)

Cumulative Impacts

Bob Cameron acknowledges that Shell, Veolia and perhaps some other companies may prove to be much better at conserving and recycling water than other companies currently operating in the region. The technology they are using is proven and it is costly, although no one will say how much more it

will cost. The problem, he says, is that they will be taking water out of a river and lake system that is already being heavily exploited by other energy companies such as Chevron, Encana, and Talisman that are operating in the region, and at a time when the province of British Columbia is experiencing a shale gas boom that is even bigger. Upstream along the Peace River in British Columbia, for example, the provincial government has provided energy companies with the right to withdraw approximately 78 million cubic metres of water from the watershed each year on short-term permits. That's equal to the amount of water that would be needed to fill 31,000 Olympic swimming pools each year.

“An interesting counterpoint to Carmon Creek is located just 150km south near Fox Creek where Shell is applying to divert up to 5 million cubic meters of freshwater from Iosegun Lake to hydraulically fracture the Duvernay shale formation,” says Cameron. “Add to that 5 million cubic metres of water that EnCana is withdrawing, the 1.5 million that Chevron is withdrawing, the millions of cubic metres that water that Talisman and other companies are withdrawing and you start to see the big picture. In most cases, this water will be contaminated and then disposed of by deep well injection removing it from the water cycle for millennia”.

Accidents

Fears that groundwater and rivers that feed into the Peace River watershed may become polluted have been reinforced by several fracking and oil sands operations that recently went wrong in Alberta. In 2009/2010, for example, it took Canadian Natural Resources \$50 million and nearly 18 months to cap a continuing series of spills that were caused by a form of fracking — steam injection in this case — at one of its wells. More than a million litres of bitumen seeped into a lake and adjoining wetlands in what has turned out to be the fourth largest spill in Alberta history. Hundred of birds and animals died, and valuable wetlands were destroyed.

In September 2010, a Shell employee accidentally dug into a high pressure saline aquifer at the company's Muskeg River oil sands operation. When the salty water started bubbling up at a rate of 2,000 cubic metres every hour, there were fears that it would eventually spill over into the Athabasca River and poison fish and other freshwater life.

Whether it's in situ oil or mined oil sands development, the Shell Muskeg Mine incident highlights again the need for the Government of Alberta to commit resources to fully mapping and understanding groundwater resources in the oil sands region, according to Julia Ko. *“There is limited understanding of the detailed hydrology and geology in the oil sands region, impacts of regional development on groundwater, or how much groundwater can be withdrawn without causing harm.”*

Cameron believes it's time for some transparency in a regulatory system that makes it almost impossible for even informed people such as him to keep track of the amount of water that is being withdrawn from lakes, rivers and underground aquifers and the amount of water that is being polluted.

“We can no longer afford just giving water away as we're doing now,” he says. “The Alberta Energy Regular can run for cover as they are doing now when questions are raised, but if this continues, some of our lakes and streams will go dry and our water will be polluted.”

Edward Struzik

Note

Edward Struzik sent a list of questions to Shell and Veolia about the Carmon Creek project, in particular about the precise recycling rate, the technology used and the starting date for the plant. Neither company replied to his emails.

Veolia and Shell state that the water required for steam generation at Carmon Creek will be separated from the produced bitumen, and re-used. But they acknowledge that this cannot happen until bitumen production is under way. As a result, for a temporary period during the start-up of each phase it will be necessary to take some water from the Peace River to generate steam until sufficient steam has been injected into the reservoir to enable the bitumen to be produced. Some makeup water may also be required from time to time. The primary source of make-up water will be brackish water taken from a

subsurface aquifer. Based on the variability of the amount of make-up water needed for the first few years of operation, it may be necessary to supplement the brackish make-up water with some fresh water from the Peace River.

Pollution, Drought and Threats: the Disturbing Cocktail of Colombia's Oil Industry

21 December 2015, by Nadège Mazars

Perenco is a low-profile French oil company, owned by one of France's richest families. Basta! and the Multinationals Observatory investigated its practices in Colombia where Perenco owns several concessions, alongside other companies. The oil industry has been accused of playing a role in the droughts that have grown more frequent in the Amazon Savannah. It also faces accusations of negligence in regards to the pollution left to contaminate marshes and rivers. In spite of the blockading actions taken by communities and hundreds of complaints laid, local authorities seem entirely indifferent. Death threats await anyone who goes so far as to denounce the oil companies' practices.

