

Fracking as environmental load displacement: examining the violence of unconventional oil and gas extraction

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This article draws heavily from Friends of the Earth Europe's December 2014 report [Fracking Frenzy](#) and the EJOLT Environmental Justice Atlas ([EJAtlas.org](#)) to highlight environmental justice concerns surrounding foreign-sponsored fracking in low-GDP countries. The article first outlines the risks of shale gas extraction in the context of climate change before delving into a case study centred on fracking in Algeria. The article goes on to propose the concept of environmental load displacement as a useful tool to understand the unequal distribution caused by the impacts of fracking and climate change, and concludes on a somewhat hopeful note, touching on the potential for international solidarity and local movements as a way to defend against the environmental and social consequences of unconventional gas extraction.

Not so clean: how fracking exacerbates climate change

The exploration and extraction of unconventional fossil fuels is taking place at the same time as awareness about the need to urgently prevent the worst consequences of the climate crisis increases. Expert analysis across the board has confirmed our rapid approach

towards dangerous tipping points and calls for decarbonising our energy systems. Shale gas exploration is justified as a strategy to transition to greener economies, and promoted as a low carbon transition fuel. However, the International Energy Agency (IEA) reports that at least two thirds of fossil fuel reserves must be left unexploited to avoid 2°C warming, and the fracking industry development's implications for climate change prove natural gas to be no exception.¹

Natural gas, which contains high levels of methane, does have a lower carbon footprint than many other fossil fuel sources when it is burnt, but it can generate high levels of emissions over the course of the production and transportation cycles as a result of methane leakages. These leaks are a legitimate concern, due to the much higher failure rate of fracking's unconventional well drillings compared to conventional wells, and these risks increase further in low-GDP countries with lower capacities to monitor environmental standards. The IPCC warns that methane has a global warming potential 86 times higher over a two-decade time frame than CO₂, and so while considerable debate does exist, many international agencies agree that the fracking industry cannot achieve the claimed climate benefits.²

1 Gheroghiu, Andy, Antoine Simon and Helen Burley. "Fracking Frenzy." Friends of the Earth Europe, December 2014. https://www.foeeurope.org/sites/default/files/publications/fracking_frenzy_0.pdf

2 Ibid

In addition to concerns surrounding methane leakages, the IEA predicts that CO₂ emissions in the context of shale gas expansion will increase at a global scale, fitting in with a long-term trajectory of overall CO₂ emissions causing a temperature rise of over 3.5°C. Therefore, natural gas cannot be seen as a clean fossil fuel, but instead should be seen as exacerbating the risk of dangerous climate change via increased CO₂ emissions, impeding development of cleaner forms of energy, tying global economies to a new decades-long fossil fuel trajectory, and delaying movements towards decarbonisation. In short, fracking projects risk perpetuating unequal environmental degradation with both short and long-term social and environmental consequences.³

Case study: fracking in Algeria

In January 2015, large-scale demonstrations spread to Algiers from the Sahara after the Algerian government announced that the first shale gas well by Total, a French multinational oil and gas company, would be drilled in Salah. This came several years after Algeria first stated plans to tap into its shale gas reserves, the third largest in the world, with the intent to supply the European gas market. To this end, Algeria's hydrocarbon company, Sonatrach, has entered into agreements with a number of multinational companies, including Shell, ENI, Total and Talisman (headquartered in the US and the Netherlands, Italy, France, and Canada, respectively). A hydrocarbons law amended in 2012 made it easier for foreign companies to invest

in the shale gas sector, allowing for tax breaks and variable royalty taxes. The first exploration wells were drilled in 2011 in the Ahnet basin near Tamanrasset.⁴

Environmental justice activists in Algeria have expressed concern over the large amounts of water needed for fracking in an already water-scarce country, in addition to the potential for toxic chemicals to pollute groundwater and aquifer reserves. The Algerian Solidarity Campaign has urged decision-makers to take into consideration citizens' basic rights to water, noting that while water shortages remain a major grievance, the drilling method requires 15 to 20 million litres of non-saline water for each fracturing, equivalent to the average daily consumption of a city of 40,000 people. The director of fossil energy development at Algiers Ecole Polytechnique has argued that the injection of 15,000 cubic metres (530,000 cubic feet) of water per well, with a well expected to be drilled every 100 metres in some areas, would be catastrophic for a country with such water scarcity, and that it could destroy the Saharan ecosystem.⁵

Fracking as environmental load displacement

Alf Hornborg argues that industrial development and maintenance requires a constant input of energy, which results in unequal exchanges between industrial centres and national and global extractive sectors.⁶ Georgescu-Roegen posits that if we apply the concept of entropy to this unequal exchange, we can better understand how the creation and maintenance

3 Ibid

4 Simon, Antoine and Lena Weber. "Resistance to Fracking Projects in Algeria." Environmental Justice Atlas, accessed February 5, 2015. <http://console.ejatl.org/conflict/resistancetofracking-projectsinalgeria>

5 "Algeria Goes Shale Gas Route." *News24*. November 11, 2012. <http://www.news24.com/Green/News/Algeria-goes-shale-gas-route-20121111>

6 Hornborg, Alf. "Footprints in the Cotton Fields: The Industrial Revolution as Time-Space Appropriation and Environmental Load Displacement." In *Rethinking Environmental History: World-system history and global environmental change*, edited by Alf Hornborg, John Robert McNeill, & Juan Martínez Alier, 259. Lanham: Altamira Press, 2006.

