UN environment

PERSPECTIVES

ISSUE NO 24

# CONFLICT POLLUTION AND THE TOXIC REMNANTS OF WAR:
## A GLOBAL PROBLEM THAT RECEIVES TOO LITTLE ATTENTION

**Doug Weir**
**Toxic Remnants of War Project**

**Severe pollution incidents have provided some of the most visually arresting images of recent armed conflicts. Oil fires and spills, bomb – damaged and looted industrial facilities, abandoned military material and munitions, rubble and demolition waste – all are associated with contemporary conflicts, and all can threaten ecosystems and human health. But these obvious, and often serious, sources of pollution rarely tell the whole story. The relationship between armed conflict and pollution – or what we view as the toxic remnants of war – can be complex, and its legacy can last for decades after conflicts end. While it is a problem that has received increasing attention in recent years, too little is currently done to minimize the generation of pollutants in conflict and military activities, and to examine and address their impact on human health and the environment.**

## How and where wars are fought matters

Across the oil producing regions of Syria and Iraq, conflict-affected communities desperate for income have resorted to refining and selling crude oil[1]. Their work is clearly visible from satellite images, dark stains across the desert, comprised of primitive boilers and collection trenches, heated by burning oil. Much of the work is undertaken by children, who are exposed daily to the smoke and fumes from the artisanal refineries. The plumes spread across communities and their fields; the waste into the soil. This hazardous and polluting coping strategy is a result of the population's demand for oil products for fuel and heating, and also serves to help finance and power Islamic State's activities and those of other

1 PAX (2016) Scorched earth and charred lives: human health and environmental risks of civilian-operated makeshift oil refineries in Syria: http://www.trwn.org/report-scorched-earth-and-scarred-lives/

A UN Environment publication series that presents views from Major Groups and Stakeholders of Civil Society or about issues that are relevant for them. PERSPECTIVES is coordinated by UN Environment's Civil Society Unit. The presented views are entirely those of the authors and do not necessarily reflect the views of UN Environment.

Civil Society Unit
Governance Affairs Office
UN Environment
civil.society@unep.org
web.unep.org/about/majorgroups/


*Burning oil wells around Qayyarah blackened the skies and caused localised pollution risks for local communities. The site was visited by PAX in January 2017, as part of its Conflict and Environment program in Iraq.*

rebel groups. But it is also a result of the collapse of the local economy, brought about by the long-running conflict, and the tactical decision by parties to the conflict to target and destroy formal oil facilities.

The health and environmental legacy of the artisanal refineries has yet to be studied in detail, and has been overshadowed, both literally and figuratively, by the burning oil wells of northern Iraq[2]. Wells and oil infrastructure were targeted and set alight by Islamic State during their retreat from the Qayyarah area near Mosul in in mid-2016[3]. Insecurity, the presence of improvised explosive devices and the complexity of extinguishing the blazes meant that several fires continued to burn well into 2017, with new attacks reported in a more southerly oil field in March. The plumes from the fires have spread across a wide area of Iraq and at present their environmental and health impact remains unclear. For a time last year, the oil fire plumes mingled with a white fog of sulphur after Islamic State also set fire to stocks at the Mishraq Sulphur Plant, leading to deaths and casualties[4].

These examples demonstrate that conflict pollution can be both a direct result of how and where wars are fought, and also that it can be caused or worsened by the economic and societal conditions associated with armed conflicts. We view these as direct and indirect toxic remnants of war[5]. It's also the case that tackling pollution sources and assessing their impact in conflict and post-conflict settings is often far more complex than comparable cases in peacetime. Indeed, institutional collapse, and the low priority afforded to the environment following conflicts, often contribute to many incidents never being properly addressed.

## War is a dirty business

Conflicts with a legacy of pollution are not a new phenomenon. Areas of France and Belgium are still affected by heavy metal contamination from the intensive use of conventional munitions in World War One[6]. Meanwhile the legacy of the dumping at sea of surplus conventional and chemical munitions from the two world wars, a practice that which continued until the late 1970s, continues to interfere with fishing and marine renewable energy generation. Such marine remnants of war affect the Baltic, north Atlantic and many small island states in the Pacific.

