

10 years after the Iraq war

Innocent New Lives are Still Dying and Suffering

**Report of a Fact Finding Mission on congenital
birth defects in Fallujah, Iraq in 2013**



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Human Rights Now

Human Rights Now ~Protecting Human Rights for All~

Human Rights Now is a Tokyo based international human rights NGO comprising a body of experienced legal professionals dedicated to protecting and promoting human rights around the world, with a special focus on Asia. The activity includes monitoring/ fact-finding of human rights, human rights education and advocacy work.

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Summary

This year marks the tenth anniversary of the Iraq War in 2003. Grave human rights violations against international law have been reported during and after the Iraq War. However, most of the alleged violations have not been properly investigated at the domestic or international levels, nor has anyone been brought to justice. Victims are still suffering physical harms without any reparations.

Ten years on from the initiation of the Iraq War, the after-effects of the conflict continue to be felt by civilians living in Iraq.

After the war, particularly in the most recent few years, a deeply troubling rise in the numbers of birth defects has been reported by doctors in Iraq, leading to suspicions that environmental contamination from the war may be having a significant negative effect on the health of local people, and in particular infants and children.

In Fallujah where white phosphorous weapons and depleted uranium munitions were allegedly used in 2004, the data of Fallujah General Hospital shows that around 15% of infants of all births in Fallujah since 2003 have some congenital birth defect.

In order to further investigate the situation of an increasing number of birth defects in Iraq, Human Rights Now (HRN), a Tokyo based international human rights NGO, conducted a fact-finding mission in Fallujah, Iraq in early 2013.

In addition to investigating recorded birth defects at a major hospital in Fallujah for the year of 2012, the mission also recorded birth defect incidences first hand over a one-month period in February 2013, and conducted interviews with doctors and parents of children born with birth defects in order to gain insights into the actual situation surrounding the birth defects in Fallujah and other areas heavily affected by conflict.

Through over one month period's extensive investigation, the fact finding team has found an extraordinary situation of congenital birth defects in both nature and quantity. The investigation demonstrated a significant rise of these health consequences in the period following the war, and HRN found that the rights to health and life of children have been seriously violated in Fallujah, Iraq, and that the epidemic of congenital birth defects in Iraq needs immediate international attention.

In light of the alarming birth defects being reported and the heavy burden of concern being faced by the citizens of Fallujah, this report goes on to review existing published studies on the apparent epidemic of negative health effects being suffered by local people in Iraq.

An overview of scientific literature relating to the effects of uranium and heavy metals associated with munitions used in the 2003 Iraq War and occupation, together with potential exposure pathways, strongly suggest that environmental contamination resulting from combat during the Iraq War may be playing a significant role in the observed rate of birth defects. However, without sufficient disclosure of detailed information related to toxic weapons used during the conflict, the cause of problem has not yet been identified.

In order to prevent further victimization of the lives of innocent children, HRN consider that it is urgent that a comprehensive investigation into the prevalence of birth defects and toxicity related illnesses in Iraq be conducted, including any correlation between such illnesses to scrap or munitions debris left by the Iraq conflict. It is essential to investigate the sources and spread of birth defects, identify causes, establish effective public health policies and medical care, and provide appropriate compensation for victims.

The report then examines the legal obligations of the United States and United Kingdom under international humanitarian law, human rights law, and domestic law with regards to the risks created by their activities in Iraq. This includes substantive obligations to avoid mortal risks to life and health and to remove risks when they do arise, and procedural obligations to conduct an investigation on the risks and violations of rights, disclose information about the risks, and provide affected persons effective remedies such as medical treatment, compensation, and prosecution of any perpetrators.

The report considers the response of the US and UK governments to the claims of health problems stemming from the Iraq War and finds them either insufficient or a failure to meet the previous discussed legal obligations. The report also considers the response of international organizations such as the UN human rights mechanisms and World Health Organization, and finds them insufficient to meet the needs of the issues within their mandate as well.

While the potential relationship between the increased occurrence of birth defects and environmental contamination is in this case still unclear, there is a clear case for the Coalition being responsible for dealing with any pollution that poses a potential harm to human health, including through conducting an investigation and disclosing information about their related wartime activities, whether or not this risk has been clearly defined.

Human Rights Now therefore call on the US and UK governments to disclose all information regarding the types of weapons used during the occupation, quantities fired, and exact firing points, and to take necessary measures to protect the right to health and life of the local people if a pollution problem is indicated.

Furthermore, HRN calls on the Iraqi government to establish an independent commission into investigating serious health problems reported after the war, and the UN Human Rights Council to establish measures for the investigation of all human rights abuses committed during the war, including the use of inhumane and toxic weapons. The outcomes of the WHO investigation into the birth defect issue in Iraq have yet to be publically released. However, in the event of a public health issue being identified, HRN additionally urges the WHO to provide technical assistance and guidance in creating policies and measures to tackle the issue, as well as to consider conducting further investigations to try to better clarify the epidemiological nature of the phenomenon.

I. Introduction

This year (2013) marks the tenth anniversary of the 2003 Iraq War. Since the invasion, the United States and United Kingdom-led coalition occupying forces and Iraqi authorities have failed to fulfill their obligation to protect people's rights to life and health, with devastating results to the life and health of Iraq's people. Grave human rights violations against international law have been reported during and after the Iraq War. However, most of the alleged violations have not been properly investigated at a domestic or international level, nor have perpetrators been brought to justice.

For instance, the US attacks on Fallujah in 2004 were reported to have included direct attacks against civilians which caused significant deaths, as well as use of white phosphorous weapons and depleted uranium munitions in civilian areas without any preventive measures.¹ As a consequence of the armed conflict, direct attacks against civilians and the use of inhumane, indiscriminate and toxic weapons, many people have lost their lives. Even among survivors, many are still suffering physical harms without any reparations. Moreover, the devastating effects of the conflict will continue to victimize innocent children and infants who were not even born before or during the war and occupation, stretching into future generations.

Human Rights Now,² a Tokyo-based international human rights NGO, is particularly concerned about the ongoing health risks to Iraq's children caused by toxic wastes from the armed conflict.

It has been widely reported that congenital birth defects have precipitously increased and are prevailing in Iraq in the years since the war. In Fallujah where white phosphorous weapons and depleted uranium were allegedly used in 2004, the data of Fallujah General Hospital shows that around 15% of infants of all births in Fallujah since 2003 have some congenital birth defect.³ Without sufficient disclosure of information related to toxic weapons used during the conflict, the cause of problem has not yet been identified.

In January and February 2013, Human Rights Now conducted a fact finding mission in Fallujah for over a month, interviewing doctors and documenting negative health effects to newborn children since the war mainly at Fallujah General Hospital,

¹Professor Paul Hunt, the UN Special Rapporteur on the right to health, stated credible allegations persist that the Coalition forces have been guilty of serious breaches of international humanitarian and human rights law, citing a report that use of indiscriminate force has resulted estimated 750 civilian deaths, 90 per cent of whom were non-combatants.
<http://www.un.org/News/Press/docs/2004/hr4738.doc.htm>; In November 16, 2004, the UN High Commissioner for Human Rights expressed deep concern about the situation of fighting in Fallujah and stated that "all violations of international humanitarian law and human rights law must be investigated and those responsible for breaches -- including deliberate targeting of civilians, indiscriminate and disproportionate attacks, the killing of injured persons must be brought to justice, be they members of the Multinational Force or insurgents."
<www.unhcr.ch/hurricane/hurricane.nsf/view01/7472316E3570A216C1256F4E0046EDC6?opendocument>

²International human rights NGO based in Tokyo with ECOSOC special consultative status.
<http://www.hrn.or.jp/eng>

³ Samira Alaani, Mozghan Savabieasfahani, Mohammad Tafash and Paola Manduca, "Four Polygamous Families with Congenital Birth Defects from Fallujah, Iraq", *Int. J. Environ. Res. Public Health* 2011, 8(1), 89-96 <http://www.mdpi.com/1660-4601/8/1/89/pdf>

including serious birth defects and infant mortality. The investigation demonstrated a significant rise in these health consequences in the period following the war, and HRN found that the rights to health and life of children have been seriously violated in Fallujah, Iraq, and that the epidemic of congenital birth defects in Iraq needs immediate international attention.

II. Background

1. Grave Human Rights Violations during the War and Occupation in Iraq

In March 2003, US-led coalition forces began the invasion of Iraq, leading to widespread loss of life and other atrocities. Since the invasion, the coalition occupying forces and the Iraqi authorities have failed to fulfill their obligation to protect people's rights to life and health, causing devastating results to people's life and health in Iraq.