- 7 Georgescu-Roegen (1971) Ibid
- 8 Hornborg, Alf. "Footprints in the Cotton Fields: The Industrial Revolution as Time-Space Appropriation and Environmental Load Displacement." In *Rethinking Environmental History: World-system history and global environmental change*, edited by Alf Hornborg, John Robert McNeill, & Juan Martínez Alier, 259. Lanham: Altamira Press, 2006.
- 9 Hornborg, Alf. "ZeroSum World: Challenges in Conceptualizing Environmental Load Displacement and Ecologically Unequal Exchange in the World System." *International Journal of Comparative Sociology* 50 (2009): 237-263.
- 10 Klare 2001 in Hornborg, Alf. "Footprints in the Cotton Fields: The Industrial Revolution as Time-Space Appropriation and Environmental Load Displacement." In *Rethinking Environmental History: World-system history and global environmental change*, edited by Alf Hornborg, John Robert McNeill, & Juan Martínez Alier, 260. Lanham: Altamira Press, 2006.
- 11 Gheroghiu, Andy, Antoine Simon and Helen Burley. "Fracking Frenzy." Friends of the Earth Europe, December 2014. https://www.foeeurope.org/sites/default/files/publications/fracking_frenzy_0.pdf
- 12 Ibid
- 13 Earthtrends. "Climate and Atmosphere--Syrian Arab Republic". UNEP. http://www.unep.org/dewa/westasia/data/knowledge_bases/syria/Reports/WRI/Cli_cou_760.pdf

of technological and cultural structure in cores (areas where monetary wealth and resources tend to congregate) results in increasing material and energetic 'disorder' in peripheries (areas generally exploited for their resources for the benefit of cores).⁷

This framework provides a foundation for understanding the tendency for environmental problems to be distributed unequally across different sectors of the global population, and can be divided into two key components. First that the core extracts energy and materials from the peripheries, and second, that it then displaces the resulting energetic and material disorder back to the periphery.⁸ Cores and their peripheries can be as geographically close as two neighbourhoods within the same city, or as far apart as a high-GDP European country and a small Pacific Island nation. A classic example of this relationship on the global scale could be a colonial power (core) extracting material wealth and resources for its own industrial and cultural maintenance from its colony, the periphery, which is then forced to deal with the resulting environmental and social chaos from the extraction process. This uneven deterioration of the natural environment due to global power relations is, in essence, environmental load displacement.⁹

As documented in this case and elsewhere in the EJ Atlas, fracking projects in Algeria and other low-GDP countries are often backed by companies headquartered in Western Europe and North America. These trade relationships reproduce the increasingly obvious, though certainly not recent, tendency for high-GDP industrial powers to rely on fossil fuels extracted

from the global periphery.¹⁰ Ironically, fracking has been banned in parts of the European Union such as France and Bulgaria due to concerns about local environmental impacts, but European energy companies continue to operate in economically poorer countries, even with documented experience showing that risks can significantly increase in regions where the capacity for implementing and enforcing environmental and health protection is generally lower.¹¹

Friends of the Earth Europe has argued that it is likely, based on the experience of industry behaviour in other fuel related activities, that fracking in countries like Algeria would contribute to further environmental degradation, corruption, human rights violations, social conflicts and poverty.¹² Furthermore, much of the fracked gas in Algeria would be sold back to the European market to be consumed there. Fracking in this context risks acting as a case of global environmental load displacement, wherein European industry would be supported via extracted resources from Algeria, causing environmental and associated social consequences in the latter. In this instance, the risk of environmental degradation due to fracking is being partially displaced from Europe and North America and relocated to countries like Algeria, while companies and natural gas consumers in countries like France would continue to benefit from fracking without experiencing many of the negative localised consequences such as water pollution and overexploitation.

