

John Oversby

Is science education proactive or reactive with respect to humanitarian aid? The place of the military and climate change

Introduction

The European Commission sets out the principles of humanitarian aid (European Commission: 1 and 2). It proposes a set of rules that seek to limit the effects of armed conflict. It lays out the responsibilities of states and non-state armed groups during an armed conflict. The UN Charter has declared war as illegal but war still takes place. It defines, among others:

- the rapid and unimpeded passage of humanitarian aid in armed conflict
- the freedom of movement of humanitarian workers
- the protection of civilians (including medical and humanitarian workers)
- the protection of refugees, prisoners, the wounded and sick.

At present humanitarian aid is composed of the following aspects:

- Capacity building: policy and action preparation for internal humanitarian aid
- Cash transfers: structural infrastructure within the money system to provide finance for those without any wealth
- Climate change and the environment: extreme weather events made more likely though climate change
- Digitalisation: includes electronic information
- Disability inclusion: those with a disability need extra provision. Indeed military action often increases the number of those with disabilities
- Disaster preparedness: this includes basic food stores and methods of distribution.
- Humanitarian air bridge: when transportation routes are blocked or significantly damaged, movement by air might be the only viable alternative
- Emergency education: young people lose access to education through internal and external migration, while older people require both academic and vocational routes to be available.

In these respects, humanitarian aid is reactive, dealing with impacts after they have happened. However, there is a case for looking at the preparation for military conflict (Downey *et al.* 2010) and its creation of a need for humanitarian aid. Downey *et al.* (*op. cit.*) claim:

‘One set of institutions that facilitate resource extraction activities are international trade and finance institutions such as the World Bank, International Monetary Fund (IMF), and World Trade Organization (WTO). These highly coercive institutions have multiple, often violent, negative impacts on individuals, societies, and the environment However, these institutions do not directly use or control the means of violence, which we argue also play a critical role in maintaining and increasing global natural resource extraction and ensuring the safe transport of raw materials and finished products. The means of violence are, instead, controlled by military, police, mercenary, and rebel forces around the world that are usually, but not always, associated with local or national governments and that sometimes act on their own behalf and sometimes to ensure capital accumulation. Thus, we conclude that environmental sociologists and ecological unequal exchange researchers should focus theoretical and empirical attention not only on the relationship between natural resource extraction, raw material transport, armed violence, and environmental degradation but also on the structural role that military, police, mercenary, and rebel forces play in harming the environment.’

These resource extractions carried out exploiting unequal power relationships that already exist between wealthy and poor nations often create an environment where those without power are forced off their lands and compelled to live in poverty usually in urban centres. Additionally, land is frequently structurally degraded and left devastated and uninhabitable. Add to this the need for the military to test their equipment and weapons for lengthy periods damaging the environment and making it useless for human habitation or for farming, resulting in the need for humanitarian aid to continue over generations.

Of course, war and other military conflict involving violent repression leads to widespread damage to property and, more importantly, loss of life that could sustain normal behaviour. In such situations, exemplified recently in Ukraine but present in other theatres of war such as Yemen, Syria, and the Occupied Territory of Gaza, management of supply lines, widespread destruction of residential and commercial property, damage to transport links for living essentials, show how quickly devastation can result and coercive loss of land rights leading to the need for humanitarian aid.

The impact of climate change, a second human-induced devastation of the environment, leads to serious ill-health and death, more obvious in poor countries where resilience is restricted through poverty, both absolute and relative. Major floods, storms and fires are increasing as the climate warms up, requiring humanitarian aid to save life and to care for those affected. Food production is negatively affected by climate change resulting in farmers being less able to produce sufficient food as the climate warms up. Since climate change is so widespread, populations

are displaced and requiring humanitarian aid. Add to this the provision of good water supplies for farming, drinking and manufacturing industry which is declining, leading to the need to support populations over a wide area. Wealthy countries are contributing significantly, per head of population, to climate change, both directly by consumption of resource and indirectly by importing manufactured research from poorer countries.

So, what is the place of science education in these cases?

- In biology, the fragility of systems to continue life cycles, should be an integral part of the content of the curriculum, including food production. We recognise the interconnectedness of different parts of society (e.g. farming and food production, transport of food to centres of population for consumption) but we should introduce older students to the dangers of destroying elements of the systems that maintain life. Not least, those places that produce crops for export, such as wheat in Ukraine, could be used as examples of what happens in the case of military conflict. The emergence of extreme weather events, made more likely by climate change, also disrupts life cycles.
- With respect to chemistry, mineral resource extraction topics should incorporate consideration of armament production, and the consequent damage to the environment. Fuel supplies have been a major issue in military conflict battles as exemplified in the countries listed above, and it is not sufficient to teach about the use of fuels while omitting the high use of fuels by armies and communities. Explosive power leading to destruction of life and property, and the subsequent need for humanitarian aid should be included.
- In physics, military exploitation of the strength and density of metals to protect soldiers, while leaving civilians vulnerable, would be a valuable inclusion. See Thomsen (2022) for an introduction to teaching ethical issues in physics.

References

- Crawford, E., Pert, A. (2020). *International Humanitarian Law*. Second Edition. Cambridge: Cambridge University Press.
- Downey, L., Bonds, E., Clark, K. (2010). Natural Resource Extraction, Armed Violence, and Environmental Degradation. *Organ Environ*. 23(4): 417–445, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3169238>, accessed 31 March 2022.
- European Commission (1. nd), https://ec.europa.eu/echo/who/humanitarian-principles_en, accessed 24 May 2022.
- European Commission (2. nd), https://ec.europa.eu/echo/what/humanitarian-aid/international-humanitarian-law_en, accessed 24 May 2022.
- Thomsen, M. (2022). *Physics and Military Research in An Instructor's Guide for Ethical Issues in Physics*. Online Ethics Center FOR ENGINEERING AND SCIENCE, <https://onlineethics.org/cases/chapter-7-physics-and-military-research>, accessed 24 May 2022, and Chapter 8 on climate change in the same work, <https://onlineethics.org/cases/chapter-8-climate-change>, accessed 24 May 2022.

Is science education proactive or reactive with respect to humanitarian aid? The place of the military and climate change

Abstract

In this paper, I will focus on the human-induced need for humanitarian aid, in particular, disasters created by climate change caused by humans, and military conflict caused by humans. These can largely be avoided beforehand, although I do not underestimate the political will needed to do so.

I point to international rules and procedures for humanitarian aid in times of armed conflict and natural disasters. Underlying the issues is a sense of injustice in the causes of military and climate change action, involving ethical considerations. Generally, these are not a focus in secondary school sciences curricula.

Key words: science education, humanitarian aid, climate change, disasters

prof. John Oversby

Science Education Futures, Reading, UK
email: oversby61@gmail.com