Atrocities in Iraq have been disastrous. Researchers at Johns Hopkins Bloomberg School of Public Health in the US calculated that about 655,000 Iraqis died as a consequence of the Iraq War in 2003.⁴ The World Health Organization (WHO) estimated 151,000 violent deaths in Iraq from March 2003 through June 2006.⁵ Classified Pentagon files released by WikiLeaks recorded over an estimated 66,000 civilians were killed during the Iraq War between 2004 and 2009.⁶

Various reports have described grave violations of international human rights and humanitarian law by occupying forces in Iraq. For example, US attacks on Fallujah in April and November 2004 were widely reported to have included alleged war crimes, direct attacks against the civilian population, use of white phosphorous weapons on civilians, and a denial of citizens' access to hospitals.⁷

It has been reported that coalition forces employed inhumane, indiscriminate or toxic weapons such as depleted uranium weapons, cluster bombs and white phosphorous

⁴Gilbert Burnham, Riyadh Lafta, Shannon Doocy, Les Roberts, "Mortality after the 2003 invasion of Iraq: a cross-sectional cluster sample survey", *The Lancet*, Published online October 11, 2006 <http://brusselstribunal.org/pdf/lancet111006.pdf>

⁵Iraq Family Health Survey Study Group, "Violence-Related Mortality in Iraq from 2002 to 2006", *N Engl J Med* 2008 358, at 484-493, January 31, 2008 (95% uncertainty range, 104,000 to 223,000). <http://www.nejm.org/doi/full/10.1056/NEJMsa0707782-t=articleBackground>

⁶Leigh, D. 'Iraq war logs reveal 15,000 previously unlisted civilian deaths', *The Guardian*, 22 October 2010, [Accessed 31 January 2013] <http://www.guardian.co.uk/world/2010/oct/22/true-civilian-body-count-Iraq>

⁷Professor Paul Hunt, the UN Special Rapporteur on the right to health stated credible allegations persist that the Coalition forces have been guilty of serious breaches of international humanitarian and human rights law, citing report that use of indiscriminate force has resulted estimated 750 civilian deaths, 90 per cent were non-combatants. <http://www.un.org/News/Press/docs/2004/hr4738.doc.htm>; In November 16, 2004, the UN High Commissioner for Human Rights expressed deep concern about the situation of fighting in Fallujah and stated that "all violations of international humanitarian law and human rights law must be investigated and those responsible for breaches -- including deliberate targeting of civilians, indiscriminate and disproportionate attacks, the killing of injured persons must be brought to justice, be they members of the Multinational Force or insurgents." www.unhchr.ch/hurricane/hurricane.nsf/view01/7472316E3570A216C1256F4E0046EDC6?opendocument

munitions in civilian urban areas without any protective measures to minimize harm to civilians.⁸ It has been also reported that use of these weapons caused a significant number of civilian deaths, as well as critical impacts on human health even after the war.⁹ Further, it is well established that the US military committed abusive treatment against Iraq detainees at Abu Ghraib and other prisons, such as physical abuses and humiliation, which constitute torture and inhuman treatment.¹⁰

However, most of the alleged human rights violations have not yet been properly investigated by domestic authorities, nor have their perpetrators been brought to justice, in particular those at the top commanders' decision-making level, while victims are still suffering physical harms without any reparations.

The US government has not yet established any review committee to investigate its war policies or possible human rights violations during the war or occupation.

The UK government established a series of inquiry mechanisms including the most recent Iraq inquiry headed by Sir John Chilcot, but its scope was limited in reality and it has not yet issued any report to date.¹¹

The UN Human Rights mechanisms have also been insufficient to conduct comprehensive investigations on all violations of international human rights and humanitarian law during the war and occupation in Iraq. Nor has the International Criminal Court seriously examined the violations which may fall under its jurisdiction.

There has also not yet been any concrete effort to end impunity and ensure accountability for these grave human rights violation among the international community.

It is necessary that impartial investigations be conducted on violations of international human rights and humanitarian law during the invasion and occupation by coalition forces by an independent inquiry of the UN to ensure justice, accountability, non-recurrence and adequate reparation for all victims.¹²

⁸“U.S. Using Cluster Munitions In Iraq”, Human Rights Watch report, <http://www.hrw.org/news/2003/04/01/us-using-cluster-munitions-Iraq>

⁹“Fallujah; The hidden massacre”, <http://www.globalresearch.ca/us-military-committed-war-crimes-in-fallujah/8340>

¹⁰<http://video.google.ca/videoplay?docid=8905191678365185391&q=Fallujah%3A+hidden+massacre&total=38&start=0&num=10&so=0&type=search&plindex=0>; Please refer to the following links; <http://www.globalresearch.ca/america-s-fallujah-legacy-white-phosphorous-depleted-uranium-the-fate-of-iraq-s-children/30372>, <http://www.hrw.org/en/reports/2003/12/11/target-0>, http://www.un.org/sg/spokesperson/highlights/?HighD=11/17/2005&d_month=11&d_year=2005; <http://www.hrw.org/news/2003/04/29/iraq-clusters-info-needed-us-uk>

¹¹<http://www.iraqinquiry.org.uk/faq.aspx#I01> (The term of reference is “to examine the United Kingdom's involvement in Iraq, including the way decisions were made and actions taken, to establish as accurately and reliably as possible what happened, and to identify lessons that can be learned.”).

¹² Batty, D. ‘Iraq war logs: UN calls on Obama to investigate human rights abuses’, The Guardian, 23 October 2010, [Accessed 31 January 2013], <http://www.guardian.co.uk/world/2010/oct/23/united-nations-call-obama-investigation-abuses-iraq?intcmp=239>

2. Continuing Human Rights Violations -- Epidemic of Congenital Birth Defects in Iraq

In addition to the human rights violations and loss of life occurring over the course of the Iraq war, there has also been the emergence of worrying rates of birth defects and cancer being reported in areas particularly affected by combat operations, raising the question of on-going negative health effects resulting from the war.¹³ These reports mirror similar concerns to have come about following the earlier 1991 Gulf War.

HRN is particularly concerned about the ongoing and future risks to Iraqi's health and life caused by toxic wastes from the armed conflict.

The 2003 Iraq War led to a significant release of toxic materials into the environment that continues to put the life and health of children in particular at risk. In the years following the war, there has been an epidemic of congenital birth defects in Iraq cities. Iraqi physicians have expressed serious concern to the international community about the prevalence of birth defects through various media.¹⁴ The Independent reported that "Iraqi doctors in Fallujah have complained since 2005 of being overwhelmed by the number of babies with serious birth defects, ranging from a girl born with two heads to paralysis of the lower limbs. They said they were also seeing far more cancers than they did before the battle for Fallujah between US troops and insurgents."¹⁵

Dr. Samira Alaani, a physician of Fallujah General Hospital, reported research finding congenital malformations in 15% of all births in Fallujah, Iraq since 2003, concluding that "the high prevalence of birth defects in Fallujah is impairing the population's

¹³Eline Gordts, "Iraq War Anniversary: Birth Defects And Cancer Rates At Devastating High In Basra And Fallujah" The Huffington Post, 20 March 2013. http://www.huffingtonpost.com/2013/03/20/iraq-war-anniversary-birth-defects-cancer_n_2917701.html; Dahr Jamail "War's legacy of cancer, Two US-led wars in Iraq have left behind hundreds of tonnes of depleted uranium munitions and other toxic wastes." Al Jazeera, 15 Mar 2013 <http://www.aljazeera.com/indepth/features/2013/03/2013315171951838638.html>; Alexander Smolczyk "Researchers Studying High Rates of Cancer and Birth Defects in Iraq", Spiegel, December 18, 2012, <http://www.spiegel.de/international/world/researchers-studying-high-rates-of-cancer-and-birth-defects-in-iraq-a-873225.html>

¹⁴"Huge rise in birth defects in Falluja—Iraqi former battle zone sees abnormal clusters of infant tumours and deformities", Martin Chulov in Falluja, The Guardian, 13 November 2009

<http://www.aljazeera.com/indepth/features/2013/03/2013315171951838638.html>

<http://www.guardian.co.uk/world/2009/nov/13/falluja-cancer-children-birth-defects>

"Birth Defects Plague Iraq, But Cause Unknown" ABC News, <http://abcnews.go.com/Health/birth-defects-plague-iraq-10-years-us-invasion/story?id=18793428#.UVVF7KmCh30>

"Doctors in Basra report rise in birth defects" BBC, 21 March 2013 <http://www.bbc.co.uk/news/world-middle-east-21873892>

Alexander Smolczyk "Researchers Studying High Rates of Cancer and Birth Defects in Iraq" Spiegel, December 18, 2012, <http://www.spiegel.de/international/world/researchers-studying-high-rates-of-cancer-and-birth-defects-in-iraq-a-873225.html>

"Did the US cause Fallujah's birth defects?" Al Jazeera, 03 Aug 2012

<http://www.aljazeera.com/programmes/insidestoryamericas/2012/08/2012815458859755.html>

Waleed Ibrahim "Birth defects and rubble still scar Iraq's Falluja", Reuters, Dec 7, 2011,

<http://www.reuters.com/article/2011/12/07/us-iraq-withdrawal-falluja-idUSTRE7B611P20111207>

"Ten Years Later, U.S. Has Left Iraq with Mass Displacement & Epidemic of Birth Defects, Cancers" Democracy Now! March 20, 2013,

http://www.democracynow.org/2013/3/20/ten_years_later_us_has_left

¹⁵ Patrick Cockburn, "Toxic legacy of US assault on Fallujah 'worse than Hiroshima'", The Independent, 24 July 2010 <http://www.independent.co.uk/news/world/middle-east/toxic-legacy-of-us-assault-on-fallujah-worse-than-hiroshima-2034065.html>

health and its capacity to care for the surviving children” and “[t]hese defects could be due to environmental contaminants which are known components of modern weaponry.”¹⁶

The uncertainties surrounding these potential risks and the failure of the appropriate authorities to provide information and protection to local citizens have bred anxiety and concern in areas that were heavily affected by the conflict.

