
Petroleum: A pillar of capitalist expansion

Petroleum is a homogenous mixture of organic compounds that, together with coal and natural gas, was formed some 300 million years ago during the Carboniferous Period of the Palaeozoic Era. Converted into a “fossil fuel” in the modern age, it is the result of the effects of millions of years on the remains of dead plant and animal organisms buried beneath clay, soil and minerals, subjected to great pressure, high temperatures and the action of anaerobic bacteria, that is, bacteria that do not live or grow in the presence of oxygen.

Reaching the petroleum stored beneath the earth's surface or the ocean floor in order to extract it requires drilling. But prior to drilling comes the work of exploration (prospecting) which also entails the use of high-precision instruments, the involvement of geologists, geophysicists, engineers, the construction of roads and communication systems, the mobilization of motor vehicles and helicopters, and the installation of camps and laboratories. The various methods of prospecting include seismic exploration, in which explosive charges are set off using dynamite in shallow wells, and the resulting shock waves reflected off the different layers of the earth are recorded with seismographs combined with photographic equipment. Another method is exploratory drilling, which involves drilling deeper wells to analyze samples from rock layers at different depths and study their composition and characteristics.

The extraction of petroleum basically continues to use the same drilling method developed by Edwin L. Drake of Pennsylvania, USA, in 1859, which established the foundation of the oil industry and accelerated the advance of the industrial age. Crude oil reservoirs tend to be thousands of metres underground (usually between 3,000 to 4,000 metres down, although there are wells that are 5,000 or 6,000 metres deep). Once the drilling reaches the reservoir, the change in pressure sends the viscous crude oil shooting to the surface, where it is collected through the use of oil derricks. This is the primary production phase, which can last for years, but when the pressure subsides, pumps must be used to continue pulling the crude oil up to the derrick. The oil is then transported by pipelines or ships for subsequent refining. (1)

The environmental disasters resulting from oil drilling, gas flaring over oil wells, and pipeline leaks are notorious. This is reflected in the testimony of local communities in Nigeria who suffer from the gross wastage of natural gas being flared by oil companies for purely economic reasons. In the Niger Delta region, more than two billion cubic feet of gas are flared daily. The enormous flames pump massive quantities of greenhouse gases and toxic substances into the air. As Nnimmo Bassey of Oilwatch describes, “There is no breath of fresh air near these flares. They cause asthma, bronchitis, cancers and blood disorders. They also pour acid rain on the land, vegetation, buildings and the people” (see WRM Bulletin 133). Pipelines have opened up the forests to predators while oil spills, the continuous flaring of gas and forest fires have become part of daily life for local communities, for whom oil has brought nothing but hardship.

Technology has also made it possible to extract petroleum from the seabed: offshore oil wells now account for around 25% of worldwide oil production. Through the use of sophisticated equipment,

underwater and deep sea facilities and floating or anchored drilling platforms, oil reserves at depths of more than 1,000 metres can be reached. Offshore oil drilling, however, has been accompanied by major environmental disasters, resulting from the spilling of oil and toxic chemicals in the water as well as the release of noxious gases into the atmosphere, endangering marine life in the surrounding area and in some cases threatening the food sovereignty of fishing communities.

After refining, oil and petroleum derivatives are transported across a vast distribution and marketing network involving intermediaries, wholesale and retail distributors, storage facilities and sales outlets, stretching around the planet and posing risks of its own (2).

The petroleum map

While most of the world's petroleum reservoirs are small, there are a small number of large reserves that contain most of planet's oil, concentrated in a few regions (petroleum provinces) where massive oil and natural gas fields have formed in sedimentary basins.

Approximately 86% of the world's oil is located in 23 petroleum provinces. Other figures state that around 15 countries account for 75% of global oil production and contain 93% of the planet's petroleum reserves. Over half of the world's proven oil reserves are in the Middle East. Al-Ghaw'r in Saudi Arabia is the world's largest oil field, and other giant oil fields are found in Iraq, Kuwait and Iran.

As for North America, the United States has produced the most petroleum of any country in the world, and some of its oil fields are shrinking, but it is believed to possess major reserves that have yet to be discovered. Mexico is one of the world's ten largest petroleum producers, although production is declining at its biggest oil field. Canada has begun to exploit the large deposits of bitumen (heavy crude oil) in the Athabasca oil sands, also known as tar sands, in the province of Alberta, which lay beneath 141,000 km² of forests and peat bogs.

A new petroleum frontier: Tar sands

In northern Alberta, beneath an area the size of Florida, are the tar sands: a mixture of sand, clay and a heavy crude oil or tarry substance called bitumen.