Milton Cardenas has the weary look of someone who has tried everything. Sitting at a table in the patio of his parents' house, he scrolls through the images displayed on his computer that, according to him, cost him his job and resulted in death threats: *"Look! The chemicals they're dumping anywhere and everywhere! They are extremely dangerous! Caustic soda! Look!"* Some of the photos were taken when he worked for the French multinational corporation Perenco. *"Look at all the dead fish! They drill and this is where they store whatever they get out – a mix of soil and oil. When it rains, it all goes into the marsh⁵¹. [...] Look at this dead cow that's being pulled out of the water!"*

One by one, the photos speak for themselves: there are photos of animals like the capybara, a large rodent found in the Llanos savannah, covered in oil. The tanks where the oil is discharged are not well insulated and animals can get in. Rainwater that falls in these pools is dumped untreated into the savannah. Milton also talks about the oil tankers of which up to seven a day dump wastewater into the surrounding rivers. He is chairman of the municipal executive board of Tesoro del Buby and has since 2009 been fighting what has become a legal battle against the multinational company that operates the La Gloria oil field.

A region sucked dry by the oil industry

The village lies in the heart of the Llanos savannah in Colombia, a three-hour drive from Yopal, the capital of Casanare, situated at the foot of the Andes. The vast grassland plain studded with palm groves, gives rise, when flooded, to a number of shallow rivers that flow throughout the region. It is a water-rich area even when water is sucked into the ground over the summer months. The Colombian Orinoco Basin, which includes the Casanare, contains about one third of the country's water reserves. Casanare is home to the *llanera* tradition, a culture built around extensive cattle breeding. But over the last thirty years the region has undergone profound socio-economic changes.

Oil extraction has become the region's main economic resource, making Casanare the second biggest oil producer nationwide, with 2 286 million dollars worth of oil exported in 2014. Yet droughts – previously uncommon in the region – have become more frequent. Last year's drought killed more than 20,000 animals (both wild and farmed) in the area of Paz de Ariporo⁵². People are blaming the oil industry, which is extremely water-intensive. It takes at least nine barrels of water to produce one barrel of oil. Groundwater extraction by the oil industry is seen as responsible for the dried-up

⁵¹ The *esteros*, translated here as marshes, are water bodies specific to the Llanos. They are in fact natural depressions that resemble rivers and which fill with water during the rainy season and retain some water over the dry season.

⁵² *Semana*, "Muertos de sed", 29/03/2014, and *El Espectador*, "Autoridades apuntan "cinco pecados" posibles como causa de sequia en Casanare", 31/03/2014.

“summer” marshes, which even during the dry period used to retain some water. Crucial to sustaining an ecological balance, these ponds provide water to livestock and wildlife in a region where it is not unusual for the temperature to reach 40°C in the shade.

Groundwater extracted through pumping is also particular in that is saline. Dumped in the natural environment or stored improperly, it also contributes to upsetting the ecological balance of the Llanos and its biodiversity. Usually a tax is imposed on oil companies in order to compensate towns whose water they are pumping. But the Contraloría, a national regulatory body that oversees public institutions, recently revealed that over the past year, more than seven million euros in taxes intended to go towards water management was lost, due to mismanagement in the department of Casanare⁵³.

We asked Perenco to respond to the allegations made in this article. Its spokesperson ensured us that it was working in Colombia “*in coordination with national authorities that have jurisdiction over oil operations*” and “*in strict compliance with environmental and social standards,*” which includes the prohibition of dumping untreated water in the surrounding environment. “*A part of wastewater treatment is carried out in closed holding tanks in order to minimise intrusions. The drought that sometimes hits the east of the country is not due to oil but is a well-known climatic phenomenon in the Llanos.*”

Death threats for those that turn their backs on oil

For seventeen unflinching years Milton worked for the French company, installing pipelines, setting up storage tanks and undertaking routine maintenance. Like most of the locals, including the younger generations that have gradually abandoned livestock for the oil sector, he benefited from a local agreement between the community and the company. But in 2009 he lost his job because, as chairman of the municipal board, he took part in the blockading of Perenco sites. The community accused the company of water pollution and failure to comply with previous agreements.