3. Use of depleted uranium and other toxic weapons by the coalition forces

As mentioned above, there have been reports that coalition forces employed depleted uranium munitions, cluster bombs and white phosphorous munitions in civilian urban areas without any protective measures to minimize harm to civilians, leading to loss of civilian life and health after the war.¹⁷

Depleted uranium, a by-product of enrichment processes used to power nuclear reactors, is a radiological heavy metal used in military weapons due to its high density and thus armour-piercing properties. It is known that depleted uranium weapons were used extensively by US forces during both the 1991 Gulf War and 2003 Iraq war, as well as by UK forces, albeit to a lesser extent. It was reported that the use of these weapons resulted in an estimated total of at least 400,000 kg of depleted uranium munitions being dispersed over Iraq over the two wars.¹⁸

According to the United Nations Environment Programme (UNEP), the total amount of DU ammunition used during the conflict in 2003 is still unknown, but speculative figures from various studies range between 170 and 1,700 metric tonnes.¹⁹ The UK government has indicated that the firing of munitions by its forces amounts to around 2900kg of depleted uranium across the two wars.²⁰ The US government has failed to release information on the amount of depleted uranium fired by its forces, even though the US Department of Veteran Affairs lists the 2003 military operation in Iraq to be one of the conflicts in which US soldiers could have been exposed to the substance.²¹ The US rejected to disclose the information²² despite a United Nations Environment Programme (UNEP) request that the US government release it²³ and a UN General Assembly resolution in 2010 calling for DU user states to reveal the

¹⁶Samira Alaani, Mozghan Savabieasfahani, Mohammad Tafash and Paola Manduca, “Four Polygamous Families with Congenital Birth Defects from Fallujah, Iraq”, *Int. J. Environ. Res. Public Health* 2011, 8(1), 89-96. <http://www.mdpi.com/1660-4601/8/1/89/pdf>

¹⁷“U.S. Using Cluster Munitions In Iraq”, Human Rights Watch report, at 3; “Fallujah; The hidden massacre”, <http://www.globalresearch.ca/us-military-committed-war-crimes-in-fallujah/8340>

¹⁸ “In a State of Uncertainty: Impact and Implication of the Use of Depleted Uranium in Iraq”, IKV Pax Christi, <http://www.ikvpaxchristi.nl/media/files/in-a-state-of-uncertainty.pdf>

¹⁹United Nations Environment Programme, “Technical Report on Capacity-building for the Assessment of Depleted Uranium in Iraq”, Geneva, August 2007 <http://reliefweb.int/report/iraq/technical-report-capacity-building-assessment-depleted-uranium-iraq>

²⁰<https://www.gov.uk/depleted-uranium>

²¹<http://www.publichealth.va.gov/exposures/wars-operations/iraq-war.asp>
http://www.pdhealth.mil/downloads/OIF_DU_MED_MGMT.pdf

²²IKV Pax Christi, “Hazard Aware: Lessons learned from military field manuals on depleted uranium and how to move forward for civilian protection norms”, September 2012 <http://www.ikvpaxchristi.nl/media/files/hazard-aware.pdf>

²³International Coalition to Ban Uranium Weapons “Precaution in Practice: challenging the acceptability of depleted uranium weapons”, 1 October 2012 <http://www.bandedpleteduranium.org/en/precaution-in-practice>

quantitative and geographic data on DU use to affected governments when requested to do so.²⁴

Radiation measurements of depleted uranium munitions and fragments have been shown to be significant—with fragments from tank shells registered as emitting radiation more than 1300 times the background level, and a depleted uranium tank was found to be emitting 260-270 millirads of radiation an hour—significantly over established safety limits of 100 millirads per year.²⁵

In addition to the use of depleted uranium weapons, the U.S. administration has also admitted to having used white phosphorus as a weapon, with additional toxic chemical properties.²⁶ Levels of lead and mercury contamination may also have increased due to large amounts of munitions firing, both of which are heavy metals with well-documented chemical toxicity effects if taken into the human body.

It is essential that potential risks from the use of such weapons are treated seriously. In any event, the coalition has a legal obligation to mitigate their potential dangers in Iraq following the 2003 War, as discussed below.

4. Attacks on Fallujah

Fallujah saw intense fighting across two separate battles in 2004, the first in April in response to the killing and mutilation of four Blackwater private security contractors affiliated with the US(so-called Operation Vigilant Resolve), and the second in November and December of the same year, seeing the heaviest conflict of the whole war(so-called Operation Phantom Fury).²⁷ More than 600 Iraqi civilians were killed in the first battle, and a further 800 are believed to have been killed in the second.²⁸

Professor Paul Hunt, the UN Special Rapporteur on the right to health, stated that credible allegations persist that Coalition forces have been guilty of serious breaches of international humanitarian and human rights law, citing a report that the use of indiscriminate force has resulted in an estimated 750 civilian deaths, 90 percent of whom were non-combatants.²⁹

On November 16, 2004, the UN High Commissioner for Human Rights expressed deep concern about the situation of fighting in Fallujah and stated that

all violations of international humanitarian law and human rights law must be investigated and those responsible for breaches—including deliberate targeting of civilians, indiscriminate and disproportionate attacks, the killing

²⁴United Nations General Assembly A/RES/65/55 Effects of the use of armaments and ammunitions containing depleted uranium, 13 January 2011

http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/65/55

²⁵Hindin, R. et al. (2005) 'Teratogenicity of depleted uranium aerosols: A review from an epidemiological perspective' 4 *Environmental Health: A Global Access Science Source* 17

²⁶"US Official Admits phosphorus used as a weapon in Iraq", available at:

<http://www.cbc.ca/news/world/story/2005/11/16/phosphorus-fallujah051116.html>.

²⁷(Guardian, 2009)

²⁸http://www.iraqbodycount.org/analysis/reference/falluja-april/ibc_falluja_apr_11

²⁹<http://www.un.org/News/Press/docs/2004/hr4738.doc.htm>;

of injured persons...—must be brought to justice, be they members of the Multinational Force or insurgents.³⁰

In addition to a heavy assault on the city using artillery and fighter jets, it was also determined that controversial and inhumane weaponry was deployed, such as white phosphorous.³¹ As stated, the U.S. administration has also admitted to having used white phosphorus as a weapon in Fallujah in 2004.³² The US has denied using depleted uranium weaponry during the assault; however, some contaminated sites have been formally identified by Iraqi authorities as being contaminated by depleted uranium, including two contaminated tanks discovered in 2005. At least two platforms that utilize depleted uranium munitions, the Abrams tank and the Bradley AFV, are known to have been deployed in the battle in Fallujah (Operation Phantom Fury).³³

5. Clean-up operations and reporting of firing points

The Iraqi government's Radiation Protection Center is reported to have identified 300-365 contaminated sites as of 2006, and though limited clean-up operations are believed to have been carried out in certain areas such as Basra, no detailed information has been provided by either the Coalition or the Iraq government.³⁴ Though the UK government has disclosed data about firing locations to the United Nations Environment Program (UNEP), the US refuses to do so, hampering clean-up efforts within Iraq.³⁵ As a contingency operation, few international and domestic laws stipulate obligations of the Coalition forces to perform a clean-up following their activity in Iraq, as discussed below, and the US in particular has failed to acknowledge any moral obligation to the country.³⁶ In addition to the lack of transparency regarding use of depleted uranium weapons, it has been estimated that clean up of all affected sites could total at least \$30 million USD, creating huge problems for funding clean-up operations within Iraq.³⁷ Furthermore, a report published by UNEP identified difficulties in domestic agencies carrying out assessment and clean-up of depleted uranium contamination due to a lack of appropriate knowledge and equipment for doing so.³⁸ While UNEP has implemented capacity building programs to try to tackle these issues, significant technical challenges continue to hinder Iraqi agencies from carrying out assessment and clean-up activities.

³⁰www.unhchr.ch/hurricane/hurricane.nsf/view01/7472316E3570A216C1256F4E0046EDC6?opendocument

³¹http://www.washingtonpost.com/wp-dyn/articles/A35979-2004Nov9_2.html

³² "US Official Admits phosphorus used as a weapon in Iraq", available at: <http://www.cbc.ca/news/world/story/2005/11/16/phosphorus-fallujah051116.html>.

³³"In a State of Uncertainty", IKV Pax Christi

³⁴"In a State of Uncertainty", IKV Pax Christi

³⁵<http://www.bandepleteduranium.org/en/docs/131.pdf>

³⁶<http://www.bandepleteduranium.org/en/docs/131.pdf>; "In a State of Uncertainty", IKV Pax Christi

³⁷"In a State of Uncertainty", IKV Pax Christi, at 25.

³⁸http://www.unep.org/disastersandconflicts/portals/155/disastersandconflicts/docs/iraq/Iraq_pccleanup_report.pdf

III. Investigation

1. Activities of the Fact-Finding Team

In order to obtain firsthand information of increasing numbers of birth defects in Fallujah, Iraq, the HRN fact-finding team stayed in Fallujah around one month, between January 8 and February 6, 2013, and conducted an investigation mainly at Fallujah General Hospital.

With a permission and cooperation of the Fallujah General Hospital, the team observed deliveries and actual birth defect cases day by day, and collected birth data at the hospital. In addition to this, previously recorded data was also examined, and interviews were conducted with both doctors and the parents of babies born suffering from congenital anomalies.

HRN sincerely thanks all parties involved in the project for their cooperation.



Fallujah

2. Methods

In order to better elucidate the situation concerning birth defects in Fallujah, the fact-finding team undertook a mixed-methods approach, including collecting birth data from Fallujah General Hospital over the course of one month, examination of previously recorded data, and carrying out interviews with both doctors and parents of babies born with birth defects.

Data collection at Fallujah General Hospital was carried out between January 8 and February 6, 2013.

