

Basra, Iraq

Depleted Uranium battlefield

The use of Depleted Uranium (DU) ammunition during the Gulf War of 1991 caused the local population to be exposed to radioactive uranium dust. This could potentially explain the significant rise in cancer and congenital malformations documented in the southern Iraqi city of Basra after 1991.



Basra, a city of 1.6 million, was exposed to DU bombardments during the Gulf War. Studies found a significant rise in the incidence of congenital anomalies, leukemia rates and other childhood cancers. Photo credit: s1lang / creativecommons.org/licenses/by-nc-nd/2.0



Tanks hit by DU ammunition were discarded on tank graveyards near the city. After the cessation of fighting, they were used as playgrounds for local children or pilfered for valuables, scrap metal or souvenirs. Photo: © Wim Zwijnenburg



When used in armor-piercing projectiles, DU ignites upon impact, burning up the insides of vehicles after penetration. The nano-sized uranium oxide particles can be dispersed by wind for hundreds of miles. Photo: © Wim Zwijnenburg

History

Depleted uranium (DU) is mostly composed of the isotope uranium-238 and is a by-product of the enrichment process used to manufacture reactor- or weapon-grade enriched uranium. Ammunition containing DU was used in the Gulf War of 1991 by both U.S. and UK forces. The British Royal Society estimates that the amount of DU ammunition used in Iraq amounted to a total of 340 tons.¹ Because of its high density and its ability to pierce the armored walls of tanks, DU ammunition is most likely also used by other countries.

Since DU is essentially radioactive waste, it is widely available in countries with nuclear programs. When used in armor-piercing projectiles, DU ignites upon impact, burning up the insides of vehicles after penetration. The nano-sized uranium oxide particles can be dispersed by wind for hundreds of miles. Due to their physical half-life of about 4.5 billion years, this uranium dust poses a permanent health risk to the local population.^{2,3}

Basra, a city of 1.6 million, received heavy bombardments with DU ammunition during the Gulf War. Also, tanks that were hit by DU ammunition were left standing on the battlefield outside the city. After the cessation of fighting, these tank graveyards were used as playgrounds for local children or were pilfered for valuables, scrap metal or souvenirs so that many people, mostly civilians, came into contact with radioactive dust even long after actual combat.

Health and environmental effects

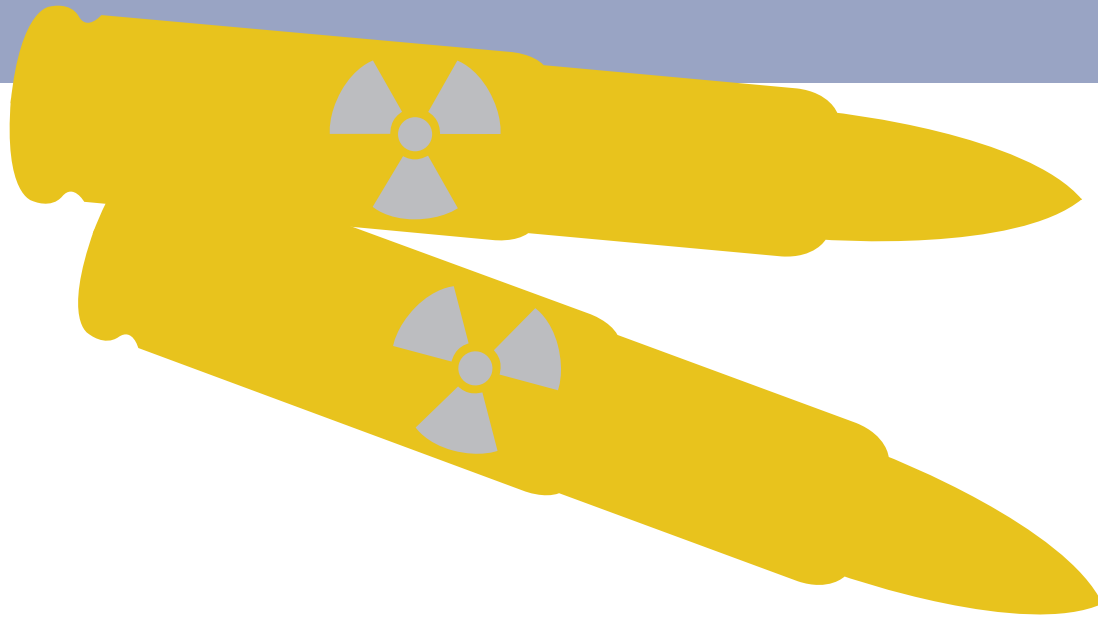
DU can enter the body through inhalation, ingestion or shrapnel wounds. Some of the DU will be excreted through the kidneys, where its toxic effects can cause acute renal failure. The rest remains in the body, especially in the bones, where it continually irradiates surrounding tissue.² While DU is primarily a source of alpha-radiation, its decay products can also cause beta- and gamma-radiation. By causing mutation of the DNA, internal irradiation can lead to cancer and malformations. Animal studies have shown the teratogenic effect of DU and human epidemiological studies have shown increased birth defects in the children of people exposed to DU.²

After the Gulf War, the incidence of congenital birth anomalies and cancer rose near places where DU ammunition had been used: A comprehensive study performed in Basra in 1995 found a significant rise in the incidence of congenital anomalies from 3.04 per 1,000 in 1990 to 7.76 per 1,000 in 1998. Besides congenital heart disease and chromosomal aberrations, observed symptoms included children born without a head, only one eye, an open belly, an open spine, missing limbs, fish skin, cleft palate or dwarfism.⁴

An epidemiological study performed by Basra University found a 100 % rise in the incidence of childhood

References

- 1 Moszynski P. "Royal Society warns of risks from depleted uranium." BMJ. 2003 May 3; 326(7396):952. www.ncbi.nlm.nih.gov/pmc/articles/PMC1125878/
- 2 Hindin et al. "Teratogenicity of depleted uranium aerosols: A review from an epidemiological perspective." Environ. Health. 4:17, 2005. www.ncbi.nlm.nih.gov/pmc/articles/PMC1242351/
- 3 Briner WE. "The evolution of depleted uranium as an environmental risk factor." Int J Environ Res Public Health. 2006 Jun; 3(2):129-35. www.ncbi.nlm.nih.gov/pubmed/16823086
- 4 Yacoub et al. "Depleted uranium and health of people in Basrah: epidemiological perspective. Incidence and pattern of malignant cases among children in Basrah." Medical Journal of Basrah University 1999; 17:17-25.
- 5 Yacoub et al. "Further evidence on the relation between depleted uranium and the incidence of malignancies (with specific reference to leukemias) among children in Basrah, southern Iraq." Medical Journal of Basrah University 2000; 18:3-6.



leukemia and a 242 % rise in the incidence of all childhood tumors between 1990 and 1999.⁵ A corresponding field study identified numerous sites with increased radiation levels, mostly on and around tanks hit by DU ammunition.⁵

Outlook

The full extent of the use of DU ammunition in warfare is only slowly being understood. According to the UN Environment Program, "the intensive use of depleted uranium weapons has likely caused environmental contamination of as yet unknown levels or consequences."¹

Other affected populations include the inhabitants of Kosovo and Serbia, where DU ammunition was used in the war of 1999, the people of Fallujah and other Iraqi cities affected by DU ammunition during the 2003/2004 invasion, and all soldiers exposed to DU ammunition. All of them are Hibakusha, because their health suffered from uranium ammunition that would not exist were it not for the massive civil and military nuclear programs of the nuclear states.