When considering the connection between fracking and Greenhouse Gas (GHG) emissions, we can see a secondary environmental load displacement due to

the longer term displacement from the impacts of climate change. Western Europe and North America are the regions responsible for the historic bulk of climate change-causing GHG emissions. In 1998, the EU and US combined emitted 30.66% of global GHG emissions¹³, while in 2009, the US emitted 17.67 tonnes *per capita* of CO₂ emissions compared to a global average of 4.49 tonnes *per capita*. Further, in 2009, Europe emitted 7.14 tonnes *per capita*, with France at 6.30 tonnes, while Algeria only emitted 3.33 tonnes *per capita*, well below the global average.¹⁴ The climate change impact that a global intensification of shale oil and gas production would likely have is significant. This poses a major risk to many low-GDP countries, which are already impacted by climate change and predicted to experience some of the most severe consequences. In purely economic terms, by 2030, when the cost of climate change and air pollution combined is expected to represent 3% of global GDP, the world's economically poorest countries are projected to pay the highest price, restricting GDP growth by up to 11%.¹⁵ In Algeria, expected impacts of climate change include decreased water resources, lower agricultural yields, and increased desertification, to name a few. However, on a global scale, Algeria has contributed less than 0.5% of all global GHG emissions.¹⁶ Evidently, the environmental load of climate change is distributed unevenly and will likely continue to be so in the future.¹⁷

The sinister reality of environmental load displacement is the resulting violence. This violence can manifest slowly, as in birth defects and rising cancer rates due

to toxic waste over several generations, or quickly, as in brutal police repression against local environmental justice movements. In the case of Algeria, as in other countries, we can see implications for both 'slow' and 'fast' violence. Nixon describes 'slow violence' as "violence that occurs gradually", "delayed destruction" that is "dispersed across time and space".¹⁸ GHG emissions emitted during the fracking process act as a form of slow violence due to the elongated temporal and spatial span of the impacts.¹⁹ The changing climate we are experiencing today is partly a result of GHG emissions over one hundred years ago, while the impact from extraction and burning fracked fossil fuels will continue to be felt for decades or centuries to come. Fracking compounds the slow violence of climate change by contributing to 'fast violence', as well; one recent example of the brutality of this 'fast' violence is the killing of a young Algerian activist by police during an anti-fracking protest on January 4th of this year.²⁰ Clearly, the repression and contamination of environments documented in the EJ Atlas fracking cases exemplifies environmental load displacement through impacts on local populations both immediately and in the long-term.

Conclusion: resistance and alternative solutions

As of early 2015, thousands of Algerians had taken part in protests across the country, calling for national dialogue and a halt to all shale gas operations. The government's initial response included forcefully

14 "World carbon dioxide emissions data by country: China speeds ahead of the rest" *The Guardian*, 2011. <http://www.theguardian.com/news/datablog/2011/jan/31/world-carbon-dioxide-emissions-country-data-co2#data>

15 "2nd Edition Climate Vulnerability Monitor." DARA International, 2012. <http://www.daraint.org/wp-content/uploads/2012/09/CVM2ndEd-FrontMatter.pdf>; Harvey, Fiona. "Climate Change is Already Damaging Global Economy, Report Finds." *The Guardian*. September 26, 2012. <http://www.theguardian.com/environment/2012/sep/26/climate-change-damaging-global-economy>

16 Sahnoune, F M. Belhame, M. Zemat, and R. Kerbach. "Climate Change in Algeria: Vulnerability and Strategy of Mitigation and Adaptation." *Energy Procedia* 36 (2013): 1286-1294. <http://www.sciencedirect.com/science/article/pii/S1876610213012319>

17 Gheroghiu, Andy, Antoine Simon and Helen Burley. "Fracking Frenzy." Friends of the Earth Europe, December 2014. https://www.foeeurope.org/sites/default/files/publications/fracking_frenzy_0.pdf

18 Nixon, Rob. *Slow Violence and the Environmentalism of the Poor*. Cambridge: Harvard University Press, 2011: 2

19 Davis, Brian. "The Slow Violence of Fracking in Argentina." *Occupy*. November 3, 2014. <http://www.occupy.com/article/slow-violence-fracking-argentina>

20 Simon, Antoine and Lena Weber. "Resistance to Fracking Projects in Algeria." Environmental Justice Atlas, accessed February 5, 2015. <http://console.ejatlant.org/conflict/resistancetofrackingprojectsin-algeria>

GHG emissions emitted during the fracking process act as a form of slow violence due to the elongated temporal and spatial span of the impacts

21 MEE Staff. "Algeria Shelves Shale Gas Plans Until 2022 Amid Fierce Protests." *Middle East Eye*, February 13, 2015. <http://www.middleeasteye.net/news/algeria-shelves-shale-gas-plans-until-2022-amid-fierce-protests-1248201658>

22 Buckland, Kevin. "Oil and Water on a Common River: A Paper Boat Journey in the Early Anthropocene." *Forthcoming*.

23 Simon, Antoine and Lena Weber. "Resistance to Fracking Projects in Algeria." *Environmental Justice Atlas*, accessed February 5, 2015. <http://console.ejatl.org/conflict/resistancetofracking-projectsinalgeria>