2 TRW Project (2016) The environmental consequences of Iraq's oil fires are going unrecorded: http://www.trwn.org/blog-the-environmental-consequences-of-iraqs-oil-fires-are-going-unrecorded

3 UNEP/OCHA Joint Environment Unit (2016) A rapid overview of Environmental and Health Risks Related to Chemical Hazards in the Mosul Humanitarian Response: https://www.humanitarianresponse.info/system/files/documents/files/mosul_env_health_hazards_report_final_8nov.pdf

4 *Burning sulfur near Mosul sends hundreds to hospital, U.S. troops don masks*, Reuters, 22 October 2016:http://www.reuters.com/article/us-mideast-crisis-iraq-chemicals-idUSKCN12M08G?il=0

5 For an overview of different examples of toxic remnants of war see: http://www.trwn.org/trw-sources

6 TRW Project (2013) Assessing the toxic legacy of First World War battlefields: http://www.toxicremnantsofwar.info/assessing-the-toxic-legacy-of-first-world-war-battlefields

It was the Viet Nam War that first helped raise international awareness of the increasingly toxic legacy of industrialized warfare. The widespread use of defoliants contaminated with the persistent dioxin TCDD, together with other environmentally destructive practices, coincided with, and helped energize, the birth of the modern environmental movement. This led to the first meaningful effort to enhance the protection of the environment in times of war[7]. A positive step, but the protections developed in the 1970s have subsequently proved insufficient for the task; while the legacy of dioxin contamination on human health in Viet Nam has affected multiple generations and continues to this day.

From the burning oil fields and spills of the 1991 Gulf War[8], to the deliberate bombing of The Former Yugoslavia's petrochemical facilities, and the destruction, abandonment and looting of Iraq's industrial and nuclear sites, warfare in industrialized or industrializing countries has gone hand in hand with serious pollution incidents. In many cases, states affected by insecurity and armed conflict have pre-existing problems with pollution, which conflict serves to worsen or exacerbate, be they inadequate waste management, limited capacity for governmental monitoring and oversight, or weak institutions and regulatory frameworks. One current conflict where these issues are particularly acute is that in Ukraine's Donbas region, where the use of heavy weapons in what is a highly industrialized area with a legacy of serious pollution is threatening to trigger a serious environmental emergency[9].

Pollution associated with conflicts can also have consequences for countries neighbouring conflict zones. Chemical contamination of rivers or the marine environment are obvious examples, less so the environmental impact of largescale population displacements, which can place refugee-hosting nations under considerable environmental pressure if poorly managed. In this regard it was unsurprising that the environmental consequences of human displacement featured so prominently in the United Nations Environment Assembly -2 resolution '*Protection of the environment in areas affected by armed conflict*'. The collapse of governmental oversight and the loss of control over borders stemming from conflicts can also encourage the illegal transit and dumping of hazardous wastes.

Since 1999, conflict pollution and the toxic remnants of war have been a persistent feature of UN Environment's post-conflict environmental assessments: depleted uranium weapons in the Balkans; abandoned military materiel in Afghanistan; hazardous industrial sites in Iraq; to waste, rubble and munitions constituents in Gaza and Lebanon and abandoned industry in Sierra Leone[10]. Yet while much of our focus remains on the pollution caused during conflicts and in their wake, this can help conceal the environmental impact of the preparations for war.

The defence industry has been responsible for generating significant levels of pollution in its production of weapons, vehicles and equipment. While this reached a nadir during the Cold War, when production was at its height and environmental standards were weak, today defence exemptions in chemicals legislation remain commonplace. For example under the Minamata Convention on Mercury and the European Union's Registration, Evaluation, Authorisation and restriction of Chemicals (REACH) framework.