His action even put him on a blacklist that bans him from doing any kind of work in the area. And what is most disturbing is that he was indirectly told that his life is in danger. “*A Perenco employee told my father that there was no knowing what was going to happen to me – or to others – if we continued down this track . . .*” In a region formerly controlled by paramilitary groups and where the demobilised armed forces are still present, the message is very chilling. Perenco categorically refutes such claims: “*Perenco denies any link with terrorist groups in Colombia. It was itself a victim of their attacks - on their staff and equipment on 29 June 2015.*”

However, there is a precedent. One of the leaders of an extremist right-wing paramilitary group, Nelson Vargas Gordillo, admitted that thirteen years earlier there had been an agreement between the paramilitaries and Perenco⁵⁴. According to Gordillo, who made the admission from prison, the company paid paramilitary groups just over 150 euros per tanker truck to ensure they safely exited the sites. It was at this time that Wilson Pizon Romero, one of the leaders of the village of Tesoro del Buby, was assassinated.

Perenco owners: 13th wealthiest family in France

The La Gloria oil wells were originally owned by Elf Aquitaine, the French giant that has since been taken over by Total. Perenco took over management and operation in 1997 in partnership with the Colombian national oil company Ecopetrol. From its beginnings as a small marine services company in Singapore in the 1970s, Perenco has become a heavyweight in the industry, working all over Asia, Africa, Europe and Latin America. The company is owned by a single family, the Perrodos. Its logo features an ermine, pointing to their roots in Brittany.

⁵³ <http://www.eltiempo.com/politica/justicia/detrimento-patrimonial-en-zonas-con-poca-agua/16372557>

⁵⁴ *Libération*, “La Colombie ferme les yeux sur les entreprises alliées aux milices”, 25/02/2012, http://www.liberation.fr/monde/2012/02/25/la-colombie-ferme-les-yeux-sur-les-entreprises-alliees-aux-milices_798637, and *El Espectador*, “La petrolera Perenco y los ‘paras’”, 14/01/2012, <http://www.elspectador.com/noticias/investigacion/petrolera-perenco-y-los-paras-articulo-320929>.

Perenco really took off in 2002, then again in 2012. Relatively unknown to the public, Perenco turned its low-profile position to its advantage, and the company was able to produce enough capital to make the Perrodos the 13th wealthiest family in France, with a net worth evaluated at 5.5 billion euros in 2014⁵⁵. On its webpage, Perenco states that it produces 35,000 barrels of oil per day in Colombia.

To get a foothold in the sector, Perenco adopted a specific strategy. The company bought wells whose production was estimated to be declining, seeking to give them a second life. However this seemingly astute strategy had its flaws: although the facilities already existed, they were not in great shape due to years of use. There were, consequently, two accidental oil spills in Tesoro del Bubuy – the first in late 2012, then again in late 2013. The only permanent water source – the caño Palo Blanco – was contaminated due to a faulty pipeline.

When the two spills occurred, the locals denounced Perenco's inadequate action, and blockaded access to the La Gloria sites in March 2014. They also realised that the recommendations made by Corporinoquia (the regional body for environmental protection and monitoring) after the first incident in 2012, had not been undertaken. The blockading actions were an opportunity for residents to visit the drilling sites, where they witnessed how bad the situation was, with evidence of pollution and negligence. However, Perenco and the three communities (Tesoro del Bubuy, Coralia, Piñalito) were able to reach an agreement after a month . . . an agreement which Perenco then failed to observe.

Do 1 % of profits really go to communities?