The HRN fact-finding team obtained permission from the hospital's doctors to observe and record birth outcomes, including stillbirths, miscarriages/abortions, and birth defects. Due to practical constraints, neonatal deaths (deaths occurring with 28

days postpartum) and congenital anomalies that did not present themselves immediately following birth were not recorded. Doctors at the hospital confirmed the type of birth defect when present. In addition to observing birth outcomes in the delivery room, the fact-finding team was also given permission to attend a morning session of ultrasound screenings being given to pregnant women in the Department of Obstetrics and Gynecology, to observe the process of early detection of congenital anomalies.

The team also examined additional data on births and birth defects. This data included a record of all birth defects recorded for the year 2012, as collected by Dr. Samira Alaani, Head of the Department of Congenital Malformation at Fallujah General Hospital. Further records made by Dr. Abdulkader, a genetic specialist at the Department of Congenital Malformation, were also examined, which contained data pertaining to birth defect incidences detected only among patients seen in the outpatient department of the hospital for the year 2012.

In addition to data collection and observation of pregnancy and birth outcomes, the HRN fact-finding team also conducted interviews with the doctors at Fallujah General Hospital. The interviews sought to identify the professional opinions of individuals regularly dealing with patients affected by birth defects on the general trends they perceive to have occurred in recent years. The interviews also provided the opportunity to gain more information on issues that may be overlooked just by examining birth data, such as the difficulties in accurately capturing the true incidence of birth defects that is occurring.

Finally, follow-up interviews were carried out with families who had recently had a child born suffering from a congenital anomaly, or who were suffering from recurrent complications with pregnancy. Seventeen families were approached for interview, consisting of two families who had attended the hospital while the HRN team was present, and 15 families from Dr. Samira's records. Contact was made with 11 of the families, out of which seven families had lost their child. Six of the contacted families agreed to an interview, as well as a further seventh couple suffering from recurrent premature birth and stillbirth. The interviews attempted to establish the concerns and opinions of families being affected by birth defects, as well as to establish any background or exposure scenarios perceived by the families as being potentially relevant to their pregnancy outcomes. The interviews also act as case studies, providing examples of typical birth defect scenarios.

The investigation conducted by HRN was largely intended to gather information on reported occurrences of birth defects from hospital records and doctors' accounts, as well as the doctors' impressions of the rate, not an exhaustive or scientific study on the reported increased in the birth defect rate in Fallujah or rigorous data on the incidence rate. The investigation is meant to provide examples from witness reports, and to provide a general overview of typical birth outcomes at one of the hospitals in an area that may be experiencing a possible public health crisis. It is hoped that the investigation will act to further highlight the concerns of both doctors and civilians with respect to the apparent increased rate of birth defects over the last 10 years, and invite further investigation on the possible role being played by environmental contamination resulting from the 2003 Iraq War.

3. Findings

(1) Observation and Data Collection of Birth Defects

In the month from January 8 to February 6, 2013, the HRN fact-finding team recorded a total of 24 births where there was some kind of congenital anomaly immediately detectable at birth. Of these 24 births, the HRN team was able to directly observe nine cases, with defects including cleft lip and palate, hydrocephaly, anencephaly, encephalocele, spina bifida, club foot and facial cleft. In addition to the birth defects recorded, the team also recorded 13 stillbirths and 59 preterm deliveries, miscarriages or abortions.

With the consent of the families as well as permission of the hospital, photos were taken to document examples of such birth defects. Although the disclosure of such incidents is an extremely sensitive issue, the families and especially the mothers expressed a strong desire to share their cases in order to highlight the birth defect situation in Iraq.

- 1) Female infant born with a cleft lip.



(Photo taken 12 January 2013, Fallujah General Hospital)

2) Female infant with an anorectal malformation, present as an outpatient at the Department of Congenital Malformation around 5 months after birth.

Perinealanoplasty was carried out.



(Photo taken 13 January 2013, Fallujah General Hospital)

3) Female infant born by cesarean section, with spina bifida and no sensation in the right leg. Subsequent examination also revealed the child to be suffering from hydrocephaly, and dextrocardia.



(Photo taken 17 January 2013, Fallujah General Hospital)

- 4) Female child with clubbed feet, deformed pelvic bones, femurs & knees. Remediation was judged to be insufficient and thus surgery would be required.



(Photo taken 18 January 2013, Fallujah General Hospital)

- 5) Female child born with a large encephalocele on the rear portion of her head. Doctors evaluated that surgery would be difficult to perform.



(Photo taken 18 January 2013, Fallujah General Hospital)

- 6) Female child born with a cleft lip and palate. Subsequent examination also revealed her to be suffering from congenital cataracts and hydrocephaly.



(Photo taken 23 January 2013, Fallujah General Hospital)

- 7) Child born with a facial cleft at 7 months gestation. The child weighed barely 1000 grams, and quickly developed cyanosis in the hands and feet and died a number of hours later.



(Photo taken 27 January 2013, Fallujah General Hospital)

8) Child born with spina bifida.



(Photo taken 29 January 2013, Fallujah General Hospital)

(2) Examination of Hospital Records of Birth Defects

Records for 2012 revealed a total of 363 cases of congenital anomaly being recorded immediately following birth. The largest number of cases was recorded in December 2012, with 50 incidences recorded. For other months there was a steady incidence of around 30 cases per month. In the month following the HRN investigation (February 2013), a total of 40 congenital anomalies were recorded at the hospital. A list of the 49 congenital anomalies recorded in December 2012 can be found in Appendix 1. Photos taken by doctors of 24 of the most notable cases in 2012 can be found in Appendix 2.

Examination of outpatient records also revealed a high number of birth defects being recorded, with over 100 cases presenting to the outpatient department in 2012.

(3) Observation of Ultrasound Screenings of Pregnant Women

With permission from the Obstetrics and Gynecology Department, the fact finding team was also able to observe ultrasonography being conducted for pregnant women. Among seven women examined in the morning period, three were found to have problems with the fetus such as inability to detect the liver, hydrocephaly and anencephaly. In cases such as anencephaly where the likelihood of the child's survival is extremely low, the woman is administered with an abortifacient agent to induce a miscarriage.

Due to the ability to detect congenital abnormalities very early with ultrasonography, there appears to be an increasing rate of abortions that are labeled as miscarriage due to cultural sensitivities.³⁹

³⁹In Islam, abortion is prohibited, so this is of course an area that is heavily debated and tackled even in women's magazines. Opinions on the allowable limits for carrying out an abortion appear to be divided. Within the controversy surrounding whether or not to abort fetuses found to have congenital abnormalities, something that has also become a real problem is the lack of infrastructure for

Dr. Mohammed, an anesthetist dealing with caesarian births in the operating theater, as well as his colleagues stated that between 2006 and 2010 the number of cases of birth defect picked up on almost a daily basis, but recently the cases have apparently decreased possibly because of early detection of anomalies. The HRN fact-finding team cannot determine whether or not the recent decrease is the result of congenital anomalies being detected early with the use of ultrasonography. On this point, Dr Samira Alaani, paediatrician at Falujah-Iraq, speculated that the reported apparent decrease in incidence may not be related to early detection of anomalies but to more anesthetists working at the hospital, meaning any one may witness more or less births than average, as the hospital lacks machines capable for good detection of anomalies early in pregnancy.⁴⁰

(4) Interviews with Doctors

Interviews were conducted with two doctors from Fallujah General Hospital.

1) Interview with Dr. Samira Alaani, Head of the Department of Congenital Malformation, Fallujah General Hospital

Dr. Samira stated that birth defects were witnessed almost every day at the hospital, and that around 15% of all births recorded at the hospital since 2003 presented with some kind of congenital anomaly. Many cases are missed, however, as the large number of births makes it hard for staff in the operating and nursery rooms to record every single case. Dr. Samira estimated that around 25% of all cases of birth defect were discharged from the hospital before being recorded for this reason. Furthermore, the most common birth defects, such as congenital heart abnormalities and other abnormalities affecting the internal organs, are usually not included in the record of birth defects found immediately after birth. Unless the babies have external malformations, they are typically assessed to have “no particular cause for concern” and leave the hospital immediately. It is not until days or months later when the infants’ health becomes bad that they will be returned to hospital and subsequent investigations reveal problems such as a defect in the heart.

2) Interview with Dr. Firas al Kubaisy, Pediatric Cardiologist, Fallujah General Hospital

Dr. Firas carries out echocardiography twice a week in an outpatient setting for the cardiac care of infants. He stated that an average of 20 children will be screened per occasion, and that typically around 15 of the children will show a congenital heart abnormality such as Tetralogy of Fallot (TOF), transposition of the great arteries (TGA), atrial septal defect (ASD), and ventricular septal defect (VSD).

(5) Interviews with the Parents of Children Born with Congenital Anomalies

individuals with disabilities, and the deeply rooted prejudice toward them in Iraqi society. In Iraq there are no special support schools or classes for children with disabilities, and public spaces also make no provisions toward being “barrier-free”. An NGO-run education support center for children suffering from autism and Down’s syndrome has just about managed to start up, but receives no public support. There appears to remain a deep-rooted tradition of considering a disabled family member to be an intense cause of shame, and thus a trend toward secrecy in this area.

⁴⁰Comments given by Dr. Alaani by email correspondence, April 9, 2013.

Interviews were conducted with six families who had given birth to children suffering from a congenital anomaly (cases 1-6). A further seventh interview was conducted with a couple suffering from repeated premature birth and stillbirth.