7 For a history of efforts to enhance legal protection for the environment in relation to armed conflict, see: Amb. Marie G. Jacobsson (2016) Working to protect the environment in armed conflict: https://medium.com/@UNEP/working-to-protect-the-environment-in-armed-conflict-ce9aff1aa479#.j78sm10r1

8 TRW Project (2016) What the environmental legacy of the Gulf War should teach us: http://www.trwn.org/blog-what-the-environmental-legacy-of-the-gulf-war-should-teach-us

9 OCHA (2017) Humanitarian Bulletin Ukraine (Jan-Feb 2017): https://www.humanitarianresponse.info/system/files/documents/files/ukraine_humanitarian_bulletin_issue_16_jan_feb_2017_en.pdf

10 UNEP's post-conflict environmental assessments are available at: http://web.unep.org/disastersandconflicts/publication?f[0]=field_thematic_sector%3APost-Conflict%20Environmental%20Assessment

Significant pollution can also be generated during testing and training at domestic and overseas military facilities, where a "flexible" approach to domestic environmental laws has often been required to allow activities to take place.

Sustaining military activities in conflict zones can also generate pollution, most notoriously through poor waste management practices such as the use of open air burn pits for waste disposal. Opposition to these practices has tended to focus on the health risks they pose to service personnel, with far less attention on the communities living in proximity to such sites. While deployments in active conflicts are more likely to allow lower environmental standards as part of the calculus of mission success, peacekeeping missions may also have a significant "bootprint", although there have been increasing efforts to minimize poor practices in recent years[11].

## Changing how we think about conflict pollution

As noted above, conflict pollution is not a new phenomenon. Historically, the diverse sources of pollution associated with conflicts and military activities have been dealt with in isolation, if at all. This has encouraged a fragmentation of responses, which conceals the fact that, irrespective of pollution source, there are commonalities that apply to the assessment and management of pollutants caused or mediated by armed conflicts. This supports the idea that a common approach should be explored. One example could be that taken by humanitarian mine action initiatives towards anti-personnel land mines, cluster munitions and other forms of unexploded ordnance. One could view these as equivalent to different forms of pollution, but there are common approaches to addressing the threats that these weapons – the explosive remnants of war - pose to humans; they often occur together in affected areas and, as a result, none tends to be dealt with in isolation.

Similarly, for pollution as a whole, while specific standards and approaches vary between states and regions, together legislative approaches seek to identify hazardous substances, regulate their use, minimize their release, assess and remedy incidents and examine and address their health and environmental impact. It has been this approach that has underpinned the recent emergence of the toxic remnants of war concept. So, while wartime industrial accidents, munitions residues, institutional collapse, waste and rubble may represent very different sources of pollution, a normative framework that seeks to enhance the protection of human and environmental health from their impact could nevertheless be founded on these common protective principles.

The threat that toxic remnants of war pose to human health has recently been noted by the United Nations Special Rapporteur on human rights and toxics, who observed that globally, they inflict pain and suffering on communities long after conflicts have concluded. He argued in favour of more effective monitoring and identification systems for conflict pollution and for governments to: "*…provide an effective remedy for hazardous remnants of conflict and other military activities, including funding for full remediation, comprehensive medical treatment, and compensation for individuals experiencing the effects of exposure to these materials*[12]."

11 See UNEP's work on "Greening the Blue Helmets": http://web.unep.org/disastersandconflicts/what-we-do/preparedness-response/greening-blue-helmets

12 UNHRC (2016) A/HRC/33/41, Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes: http://ap.ohchr.org/documents/dpage_e.aspx?si=A/HRC/33/41

## Post-conflict remediation

In what may prove to be a far-reaching development, the International Law Commission, which is tasked by the UN General Assembly with the progressive development of international law, last year adopted a draft principle on the "toxic and hazardous remnants of war"[13]. The Commission has been undertaking a multi-year review of the state of legal protection for the environment before, during and after conflict. In doing so it has been synthesizing elements of international humanitarian, environmental and human rights law, as well as studying the practice and custom of states and international organizations. The draft principle calls on parties to conflicts to remove or render harmless toxic and hazardous remnants of war under their jurisdiction or control, and which are causing or risk causing damage to the environment. It also calls for them to reach agreement between themselves and with third parties on the provision of technical and material assistance to achieve this goal. The Commission also proposed principles on remnants of war at sea, on post-conflict environmental assessments and remedial measures, on data sharing, and on agreements between states over overseas military bases. If a mechanism could be developed to operationalize these principles, these too could also eventually contribute to efforts to minimize and address conflict and military pollution.