To extract this substance, all trees and plants are stripped away, in a style similar to open-pit mining. Thus the production of crude oil from the tar sands has destroyed the Athabasca delta, altering its pristine forests and clean rivers and lakes into a devastated landscape of deforestation, open pit mines and contaminated waters.

After the bitumen is extracted from the tar sands, it is upgraded in enormous facilities with smokestacks bellowing pollution into the air. The wastewater from the process is stored in huge toxic tailings ponds that can be seen from space.

Enormous amounts of water are used in this process: between two and six barrels of water are needed to produce one barrel of oil. Tar sands operations are licensed to divert 652 million cubic meters of fresh water each year, 80% from the Athabasca River. About 1.8 million cubic metres of this water becomes highly toxic tailings waste each day, polluting the Athabasca River as well as the groundwater that flows into Indigenous territories. Indigenous communities have reported the appearance of rare virulent cancers affecting many of their members, as well as physical abnormalities and tumours in fish and game.

In South America, Venezuela is the largest petroleum exporter and has the world's second biggest oil field, after Saudi Arabia. Brazil is South America's second largest oil producer, with most of its reserves in the Atlantic Ocean.

The United Kingdom's oil reservoirs in the North Sea are the largest in the European Union and position it as an important producer, although its production levels have declined and it is now a net importer of petroleum. Russia has large oil fields as well as the best potential for new reserves.

The recent discovery of a massive deposit of shale oil in southern Australia could turn the country into a "second Saudi Arabia" in terms of petroleum production.

In Africa, the lure of cheap oil – mainly because its extraction is carried out in ways that pay scant attention to the environmental and social costs – and heavy capital investment that entails the grabbing of vast areas of land have resulted in oil operations spreading over the eastern and southern regions of the continent, destabilizing governments and dividing communities. While oil and gas fever grips the tycoons in Tanzania, Mozambique, Madagascar, Chad, Mauritania, Ethiopia, Eritrea, Somalia, etc., the local communities are never brought into the picture of what is about to hit them. One example is the West African Gas Pipeline project, for which even the environmental rules of the World Bank were not respected, as denounced by local communities. Thus the poor continue to subsidize the costs of crude oil by the losses they suffer in quality of life and extreme environmental degradation (see WRM Bulletin 133).

In the meantime, faced with the progressive decline in production of some oil fields, oil companies have developed new technologies that allow them to expand the oil frontier into increasingly remote and previously inaccessible areas of the seas (as in the case of the Tupi deepwater oil field off the coast of Brazil), Arctic regions and tropical forests, altering and destroying fragile ecosystems and dramatically exacerbating carbon emissions and therefore climate change.

The unconventional technique of hydraulic fracturing or "fracking" – through which fluid is injected at high pressure to widen fractures in shale rock and release the oil and natural gas trapped inside – opens up more frontiers for petroleum extraction and the consequent environmental hazards. In the case of fracking, in addition to the huge amounts of water consumed in the process, the various chemicals used to help dissolve the shale rock end up contaminating both the soil and groundwater. Moreover, this "brute force" technology is a chaotic, non-linear process that can open fractures to freshwater formations as well as other oil and gas wells.

The role of petroleum

Petroleum is currently one of the pillars of the globalized economy, a strategic product for the expansion of capitalism. With its countless derivatives resulting from chemical transformation by the petrochemical industry, giving rise to plastics, synthetic fibres, detergents, medications, food preservatives, rubber and agrochemicals, among others, petroleum shapes the petroleum civilization, with its tragic consequences of war and destruction.

While oil has been used since ancient times by the Sumerians, Assyrians, Babylonians, Egyptians

and more currently the indigenous peoples of the Americas, for a wide range of purposes – for construction, as medicine, as lamp fuel, for the protection of canoes – it was in the late 19th century and early 20th century, in the context of the Industrial Revolution, that its use for the production of engine fuel (gasoline and petrochemical substances) gained ground, displacing coal. It was at this time that Rockefeller's Standard Oil emerged as the world's largest oil refining, transporting and marketing company, based in the United States, the country that was the largest petroleum producer and consumer until the Second World War.

Oil played a decisive role in the development and outcome of the First World War, by fuelling the new vehicles known as tanks on land, the ships and submarines at sea, and the first fighter planes and aircraft used for reconnaissance, aerial attacks and bombing missions. During this time, oil production in the United States, far from the battle fields, rose from 33,000 tons in 1913 to 44,000 in 1917 and 62,000 in 1920. The oil industry continued to grow in the post-war years, alongside the natural gas industry, definitively displacing coal (3).