Case 1

Name:	Ibrahim (M) [Dead]
Address	Al Secher, Fallujah
Birth order & condition of other sibling	2 nd , older sister was also dead with same disease
Type of Anomaly:	Renal Atrophy
Type of Delivery	NVD
Family history of this or other Anomaly:	None
pregnant history	Normal
Experience of Abortions/ Stillbirth:	None/None
Mother's age, occupation:	32, housewife
Father's age, occupation:	33, freeworker
Degree of Kinship	2 nd degree
Note: The child's physical condition was apparently very weak, and it had seemed like he stopped growing. As a result the child's body up until the age of 7 was very small. The parents had no idea what was causing his condition, but have a strong uneasiness about having children. The family evacuated to the suburbs twice in April and November of 2004 when Fallujah was under attack.	

Case 2

Name/ Date of Birth/	No name (M) [Dead]: 6 Jan 2013 (Death Date: 7 Jan 2013)
Address	Al Resalah, Fallujah
Birth order & condition of other sibling	3 rd , other 2 are normal
Type of Anomaly:	Hydrocephaly, Gastroschisis
Type of Delivery	NVD
Family history of this or other Anomaly:	None
Pregnant history	Normal
Experience of Abortions/Stillbirth:	None/ None
Mother's age, occupation:	27, housewife
Father's age, occupation:	28, employee
Degree of Kinship	N/A
Note: The child died one day (around 24 hours) following birth. They heard from a doctor that the use of depleted uranium munitions by the US army may have been a cause in the child's death. They feel uneasy about having children. They evacuated to the suburbs twice in 2004 when US forces were assaulting Fallujah.	

Case 3

Name/ Date of Birth/	Dhia (M)19 June 2012, Alive
Address	Al Jubail, Fallujah
Birth order & condition of other sibling	2 nd , another is normal
Type of Anomaly:	Club foot, Ambiguous genitalia
Type of Delivery	NVD
Family history of this or other Anomaly:	None
Pregnant history	Over 36 weeks
Experience of Abortions/Stillbirth:	None/ None
Mother's age, occupation:	17, housewife
Father's age, occupation:	24, Free worker
Degree of Kinship	2 nd Degree
Note: The mother was taking prescribed medicine from a doctor in order to have a healthy pregnancy (some kind of hormones?) Although it's very unclear, the couple is suspicious that damage to the child's health was increased by the US army's use of nuclear-based weaponry. The family evacuated to the suburbs during the fighting in both April and November of 2004.	

Case 4

Name/ Date of Birth/	No Name (F) [Dead, Abortion] Dec 2012
Address	Al Balwan, out of Fallujah [4km to Ramadi]
Birth order & condition of other sibling	2 nd , another is normal
Type of Anomaly:	Anencephaly
Type of Delivery	Cs
Family history of this or other Anomaly:	None
Pregnant history	Abortion at 5 months
Experience of Abortions/Stillbirth:	This baby
Mother's age, occupation:	19, housewife
Father's age, occupation:	26, Employee
Degree of Kinship	3 rd degree
Note: The parents are thinking of holding back from trying again for another child for a while. They have received advice from a doctor. The family evacuated to the suburbs in both April and November of 2004.	

Case 5

Name/ Date of Birth/	Layla (F) [Dead]Nov 2012 Died after 30 minutes from the birth
Address	Al Shhada, Fallujah
Birth order & condition of other sibling	5 th , 4 others normal
Type of Anomaly:	No kidney, symbrachydactyly, large abdomen, short neck
Type of Delivery	NVD
Family history of this or other Anomaly:	None
Pregnant history	Normal
Experience of Abortions/Stillbirth:	None/None

Mother's age, occupation:	38, housewife
Father's age, occupation:	45, free worker
Degree of Kinship	2 nd Degree
<p>Note: Their older children are being brought up healthily, but the sudden appearance of a serious birth defect in this child has led them to be suspicious of the role of depleted uranium weapons used by the US army. They are extremely uneasy about the idea of trying for another child in future, but more than this they would like their genetics to be examined to try to determine why they had a child affected in this way. They believe they might have suffered from some kind of genetic damage. During the battle in Fallujah in April of 2004, the family remained in the city and witnesses a large number of corpses.</p>	

Case 6

Name/ Date of Birth/	Retaj (F)]17 Jan 2013 [Dead in 21 Feb 2013]
Address	Al Jullan, Fallujah
Birth order & condition of other sibling	1 st
Type of Anomaly:	Spina Bifida, No nerve on right leg, Hydrocephaly and Dextracardia
Type of Delivery	Cs
Family history of this or other Anomaly:	None
Pregnant history	Normal
Experience of Abortions/Stillbirth:	None/None
Mother's age, occupation:	20, housewife
Father's age, occupation:	20, free worker
Degree of Kinship	2 nd Degree
<p>Note: Surgery to repair the child back was judged to be difficult due to the dextracardia, and the child was transferred from Fallujah General Hospital to a hospital in Baghdad. After being turned down by a number of hospitals the parents eventually found a private hospital willing to carry out the surgery, but the child died three days before the scheduled operation date due to suffocation and infection of the gap in the back. The couple thinks that the child might have been saved had surgery been possible at Fallujah General Hospital. The couple is suspicious that their daughter's health problems are the result of environmental contamination caused by nuclear-type weapons and depleted uranium used by the US army. The couple is extremely uneasy about the thought of having children in future, and has been advised by a doctor not to try for a baby again for at least a year. During the first battle in Fallujah in April 2004, both mother and father remained in the city, but evacuated during the second battle in November.</p>	

Case 7

Name/ Date of Birth/	Unknown, 4 babies [All Dead] 1 st [15 Aug 2006] 2 nd [12 Aug 2007] 3 rd [18 Apr 2009] 4 th [19 Nov 2011] 1 st , 2 nd , 3 rd were dead after birth [30 min], Stillbirth at 4 th
Address	Althubbat, Fallujah
Birth order & condition of other sibling	All Dead
Type of Anomaly:	SRPS=Short Rib Polydactyly Syndrome
Type of Delivery	NVD [1 st , 2 nd , 3 rd] with 8 months, 6 months [4 th]
Family history of this or other Anomaly:	None
Pregnant history	Normal
Experience of Abortions/Stillbirth:	None/ 1 time with 4 th
Mother's age, occupation:	27, housewife
Father's age, occupation:	33, employee
Degree of Kinship	2 nd Degree
<p>The husband works at Fallujah General Hospital, and has seen many cases of congenital birth defects outside of his personal experience. He stated that he couldn't help but wonder whether the effects of the war were responsible for the sudden increase in cases that were previously unseen prior to the war. He wonders if contamination of the soil by depleted uranium might be to blame. There were 40 recorded cases of congenital abnormalities in February of 2013, and he believes that whatever way you think about it, this is way too many. Two months previously, a child with a birth defect was born in his neighborhood. The doctor in charge of the couple's own case stated that four pregnancies which all led to the death of the child through the same illness suggested genetic abnormality. As a result, the couple has been advised not to have children until a solution to the problem can be found. The wife has become scared of getting pregnant, but the couple does not want to give up on the idea of having children. They have also stated their desire to have their hair analyzed. The couple both remained within the city during both the April and November conflicts in Fallujah. In April, the husband participated in helping to save casualties of the conflict. The buildings containing the casualties did not collapse, but the abnormal burns to the body of victims shocked the husband.</p>	

4. Analysis

Through one month period's extensive investigation, the fact finding team has observed an extraordinary situation of congenital birth defects in both nature and quantity.

The HRN visit to Fallujah General Hospital in January 2013 revealed at least 24 birth defects for that month alone, and hospital records have suggested that for 2012 there was an average of at least 30 incidences of birth defect per month, with a high of 49 incidences in December 2012.

Unfortunately, these figures are almost certainly underreporting the numbers of birth defects as they only reflect some birth defects detectable immediately following birth,

and thus calculation of an accurate incidence rate was not possible. The examples of birth defects documented by the HRN fact-finding team at Fallujah General Hospital do however provide a view into the situation, and reveal serious congenital anomalies that are affecting newborns in the region.

Also, the presented cases as well as the hospital data and photos demonstrate that the nature of the birth defects is extraordinarily serious. The birth defects observed by the HRN team included hydrocephaly, anencephaly, encephalocele, spina bifida, clubbed foot and facial cleft. HRN observed that many of the newborns with birth defects died soon after their birth.

The interviews carried out with the two doctors from Fallujah General Hospital revealed the clear concerns of medical professionals dealing with this issue. Dr. Samira Alaani reported a huge increase in birth defects following the 2004 battle in Fallujah, and expressed her concerns that the situation is even worse than basic data initially suggests, due to the discharge of children with birth defects before recording and because of the delayed presentation of internal birth defects such as congenital cardiac anomalies. This issue is even more prominent given that these types of birth defect may account for the majority of the indicated increases in congenital anomaly.⁴¹ Recording of rates of birth defect may also have been affected in recent years by the increased use of prenatal screening and subsequent abortion of fetuses revealed to have extreme congenital anomalies, although the extent to which this may have occurred is unclear.

The interviews conducted with families reveal the extreme uneasiness and uncertainty felt by local people with regard to the potential effects of their exposure to the environmental contamination in Fallujah, Iraq. The local people highly suspected that toxic waste caused by the heavy fight in 2004 is possible cause of the significant raise of birth defects, but causality is not demonstrated. The failure to conduct substantial investigation into the issue, or for official sources to engage with local people about their concerns, has left the citizens of Fallujah feeling vulnerable and dubious.

The authority has yet to conduct any comprehensive investigation and thus the cause of the problem has not yet been identified. There is no established public health policy or medical check policy to protect people from the environmental contamination in Fallujah. Without any effective measures established to prevent birth defects, people face significant fear of potential birth defects and indeed experience frequent birth defects.