*Lakes of solidified oil tar near an extinguished oil well in Qayyarah. Humanitarian aid organisations have called for the cleanup and remediation of environmental hotspots around the oilfields and refineries, and for the subsequent monitoring of water sources and soil.*

The cost and complexity of addressing toxic remnants of war, particularly in insecure or highly politicized settings, means that successful remediation programmes tend to be the exception rather than the norm. One case that could have wider ramifications is that of the remediation of dioxin from the former US airbase at Da Nang in Viet Nam. During the war, the base became heavily polluted by spills and dumping of the defoliant Agent Orange. After long running pressure from US civil society and the Vietnamese government, and an environmental assessment that revealed that dioxin was spreading from the former airbase into the food chain and into the breast milk of local mothers, the US eventually agreed to fund decontamination work. While the US has not accepted liability for the pollution, USAID has funded a major programme to treat soil contamination at the site[14]. This is a positive step but Da Nang is just one of many such dioxin hotspots, and tackling these sites alone does not deal with the wider health legacy of dioxin exposure in Viet Nam.

13 TRW Project (2016) States back further progress on conflict and environment in UN legal debate: http://www.trwn.org/states-support-further-legal-work-on-environmental-protection-in-conflict/

14 USAID (2016) Environmental remediation of dioxin contamination at Danang airport project: https://www.usaid.gov/vietnam/environmental-remediation-dioxin-contamination-danang-airport-project-frequently-asked-questions

## Military pollution outside conflict

Because the peacetime activities of militaries and the defence industry take place within pre-existing regulatory frameworks, there has been increasing pressure to reduce pollution and the use of toxics in recent years. The prevalence of harmful practices during the last century left a legacy of health and environmental concerns and vast liabilities for remediation, and this too has encouraged greater attention on the impact of defence activities. The scale of the problem is particularly evident in the US, where numerous former production and testing facilities are now Superfund sites. The scale of the liabilities, and tighter domestic environmental regulation, has encouraged the US military to clean up its activities, for example through the screening of new compounds for munitions and with programmes that seek to identify emerging contaminants of concern[15].

However, harmful practices still continue. One example is the open burning of surplus explosives and propellants. Globally, the vast majority of munitions are never used in conflict, with most requiring disposal at the end of their life. For years open burning and open disposal - OB/OD - has been the cheapest option but one with a significant environmental footprint from air pollution and the contamination of soils and water sources. It is now banned by many countries unless no other options are available. Grassroots activists in the US have recently led a successful campaign to challenge the continuing use of OB/OD. The Ceasefire Campaign has drawn attention to sites across the country and worked closely with affected communities[16]. Cleaner, greener methods of disposal are widely available and can do much to help protect human health and the environment.

## Reducing pollution during conflicts

While there are some signs of progress on reducing pollution before conflict, and growing awareness of the need to tackle it afterwards, minimizing polluting incidents during conflicts remains challenging. International humanitarian law's provisions for environmental protection are widely viewed as weak, with the thresholds for what constitute unacceptable environmental harm set unrealistically high. While customary law urges militaries to take all precautions in attack, such considerations are weighed against military success. So, while bombing an oil facility could cause serious environmental harm, it could be argued by lawyers that the military advantage gained from its destruction would outweigh such concerns. Weak law does little to encourage effective implementation, and this is further discouraged by the absence of any accountability mechanism.

Some governments have sought to protect the environment through pre-conflict measures. Kuwait took steps to protect oil facilities and ensure emergency clean-up