As a result, a second blockading action began in August 2014 and lasted three months, fuelled by two specific issues. The faulty pipeline was the primary concern. In February 2014, the National Environmental Licensing Authority (ANLA) issued a report requiring certain actions, including closing the pipeline. But Perenco denied the community access to the site to check it had taken the recommended action. In response to our questions, the company claims to have "*adhered to this decision*": "*The pipelines will be reopened only after being validated by the authorities, who will ensure they were replaced in satisfactory conditions.*"

The documents collected in the dispute settlement process reveal that the company failed to comply with its commitments made both in the impact assessment and the environmental management plan it submitted to the ANLA. These documents allowed it to obtain an environmental license – which is mandatory for any underground drilling. As compensatory measures, the licence provided for a reforestation project and that Perenco would put 1% of its profits towards developing safe water sources and rivers in the area. Perenco has failed to respect either commitment. In response to our questions, it said that the "*1% of profits was paid into a departmental-scale project, in collaboration with IDEAM; the community wanted a project that was more local in its scope, but had not yet obtained the approval of ANLA*".

Criticism of the oil industry in the Casanare is unfortunately not limited to Perenco. In late April, members of Cospacc⁵⁶, a human rights organisation, noted them down at an inspection visit. Other companies such as the Canadian company Pacific Energy and the Spanish company CEPSA are also responsible for on-going ecological pollution. Local representatives in San Luis de Palenque and Orocué are currently carrying out proceedings against Pacific Energy for non-compliance. Gustavo Torres, coordinator of the environmental control association of the Surimena community, says that near Orocué, in the Cravo Viejo oil site, Pacific Energy located its facilities much too close to the Matemarrano summer marsh, endangering its survival⁵⁷. An oil pipeline was recently built which passes close to Carrizales homes, in complete disregard of safety norms. Inquiring about actions taken by regulatory bodies about all this, local representatives have had the unpleasant surprise at finding that the evidence submitted to support proceedings had been lost . . .

⁵⁵ See the ranking in the magazine *Challenges*. In March 2015, *Forbes* estimates the wealth of the Perrodo family to stand at 8.1 billion dollars, making it the 149th richest family in the world and the 10th richest in France.

⁵⁶ See Cospacc's documentary on their actions in the region, *Detrás de la sequia*, directed by Amandine D'Elia. In September 2015, Cospacc received the National Award for the Defence of Human Rights from the Swedish Foundation Diakonia.

⁵⁷ <http://casanarenoticias.com/index.php/component/k2/item/1526-en-caso-del-estero-matemarrano-tribunal-demanda-pacto-de-cumplimiento-informe-especial-ii>

Pipeline leaks and dubious-looking scum in water . . .

Companies are granted environmental licenses fairly quickly compared to farmers who have to wait several months to get authorisation to cut down a tree on their land. Ulvio Martín Ayala, Chair of the Cospacc executive board, is frustrated at the role of monitoring bodies. *“They hand out environmental licenses as fast as they can. It’s thanks to them that we’re being stripped of all our natural resources so quickly. [...] Most environmental studies are done from the office. They don’t actually visit the sites. Nor do they analyse the environmental impact studies.”* Basically, the monitoring bodies work from the offices in Bogotá, slapping an “ecologically approved” stamp on companies whose actual onsite operations and repercussions have barely been investigated.

Spills due to faulty pipelines are common, states Cospacc. After the Caño El Duya was polluted in 2010, due to a faulty Perenco pipeline, the landowners received a modest compensation, but the pollution is on-going⁵⁸. The water has a dubious-looking scum in it and one of the storage tanks does not comply with insulation standards, as witnessed by Jorge Eliecer Oros, a farmer who has had to leave a section of his land to Perenco⁵⁹.