HRN found that the rights to health and life of people, in particular babies and pregnant women, have been seriously violated in Fallujah, Iraq, and that the epidemic of congenital birth defects in Iraq needs immediate international attention.

It is urgently required to conduct further investigation of a number of issues, including better clarification of the numbers and types of birth defect and most importantly, any correlation between the prevalence of birth defects and toxicity related illnesses to scrap or munitions debris left by the Iraq conflict.

⁴¹ "Fallujah doctors report rise in birth defects" <http://news.bbc.co.uk/2/hi/8548707.stm>

IV. Scientific studies

1. Published Studies and Other Reports of Rates of Cancer and Congenital Anomalies in Iraq

As well as a large amount of reports on the congenital birth defects in Iraq, published and peer-reviewed studies have also reported large increases in rates of congenital defects in some areas of Iraq.

A study published by Alaani et al. in 2011 mentioned that birth data for May 2010 in Fallujah General Hospital revealed that around 15% of the births for that month presented with some kind of birth defect, with no significant differences in figures for the other months of 2010.⁴² A more recent study published by Alaani et al in August 2012 recorded a birth defect incidence rate of 14.4%, a more important and better reference concerning the incidence according to comments by Dr. Alaani to this report.⁴³

A study by Al-Sabbak et al. (2012) found that the prevalence of birth defects documented in a hospital in Al-Basrah increased 17-fold between 2003 and 2011.

Furthermore, it was found that certain defects such as congenital hydrocephalus were occurring at rates that were 3.5 times higher than world averages, and six times higher than rates recorded in the United States.⁴⁴ Rates of neural tube defects in Al-Basrah were also apparently the highest ever reported at rates of 12 per 1000 births, a level higher than even coal mining regions of China (10 per 1000 births) where environmental contamination is an established problem.⁴⁵

Another study conducted in a hospital in Al-Anbar governorate found an incidence of 3.3 per 1000 births for neural tube defects for the year 2007-2008.⁴⁶

In addition to reports of increases in the rates of children being born with congenital anomalies, research has also suggested there has been an increase in the rate of cancer in Fallujah following the intense combat that took place there in 2004.

A 2012 study concluded that rates of cancer in the area had increased three-fold over the time period following the battles in Fallujah, and noted that rates were higher than other nearby regions.⁴⁷

Another study investigating rates of cancer, infant mortality and sex-ratio in Fallujah over a four-year period from 2004 to 2009 found that not only were reported rates of

⁴² Alaani, S. et al. 'Four Polygamous Families with Birth Defects', at 1

⁴³ Alaani, et al, Pilot Study of Congenital Anomaly Rates at Birth in Fallujah, Iraq, 2010, 44(1) Journal of the Islamic Medical Association of North America (30 Aug 2012), available at, DOI: <http://dx.doi.org/10.5915/44-1-10463>

⁴⁴ Al-Sabbak et al. (2012) 'Metal Contamination and the Epidemic of Congenital Birth Defects in Iraqi Cities' 89*Bull Environ Contam Toxicology* 937-944

⁴⁵ Ibid., 19

⁴⁶ Al-Ani, ZR et al. (2010) 'Neural tube defects among neonates delivered in Al-Ramadi Maternity and Children's Hospital, western Iraq' 31(2)*Saudi Med J*.163-9

⁴⁷ Al-Faluji, AAR et al. (2012) 'Incidence of cancer in Fallujah above 10 years age with over view of common cancers in 2011' 4*Health*591-596, available at doi: 10.4236/health.2012.49092.

cancer and infant mortality higher, but that sex-ratios were also anomalous compared to established norms suggesting that some kind of genetic stress had occurred.⁴⁸

A 2010 study investigating rates of childhood leukemia in Basrah, another area of Iraq that saw heavy fighting during the 2003 war as well as during the earlier 1991 Gulf War, found that rates had more than doubled over the period between 1993 and 2007.⁴⁹

2. Potential Causes for Increased Rates of Congenital Anomalies and Cancer

The cause of the apparent increase in rates of cancer and the number of babies being born with birth defects in Iraq remains unclear, but environmental contamination resulting from intensive combat has been suspected. Scientific literature on the biological effects of environmental contaminants such as heavy metals, which are used in munitions, and uranium in the case of depleted uranium munitions supports the possibility of this relationship.

Depleted uranium, for example, has recognized radiological and chemical toxicity properties, which may be harmful when inhaled, ingested or otherwise taken into the body such as through contamination of a wound. It has been shown to have carcinogenic and teratogenic effects that could lead to cancer and/or birth defects.

Radiological effects tend to be associated more with the insoluble forms of uranium that may be inhaled as small particles and retained in the lungs leading to continuous exposure to alpha radiation given out from the uranium.⁵⁰ Inhaled particles may also be moved into the lymph system by macrophages, leading to further radiological damage to these tissues.⁵¹ Chemical effects are more typically associated with soluble uranium entering the blood stream, and while 90% may be excreted within days following the exposure around 10% deposits in organs such as the kidneys, bones and reproductive system, which may lead to uranium chemotoxicity and permanent damage, as well as carcinogenic and teratogenic effects that may be instrumental in causing cancers and birth defects.⁵² Studies in humans have also revealed the possibility of exposure to uranium leading to chromosomal abnormalities, including higher frequencies of chromosomal instability, deletions and aberrations.⁵³

In this regard, a report on levels of uranium and other contaminants in the hair of parents of children with congenital anomalies in Fallujah, Iraq found that levels of 16 elements, including uranium (for mothers) were significantly higher than published

⁴⁸ Busby, C. et al. (2010) 'Cancer, Infant Mortality and Birth Sex-Ratio in Fallujah, Iraq 2005-2009' *Int. J. Environ. Res. Public Health* 2828-2837

⁴⁹ Hagopian, A. et al. (2010) 'Trends in childhood leukemia in Basrah, Iraq, 1993-2007' 100(6) *Am J Public Health* 1081-7

⁵⁰ "Depleted uranium: sources, exposure and health effects" WHO Executive Summary http://www.who.int/ionizing_radiation/pub_meet/en/DU_Eng.pdf

⁵¹ Hindin, R. et al., 'Teratogenicity of depleted uranium aerosols', at 5

⁵² Bleise, A. et al. (2003) 'Properties, use and health effects of depleted uranium (DU): a general overview' *Journal of Environmental Radioactivity* 64: 93-112; Hindin, R. et al., 'Teratogenicity of depleted uranium aerosols', at 5

⁵³ Hindin, R. et al., 'Teratogenicity of depleted uranium aerosols', at 5

mean levels of uncontaminated populations.⁵⁴ Six were in high excess, including mercury, which is a possible cause of congenital anomalies. Uranium levels were found to be 0.16 ppm (SD: 0.11) in a range of 0.02 to 0.04 higher in mothers than fathers, “significantly higher” than a variety of published uncontaminated control group levels. The study concludes “The mean level in our initial study was 0.16 ppm and so this is almost five standard deviations from this mean and for a normally distributed population this would [be] highly significant.”⁵⁵, and “since Uranium is the only known radioactive heavy metal exposure in Iraq, it must be considered to be a major suspect for the cause of the effects found in Fallujah and also in the rest of Iraq.”⁵⁶ The final conclusion of the report states that:

Whilst caution must be exercised about ruling out other possibilities, because none of the elements found in excess are reported to cause congenital diseases and cancer except uranium, these findings suggest the *enriched uranium exposure* is either a primary cause or related to the cause of the congenital anomaly and cancer increases. Questions are thus raised about the characteristics and composition of weapons now being deployed in modern battlefields.⁵⁷

The potential role of uranium in birth defects and public health problems in Fallujah, Iraq has been reported in the media, with calls for more international attention on the issue, and in particular more studies to conclusively determine the sources of the apparent rise in birth defects in the area.⁵⁸

Other heavy metals associated with firing of munitions, such as lead and mercury, have an even stronger weight of evidence demonstrating their toxicity if taken up into organic matter. Both lead and mercury are designated by WHO as being in the top ten chemicals of major public health concern, and have well documented adverse effects particularly for fetuses and children, who are more vulnerable. Uptake of lead into the body can lead to a range of negative effects, including neurological damage, kidney damage, miscarriage, premature birth, and death. Mercury is known to cause impairment of neurological development particularly in fetuses and infants, as well as toxic effects on the immune and digestive systems and is a possible human carcinogen.⁵⁹ The extent to which exposure to such heavy metals could cause increased rates of cancer and congenital anomalies such as those described in Iraq is unclear, however.

A report on the link between metal contamination and birth defects in Iraqi cities studied hair samples of 56 Fallujah families for the metal content, and found levels of contamination with two well-known neurotoxic metals, lead and mercury.⁶⁰ Lead levels in hair were found to be five times higher in children with birth defects than the

⁵⁴Alaani, S. et al. (2011) ‘Uranium and other contaminants in hair from the parents of children with congenital anomalies in Fallujah, Iraq’ 5 *Conflict and Health* 15 (available at <http://link.springer.com/article/10.1186%2F1752-1505-5-15>).

⁵⁵ *Id.*, at 9-10.

⁵⁶ *Id.*, At 3.

⁵⁷ *Id.*, at 1.