In 1938, worldwide oil production had reached 276,000 tons, a figure that rose to 370,000 tons in 1946, as a consequence of the Second World War. Between 1950 and 2000, global crude oil production increased fivefold. In 2012, global petroleum consumption had reached an average of 89 million barrels per day, 30% more than in 1992, producing 14.11 billion tons of carbon emissions.

Petroleum and its various derivatives and applications enabled big capital, through the use of motorized tractors, small aircraft, chainsaws and agrochemicals, to drive the expansion of agribusiness, with its large-scale industrial production of food and timber. The massive use of these production tools benefited the big oil monopolies, which began with the so-called Seven Sisters – the Anglo-Persian Oil Company (now BP); Gulf Oil, Standard Oil of California (SoCal) and Texaco (now Chevron); Royal Dutch Shell; and Standard Oil of New Jersey (Esso) and Standard Oil Company of New York (Socony) (now Exxon Mobil) – who dominated the global oil business until the early 1960s. After the creation of the Organization of the Petroleum Exporting Countries (OPEC), the influence of these companies diminished. Subsequently, as a result of a series of mergers, only four major corporations remained – Exxon Mobil, Chevron, Royal Dutch Shell and BP – although their combined total capital is much greater than that of the Seven Sisters (4).

The oil business has provoked massive rates of deforestation, altered and destroyed ecosystems, and dismantled the traditional way of life and food sovereignty of countless local communities. As aptly noted by Andrés Barreda, "The neoliberal period is the era in which the most fuel has been burned in the entire history of humanity. The consumption and waste of energy and materials by capitalist industries, cities and agribusiness are growing at a colossal rate, particularly the energy consumption of global intermodal transportation networks and almost one billion vehicles and the multimodal electronic information network of computers, mobile phones, etc. that currently comprise the global machine, creating a capitalist economy voraciously addicted to increasingly greater global production and consumption of the three fossil fuels: oil, natural gas and coal."

The curse of petroleum

In the countries of the South, long abused by colonization and fenced in to make them dependent, oil tends to be a curse, something perhaps best illustrated by the countries of Africa. Local communities in Nigeria, Angola, the Republic of Congo, Gabon and other oil-producing countries have suffered and continue to suffer from the "curse" of petroleum, which has not brought them any wealth.

In the Niger Delta, the rates of cancer, infertility, leukaemia, bronchitis, asthma, stillbirths, babies born

with deformities and other pollution-related ailments are unusually high. Local communities constantly grapple with the consequences of oil spills, gas flares and other menaces arising from oil exploration activities. Of the oil companies operating in the Niger Delta, Shell has gained the greatest notoriety for human rights abuses, as military operatives paid by the company moved into the communities with armoured tanks and weapons, shooting and killing hundreds of people including women and children, mowing down entire villages and maiming thousands, in times when Ken Saro-Wiwa roused the consciousness of the nation and the international community over the environmental injustice in Ogoniland (see WRM Bulletin 152).

It is around the oil industry – together with mining – that capitalism has organized the industrial production of most of the harmful substances and energies that now saturate not only waste fills but also water systems, the atmosphere and finally the planet's climate.

Oil companies, despite their pledges of social responsibility, due controls, security measures and use of best practices, act with total impunity, violating human rights and contaminating the environment on scales that represent crimes against the environment, nature and humanity as a whole. In the face of the power of the oil giants, states may fail to protect their people or nature by forcing the companies to accept responsibility for their acts. And even in cases where legal action is taken, most outcomes are unsatisfactory in terms of tackling the justice claims of impacted communities, whose values, cultures and traditional jurisdiction are not addressed by justice systems. This is the case of sacred lands, the concept of community land ownership, and the Rights of Nature, a concept incorporated in the constitution of Ecuador (5). For the U'wa people who live in the rainforests of eastern Colombia, oil is the blood of Mother Earth, which is why oil drilling is considered a desecration. In their words, "We know that the riowa (white man) has put a price on all that is alive, even the stone itself; he trades with his own blood and he wants us to do the same on our sacred territory with ruiaria, the blood of the earth which they call petroleum... all this is foreign to our customs..." (6). This has led to the U'wa people's longstanding conflict with the Colombian state and the U.S. oil company Occidental Petroleum (OXY), which has been authorized by the government to drill for oil in the heart of U'wa territory, sowing repression and death.

Local communities are challenging the oil drilling that poisons their land, water and air. They no longer want to live in the midst of oil spills, gas flares and the economic and social disruption caused by the oil industry. They do not want the industry to continue destroying their forests. And they are calling for the oil to be left underground, where it belongs, a demand that is spreading around the world and includes natural gas and coal.