24 Lamri, Rachida. "Mass Movement, Blockades Halt Fracking in Algeria." *Earth First Journal*. February 13, 2015. <http://earthfirstjournal.org/newswire/2015/02/13/mass-movement-blockades-halt-fracking-in-algeria/>

25 Ibid

dispersing a sit-in in Algiers and arresting around 12 participants, as well as banning a protest on January 17th. Tragically, as mentioned before, clashes with the police took at least one life, 21-year-old Mohamed El Noui, who died during a protest on January 4th. On January 27th, 2015 Algeria announced a moratorium on shale gas exploitation until at least 2022 with potential for a complete scrapping of the plans to drill. Prime Minister Sellal announced the decision on state television, saying, "[b]etween shale gas and water, the Algerian people will choose water; you think the Algerian state would be crazy enough to endanger the lives of its citizens?"²¹ With this statement, the Prime Minister seemingly joined increasingly frequent calls from around the world, including Algerian activists, centering anti-fracking and climate justice discourses on the issue of access to water.²² Despite these announcements, anti-fracking demonstrations continued. Many people reportedly feared that the government's promises were hollow; Prime Minister Sellal previously stated in July 2013 that no actual fracking would take place until 2024, and that current drilling was just part of necessary surveys.²³ It appears that these fears were well-founded. On February 8th, 2015 the head of Algerian-owned Sonatrach announced that shale gas development plans would continue in collaboration with foreign multinationals.²⁴

Fracking in Algeria elucidates the uneven burden faced by low-GDP countries that will bear the brunt of anthropogenic climate change and many negative consequences of fracking, though they have historically played a very small role in GHG emissions and

are likely to consume less fracked fossil fuels than high-GDP countries. In essence, the environmental load of fracking and climate change is being displaced, increasingly on a global scale. This is not a new story: low-GDP countries, many of them former colonies, have a long history of dealing with displaced environmental loads from high-GDP countries, many of them colonisers. For example, France only stopped testing nuclear weapons in Algeria in 1966, years after Algerian independence.²⁵ Today, in the context of neo-imperialism, these unequal power dynamics are manifesting in new corporate channels, but the result of environmental load displacement remains eerily the same: France has constitutionally banned fracking in its own backyard while French corporations and consumers continue to invest in fracking in Algeria. In fact, while many environmental justice movements in high-GDP regions have consistently rallied around a philosophy of 'neither here nor there', others have failed to do so. When anti-fracking movements within high-GDP countries focus only on halting fracking activities within their own national borders, they risk displacing the environmental load of those projects elsewhere, falling prey to an 'out of sight, out of mind' mentality which can reproduce unequal exchange on a global scale.

It is also important to consider that the impacts of fracking and climate change will not be experienced homogeneously even within low-GDP countries. Climate scientists and activists have warned that Indigenous Peoples and small scale farmers, groups often represented in fracking project areas, will be

especially hard hit.²⁶ At the same time, there is hope in the wide diversity of resistance strategies and anti-fracking solidarity around the world. Indigenous leaders impacted by Shell fracking activity in Ecuador are working with Indigenous leaders in Argentina faced with illegal fracking in their own territory, while academics in Mexico are authoring investigative studies documenting the negative impacts of fracking and challenging the dominant discourse, while highways around the world are being blocked, documentaries produced, and coalitions formed.²⁷

In reference to shale gas extraction, Friends of the Earth Europe is demanding member states of the EU and European financial institutions to stop politically and financially backing the development of shale projects both at home and abroad. Friends of the Earth has

also called for the reallocation of financial and political support for shale gas projects in low-GDP countries to go instead towards development of renewable energy, as outlined in the Millennium Development Goals. Meanwhile, the Algerian Solidarity Campaign (ASC) is also pushing for their state government to focus on economic diversification in order to decrease dependency on natural resources and to instead develop other sectors, specifically renewable energy.²⁸ Looking forward, the international community must be cognizant of the demands of local resistance movements and, in Europe and North America in particular, push their own governments and locally headquartered multinationals to stop displacing the environmental load of fracking not only on national scales, but also at the global level.

26 Gheroghiu, Andy, Antoine Simon and Helen Burley. "Fracking Frenzy." Friends of the Earth Europe, December 2014. https://www.foe-europe.org/sites/default/files/publications/fracking_frenzy_0.pdf

27 Environmental Justice Atlas. *EJAtlas*. ejatlas.org

28 Simon, Antoine and Lena Weber. "Resistance to Fracking Projects in Algeria." Environmental Justice Atlas, accessed February 5, 2015. <http://console.ejatlas.org/conflict/resistanceto/frackingprojectsinalgeria>



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