⁵⁸Caputi, “The victims of Fallujah's health crisis are stifled by western silence” (25, October 2012), available at: <http://www.guardian.co.uk/commentisfree/2012/oct/25/fallujah-iraq-health-crisis-silence>

⁵⁹ “Health effects of mercury” US Environmental Protection Agency <http://www.epa.gov/hg/effects.htm>

⁶⁰Al-Sabbak et al. ‘Metal Contamination and the Epidemic of Congenital Birth Defects in Iraqi Cities’, 89 *Bull Environ Contam Toxicol* 937 (2012),

hair of normal children, and mercury levels were found to be six times higher.⁶¹ The study also compared levels of heavy metals in the teeth of parent of children with birth defects with that of parents of children without birth defects in Fallujah, found that lead were 1.4 times higher in the former group compared with the latter, and with levels three times higher in the deciduous tooth of a child with birth defects than unaffected children. The hair of parents with children having birth defects was also found to have higher levels of mercury, lead, and uranium than parents of healthy children, although not statistically significant.⁶² This research has also been reported in a number of media outlets.⁶³

Other factors suggested as potential causes of observed patterns of birth defects and cancers include the use of the white phosphorous by the US army in Fallujah, exposure to dioxins due to the high levels reported on agricultural lands in southern Iraq by the Iraqi Environment Minister, and exposure to polycyclic aromatic hydrocarbons released as a byproduct of burning fuel.⁶⁴

In summary, several studies have found correlations between incidence of birth defects in Fallujah and exposure of parents of children with defects, and levels within children with deformities themselves, particularly to higher lead, mercury, and uranium levels over unexposed control populations and children born without defects. However, the exact role of US and UK munitions and debris left from the Iraq War, including any toxic substances they contain such as mercury, lead, and uranium, to these health problems remains unknown and calls for further studies on wider scales to elucidate any relationships more rigorously.

3. Potential Exposure Pathways

There are a number of theoretical ways in which heavy metals present in munitions could affect civilians through environmental exposure through chemical toxicity, and long term low-level radiation exposure in addition to chemical toxicity in the case of depleted uranium munitions.

The use of depleted uranium munitions, for example, results in the production of uranium oxide dust, which has been suggested to be capable of being dispersed over distances of up to 40km and of remaining in the air for some time.⁶⁵ In addition to the possibilities of inhalation, penetrator fragments and dust may penetrate the ground and contaminate ground water after weathering.⁶⁶ Furthermore, the potential risk of direct ingestion through soil contamination also exists particularly for children, who

⁶¹Id., at 940.

⁶²Id., at 940.

⁶³ Murayama, "Birth Defects Soar in Fallujah, key Battleground in Iraq War", 2 April 2013, Asahi Shinbun, available at: http://ajw.asahi.com/article/behind_news/social_affairs/AJ201304020235; Morrison, "Iraq Records Huge Rise in Birth Defects", 14 October 2012, The Independent, available at <http://www.independent.co.uk/life-style/health-and-families/health-news/iraq-records-huge-rise-in-birth-defects-8210444.html>

⁶⁴ Al-Hadithi, TS et al. (2012) 'Birth defects in Iraq and the plausibility of environmental exposure: A review' 6 *Conflict and Health* 3

⁶⁵ Belgrade (2000) 'Facts on consequences of the use of depleted uranium in the NATO aggression against the Federal Republic of Yugoslavia in 1999' Cited in: Bleise, A. et al. (2003) 'Properties, use and health effects of depleted uranium (DU): a general overview' 64 *Journal of Environmental Radioactivity* 93-112

⁶⁶"Depleted uranium: sources, exposure and health effects" WHO Executive Summary, at 20

may have unwashed hands.⁶⁷ Although studies at test sites have given varying results for the probability of different exposure pathways, generalization is impossible to achieve due to a wide number of factors, such as amount of ammunition used and soil and climate factors, that may affect the contamination of an individual site, and as such each site would require separate assessment.⁶⁸ A further exposure route, identified by the UNEP, is the possibility of civilians, particularly children who are most vulnerable, being exposed through scrap metal in scrap yards and processing plants—either through directly dealing with scrap metal or through living in the facility of a scrap yard.⁶⁹ Such scrap can be appealing to children to play with.

The risks of depleted uranium and the need for protection from exposure is vividly demonstrated by the combat manuals of both the US and UK armies, which contain procedures to limit depleted uranium exposure, including avoiding spending time in a contaminated area and keeping 50 meters away from contaminated vehicles wherever possible, not eating, drinking or smoking in the vicinity of potentially contaminated areas, and covering of skin. The manuals call for marking, assessment, exposure avoidance and monitoring to avoid negative effects of potential depleted uranium exposure, and yet these standards are not upheld for civilians.⁷⁰ As mentioned above, according to the Alaani, et al, (2011) hair sample study, while not an exhaustive or conclusive study, uranium is “considered to be a major suspect for the cause of the effects found in Fallujah and also in the rest of Iraq” because it is “the only known radioactive heavy metal exposure in Iraq.”⁷¹

With respect to other potential heavy metal contaminants, such as lead, soil-based exposure pathways are also of significant potential concern, particularly for children.⁷² Lead also has the potential to leach into ground water, and can also be inhaled as particles.⁷³ Because of the potential risks of environmental contamination and effects on human health resulting from firing lead ammunition, the United States Environmental Protection Agency has guidelines on managing firing ranges within the U.S.⁷⁴ It is therefore more than conceivable that there should be cause for concern over potential environmental contamination resulting from intensive combat.

Looking at the situation in Iraq, a number of smaller epidemiological studies, some mentioned above, offer indications of the sources of birth defects in Iraq, although they remain inconclusive and in need of wider scale epidemiological research. A study analyzing dust samples from Iraq and Kuwait in 2004 found heavy metals, including lead, nickel and chromium, at levels above WHO guidelines for maximum

⁶⁷Bleise, A. et al. ‘Properties, use and health effects of depleted uranium’, at 21

⁶⁸“In a State of Uncertainty”, IKV Pax Christi, at 4

⁶⁹http://www.unep.org/disastersandconflicts/portals/155/disastersandconflicts/docs/iraq/Iraq_pccleanup_report.pdf

⁷⁰“In a State of Uncertainty”, IKV Pax Christi, at 4

⁷¹Alaani, S. et al. (2011) ‘Uranium and other contaminants in hair from the parents of children with congenital anomalies in Fallujah, Iraq’ *5 Conflict and Health* 15, at 3.

⁷²“Lead in soil: Why is it a problem?” US Environmental Protection Agency

<http://www.epa.gov/region1/leadsafe/pdf/chapter3.pdf>

⁷³“Human Health and Lead” US Environmental Protection Agency

<http://epa.gov/superfund/lead/health.htm>

⁷⁴“Best Management Practices for Lead at Outdoor Shooting Ranges” US Environmental Protection Agency http://www.epa.gov/lead/pubs/epa_bmp.pdf

exposure.⁷⁵ Another study investigating levels of lead found high levels of contamination of the water supply.⁷⁶ Furthermore, a peer-reviewed study, mentioned above, in which hair samples of parents of children with congenital anomalies in Fallujah were analyzed revealed high levels of contamination by a number of elements, including lead, mercury, iron, aluminum, manganese, strontium, barium and bismuth, as well as uranium. The study concluded that the findings particularly for uranium could be a potential explanation for documented increased rates of cancer and congenital anomalies.⁷⁷ As also mentioned above, a study on metal exposure found lead levels in the hair of children with birth defects to be five times higher in children with birth defects than the hair of normal children, and mercury levels were found to be six times higher.⁷⁸

4. World Health Organization and other international institutions

The World Health Organization, in combination with Iraq's Federal Ministry of Health, is currently conducting a preliminary analysis of data on the prevalence of congenital birth defects in children among the Iraqi population within nine governorates.⁷⁹ The data collection process has completed, and currently the analysis is being made, with a hopeful release date in early 2013. According to the WHO's Frequently Asked Questions, the prompt for the investigation was reports of increased birth defects within local regions and hospital records, calling for a more widespread investigation with a household survey over a much larger sample size.⁸⁰ The FAQ also noted that the investigation will not look into any possible link between the prevalence of birth defects and the use of depleted uranium or any other potential cause in Iraq, limiting itself only to investigating prevalence rates in selected regions. The FAQ did note, however, that "Since the issue of associating congenital birth defects with exposure to depleted uranium has not been included the scope of this particular study, establishing a link between the congenital birth defects prevalence and exposure to depleted uranium would require further research."⁸¹

While publication of the final report has been delayed, interviews conducted by the BBC with researchers at the Iraqi Ministry of Health, who cooperated in the production of the report, have suggested that a relationship exists between the increased prevalence of birth defects and use of munitions.⁸² With regards to other international organizations, no UN human rights body or UN special rapporteur has

⁷⁵ "Iraq, Kuwait dust may carry dangerous elements" Navy Times <http://www.navytimes.com/news/2010/12/military-heavy-metals-dust-kuwait-iraq-120710w/>; WHO Guidelines for drinking-water quality. 2nd edition, Vol1.: Recommendations. World Health Organization, Geneva, 1993; WHO Regional Office for Europe: Air Quality Guidelines for Europe. 2nd ed. WHO Regional Publications, European Series No. 91, 2000

⁷⁶ Al-Hamawandi, AM et al. (2004) 'Blood lead level among children in Al-Anbar governorate, Iraq' 5(1) *Al-Anbar Medical Journal* 10-13

⁷⁷ Alaani, S. et al. (2011) 'Uranium and other contaminants in hair from the parents of children with congenital anomalies in Fallujah, Iraq' 5 *Conflict and Health* 15

⁷⁸ Al-Sabbak et al.(2012) 'Metal Contamination and the Epidemic of Congenital Birth Defects in Iraqi Cities', 89 *Bull Environ Contam Toxicol* 940,

⁷⁹ <http://www.emro.who.int/irq/iraq-news/congenital-birth-defect-survey.html>

⁸⁰ <http://www.emro.who.int/irq/iraq-infocus/faq-congenital-birth-defect-study.html>

⁸¹ Id.