And then there is the drought, the gradual diminution and even disappearance of marshes that had previously withstood summers without rain, as is the case in the indigenous reserve of El Duya. In Trinidad, the constant passing of oil tanker trucks on the red dirt track raises unbearable amounts of dust and pollutes the surrounding grass and fields. The solution companies found to limit dust clouds was not to pave the track, but to spray the makeshift road with water. Yet it is believed that this water is the same polluted wastewater from the extraction process, this being a technique commonly used by the neighbouring department of Meta. Perenco’s spokesperson says that *“the water used on the roads is authorised for these operations or is purchased locally, with the approval of environmental authorities.”*

500 complaints filed, zero investigation

This on-going state of affairs led Cospacc to request the resignation of the Chair of Corporinoquia, the regional body for environmental protection and monitoring, Martha Plazas Roa⁶⁰. *“We received more than 500 complaints in 2014, concerning various wells in the Casanare. Corporinoquia has not made any investigation into who is accountable,”* explains Martin. *“People are sick of laying complaints that don’t get followed up by institutions. In her public report issued on 7 April 2015, the director of Corporinoquia made no attempt to force companies to assume responsibility. Her behaviour reflects her own cynicism and we are requesting her resignation due to incompetence.”*

Companies are just as irresponsible in their attitude to and relations with communities. Although it is mandatory to consult with the community, the decisions made during these meetings are not always respected. The employment agreements with communities are used as levers of influence. As was the case in Tesoro del Bubuy, as soon as there’s any kind of dispute, there’s also the threat of being fired. But recently there have been a number of blockading actions, many of which have gone on for several months. The industry is currently going through a crisis, with a drop in oil prices, and companies have decided to reduce their payroll.

⁵⁸ The spill came from the Sardinas station. Non-professional vídeos (<https://www.youtube.com/watch?v=E2CKkaSzQEg> and <https://www.youtube.com/watch?v=awjKzdKCsne>) show the extent of the damage.

⁵⁹ In Colombia, the subsoil area is the property of the nation, which makes the decision to assign it to a company’s management when there is the potential to exploit a natural resource. Owners of the land provide authorisation to access the subsoil area in exchange for compensation, as these resources are considered of strategic interest for the country.

⁶⁰ Despite our persistence and availability, we were unable to meet the Chair of Corporinoquia, who “apologised”, due to a busy schedule. Similarly, Perenco’s managers in Colombia did not deem it necessary to reply to our request for an interview.

Oil companies' response to the blockading actions was to initiate legal proceedings against community representatives for obstructing access and restricting oil exploitation, which could result in imprisonment. This is what is happening to a municipal councillor and two other people in San Luis de Palenque, where a confrontation with Pacific Energy is taking place. In Miralindo, Poré and Trinidad, other local figures and leaders are also being targeted by similar proceedings, which will be put into effect if the blockading starts up again. In Tesoro del Bubuy, this sword of Damocles also hangs over Milton and two others.

“Destruction of the region and public institutions”

With right-wing Juan Manuel Santos' coming to power in 2010, he has made the oil industry a national priority. Colombia's economic policy follows a “national development plan” where what Santos refers to as “energy-mining drivers” are supposed to encourage both foreign investment and the signing of free-trade treaties. But as is often the case, economic logic runs counter to democratic processes and the respect these require.

This has been the impression of Ivan Cepeda, Polo Democrático senator, who is also one of the main leaders of the left-wing opposition party. *“Multinational corporations play by their own rules and institutional order has got nothing to do with them,”* he explains. *“We are talking about destruction of both the environment and public institutions.”* A new national development plan supporting fossil fuel mining in the *páramos* has just been approved⁶¹. This highland area has a unique biodiversity and is also home to water sources that are pivotal to ensuring the equilibrium of the different ecological zones of the Andes mountains and plains. Cepeda is concerned that it is *“simply the destruction of our country”* that is at stake.

In Tesoro del Bubuy, a few victories cause Milton's eyes to light up. One of the landowners that was forced to let the company use his land won an initial legal battle. The good news allows him to forget for a moment the recent threats his family have been subjected to: a week after Cospacc's visit, Milton's family was attacked by two hooded men. His mother and father were tied up and held for several hours. They stole some money and several other objects. The attack came as a surprise in a rural area where everyone knows and trusts each other enough to leave their doors unlocked when they're out. It is hard to say who is behind this assault. But whatever the case, it's clear that there is a blatant discrepancy between what Perenco do and the virtuous image they like to convey on their website.

Nadège Mazars

⁶¹ See El Espectador, “Habría al menos 347 títulos mineros en 26 páramos del país”, 17/04/2015.