All signs point to the imminent danger facing humanity as a direct consequence of the dominant model imposed by the current "petroleum civilization", whose forms of production, trade and consumption are crushing the large majorities for the benefit of a small few. The modern Western urban lifestyle is sustained by excessive energy consumption that entails enormous social and environmental injustice. According to a recent report on energy published by Friends of the Earth International (7), 1.3 billion people, or one fifth of the world's population, do not have access to electricity. Per capita energy consumption in the United States and Canada is roughly twice that in Europe or Japan, more than 10 times that in China, nearly 20 times that in India, and about 50 times as high as in the poorest countries of sub-Saharan Africa.

Pluspetrol in Camisea, Peru, threatens Indigenous Peoples in isolation and wants to be rewarded with a REDD+ project!

Since 2004, a consortium led by the Argentine oil and gas company Pluspetrol has been

exploiting the Camisea gas fields in Peru, inside the Kugapakori-Nahua-Nanti Reserve (KNNR). The company is now planning to drill new wells, build a 10.5km pipeline extension and carry out seismic tests across 100s of square kilometres as part of a massive expansion of its operations. Though the project is currently pending approval by the Peruvian Ministry of Energy and Mines, Forest Peoples Programme (FPP) has denounced that photos in an internal report by a Peruvian government agency reveal illegal clearings in the reserve that purportedly protects indigenous peoples living in voluntary isolation and initial contact.

An Environmental Impact Assessment (EIA) of the project reveals that Pluspetrol acknowledges that contact with the indigenous peoples in voluntary isolation is “probable” during its operations, that such people in general are highly vulnerable to contact and “massive deaths” can occur as a result, and that the impacts of its expansion on them will be, or could be, considerable for a wide variety of reasons (for more information on Peoples in Voluntary Isolation see WRM Bulletin 194).

Believe it or not, Pluspetrol wants not only to expand its operations in the Amazon but also be “rewarded” with the benefits of a REDD+ project that would grant the company the carbon credits that could be generated from the forested areas on the reserve that remain standing (see *Masking the Destruction: REDD+ in the Peruvian Amazon* <http://wrn.org.uy/books-and-briefings/masking-the-destruction-redd-in-the-peruvian-amazon/>).

Nevertheless, it is the most vulnerable communities – precisely those with the least access to the uses and applications of petroleum – that are the most affected by the climate change caused by global greenhouse gas emissions, 57% of which result from carbon dioxide released by fossil fuel use.

In the meantime, oil has been ideologically imposed as an essential source of energy for globalized “plastic societies”, centralized by multinationals for whom it is a financially lucrative business simply because they do not account for the environmental and social disasters it causes.

The shift towards more environmentally and socially just and healthy societies, in terms of energy as well, is an ever more urgent necessity. It is no longer simply a matter of a change in energy sources. If the powerful economic, political and financial interests that currently uphold the oil apparatus are maintained, if inequality persists, if production and consumption continue on the same massive scales, if capacities are exceeded, any renewable energy source could ultimately prove just as harmful as oil.

The real answer lies in solidarity-based societies built by social movements and the resulting power to save humankind from its current disastrous course, which will benefit no one in the long run.

(1) *El petróleo*, <http://www.elpetroleo.50webs.com/perforacion.htm>

(2) “Sueños de oleoductos y tuberías”, Isaac Osuoka, *Oilwatch Africa*, in “Fluye el petróleo, sangra la selva”, *Oilwatch*, <http://www.oilwatch.org/documentos/libros>

(3) “Petróleo, el combustible del capitalismo”, María Ibáñez, <http://www.enlucha.org/site/?q=node/831>

(4) “Manipulaciones y zarandeos de la actual civilización petrolera mundial”, Andrés Barreda, *Oilwatch*, <http://www.oilwatch.org/component/content/article/118-varios/documentos/131-manipulaciones-y-zarandeos-de-la-actual-civilizacin-petrolera-mundial#sdfootnote14sym>

(5) “Digging for dirty oil. Reviewing corporate oil liabilities and EJO legal strategies for environmental

justice”, EJOLT, October 2013, <http://www.ejolt.org/2013/10/digging-for-dirty-oil-reviewing-corporate-oil-liabilities-and-ejo-legal-strategies-for-environmental-justice/>

(6) Carta de los U’wa al mundo, http://www.asociacion.ciap.org/IMG/pdf/Carta_U_Wa.pdf

(7) “Good energy, bad energy”, <http://www.foei.org/en/good-energy-bad-energy>