⁸² "Doctors in Basra report rise in birth defects" <http://www.bbc.co.uk/news/world-middle-east-21873892>

yet conducted any sufficient and comprehensive research on the rise in prevalence of birth defects in Iraq and possible war related illnesses.

5. Conclusion

The main conclusion to take away from the above discussion is that weapons and munitions which contain known potential toxic substances in their use or remains in the environment, such as mercury, lead, and uranium, were used during the Iraq War, and a rise in prevalence of illnesses, such as birth defects, sometimes correlated with higher levels of exposures to toxic substances have been reported and documented from research studies, hospital records, and doctors' witness accounts. However, uncertainty still exists on the specific sources of the apparent rise in birth defects, and there has not been sufficient investigation or data gathered to establish a relationship between the birth defect incidence rate and any toxic substance source. As the above discussion hopes to demonstrate, the situation has enough grounding to call for further investigation into the prevalence of birth defects and toxicity related illnesses in Iraq, and any correlation between such illnesses to scrap or munitions debris left by the Iraq conflict. Crucial to this end is the comprehensive disclosure of information about the use of weapons and hazardous materials in Iraq by the US and UK forces during the conflict, such as the quantity and locations of munitions used, so that studies can be made regarding correlations between illness and munitions use or war scrap metal and other debris.

While studies such as the pending WHO investigation into the prevalence of birth defects across a wide survey sample in Iraq are helpful, there remains much uncertainty about the possible sources of reported increases in that prevalence. The smaller scale studies discussed above are not comprehensive enough to fully establish the prevalence rate of birth defects or sources of illnesses on a wide scale, and the WHO investigation itself, while more wide-scale, is only considering the issue of prevalence, not causes or correlations between birth defects and possible toxic sources. This means the sources of the problem have not been identified, which leads to a possible situation where there is loss of health and life that remains unremedied by, e.g., response measure such as cleaning up potential toxic sources, compensating illness by the source polluters, and possibly prosecuting or holding tortuously liable those criminally or negligently responsible for such toxic remains, if any are identified. This situation demonstrates the necessity for a full investigation and disclosure of information about munitions use by US and UK forces to make such an investigation and potential responses possible.

V. Legal obligations

There are a number of legal regimes to which the US and UK are bound that may address the issue of toxic or otherwise harmful munitions and debris left following conflicts and their risks of potential ill effects on an occupied population. The regimes give the polluting and occupying state various obligations or potential obligations under humanitarian law, international human rights law, domestic military law, international environmental law, positive treaty obligations, and other areas. These regimes may cover the conduct of armed conflict and on an occupying state to both protect and promote the life and health of the people in an occupied state under their control. These include duties with regards to both the release of dangerous substances into the environment during conflict, managing dangerous substances after their

release as an occupying state, addressing and compensating negative health consequences that result, and procedural duties to disclose information and conduct investigations.

It is important to note which regimes bind which states. As will be described below, the UK is a member of more applicable treaties than the US, but the US is still bound to important obligations as well. For each regime, the membership or obligation status of the US and UK will be noted. Even with these regimes, there is still a need for more and stronger legal protections and the ability to enforce existing protections better to protect civilians in occupied areas in this still-developing area of law.

1. International Humanitarian Law

Legal protections for civilians in occupied territory begins with International Humanitarian Law under the Geneva Conventions, to which both the US and UK are parties, with part III (“Status and Treatment of Protected Persons”) of the Fourth Geneva Convention (“relative to the Protection of Civilian Persons in Time of War”) covering duties of the occupied power to civilians under their control as protected persons.⁸³

The two most relevant provisions are

- **Article 27.** “Protected persons... shall at all times be humanely treated”, and
- **Article 56.** “To the fullest extent of the means available to it, the Occupying Power has the duty of ensuring and maintaining ... the medical and hospital establishments and services, public health and hygiene in the occupied territory, with particular reference to the adoption and application of the prophylactic and preventive measures necessary to combat the spread of contagious diseases and epidemics.”

Thus, the obligation to maintain public health, hygiene, and the prevention of disease among civilians in occupied territory is a clear and important obligation of humanitarian law. It may be argued that the obligation of prevention implies an obligation to remove sources of disease when they are identified.

Article 35 of the 1977 Additional Protocol I to the Geneva Conventions, which the UK has ratified but not the US, further prohibits any method of warfare that may be expected to cause widespread, long-term, and severe damage to the environment, although states disagree on the threshold of harm.⁸⁴ While the US has not ratified the 1977 Additional Protocol I, it has acknowledged that many of its provisions are customary law. In this regard, it is worth noting that the US military law specifically requires its forces to comply with customary law.⁸⁵

⁸³ 1949 Geneva Convention (IV) Relative to the Protection of Civilian Persons in Time of War, 12 August 1949, Geneva, Switzerland, 75 UNTS 287/ 1958 ATS No 21 (available at <http://www.icrc.org/ihl.nsf/full/380>).

⁸⁴ Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977.(available at <http://www.icrc.org/ihl.nsf/full/470>).

⁸⁵ See US Field Manual 27-10 (1956) para. 7(c) on the Law of Land Warfare and Field Manual 100-23 Peace Operations (1994) Chpt. 3 (I) Legal Considerations.

One issue with humanitarian law under the Geneva conventions is that obligations are normally left to the occupying states to address, including agreements on relief plans and measures to prevent illness which might include cleanup operations of hazardous wastes.⁸⁶ The fact that obligations are largely self-enforced in humanitarian law does not allow the occupying powers to ignore their obligations or prevent them from being in violation if they do ignore them, however.

2. International Human Rights Law

There are five major international human rights regimes of note that may be applicable to the occupying powers in Iraq, as well as Iraq itself. Note that some treaties only bind the UK and Iraq and either not the US or with reduced obligations on the US in cases where the US signs but not ratifies the treaty.

- The International Covenant on Civil and Political Rights (ICCPR). The US, UK, and Iraq have ratified the ICCPR,
- The International Covenant on Economic Social and Cultural Rights (ICESCR). The UK and Iraq have ratified the ICCPR; the US signed it but has not ratified. Under international law, a state which only signs a treaty is obligated to refrain, in good faith, from acts which would defeat the purpose of the treaty.
- Convention on the Rights to the Child (CRC). The UK and Iraq have ratified the CRC. The US has signed, but not ratified it, again giving it only the obligation not to defeat its purpose.
- Convention on the Elimination of Discrimination Against Women (CEDAW). The UK and Iraq have ratified the CRC. The US has signed, but not ratified it, again giving it only the obligation not to defeat its purpose.
- The European Convention on Human Rights (ECHR). The UK has ratified the ECHR. The US and Iraq have neither ratified nor signed it. The provisions of the ECHR have been interpreted by the jurisprudence of the European Court of Human Rights.

The Human Rights Committee clearly states in General Comment No.31 that the ICCPR applies to armed conflict situations where international humanitarian law is applicable, and that humanitarian law and human rights law are complementary, not mutually exclusive, and mutually reinforcing.⁸⁷ It further states that a state must meet its ICCPR obligations even in foreign occupied territory it controls during armed conflict⁸⁸

The 1977 Additional Protocol I to the Geneva Conventions, which again binds the UK, requires that minimum human rights guarantees be integrated into the law of

⁸⁶Articles 55 and 59 of the Fourth Geneva Convention.

⁸⁷ Human Rights Committee, General Comment 31, CCPR/C/21/Rev.1/Add. 13, 26 May 2004, para 11 (“the Covenant applies also in situations of armed conflict to which the rules of international humanitarian law are applicable. ... [B]oth spheres of law are complementary, not mutually exclusive.”)

⁸⁸Id., para. 10 (“a State party must respect and ensure the rights laid down in the Covenant to anyone within the power or effective control of that State Party, even if not situated within the territory of the State Party.”),

occupation, which would include the rights to life and health. Article 75 requires that persons within the power of states in conflict, including the occupying power, be granted basic human rights protections.

The International Court of Justice (ICJ) in the Israel Wall Advisory Opinion also found that the ICCPR and the Convention on the Rights of the Child (CRC) are applicable to territories over which a state exercises jurisdiction even outside their sovereign territory, which would include occupied territory.⁸⁹ As for the International Covenant on Economic, Social, and Cultural Rights (ICESCR), the ICJ found that while it does not have any provision specifying its scope of application, it is not prevented from applying to acts carried out by a state exercising its jurisdiction outside its own territory.⁹⁰

In addition to all of these other sources, Security Council Resolution 1483 affirms the continued applicability of international human rights law to Iraqi territory in spite of foreign occupation. This may be interpreted as applying the human rights obligations to which an occupying state is already bound to occupied Iraqi territory it controls.

Keeping their application in mind, key human rights provisions that may apply are:

- **ICCPR, Article 6(1) Right to life:** "No one shall be arbitrarily deprived of his life." This binds both the US, UK, and Iraq as ratified members.

As a state party to the ICCPR, the US, UK, and Iraq have a legal duty to ensure the right to life. The obligation has been internationally established since the judgment of *Velasquez Rodriguez v. Honduras* by the Inter-American Court of Human Rights:

174. The State has a legal duty to take reasonable steps to prevent human rights violations and to use the means at its disposal to carry out a serious investigation of violations committed within its jurisdiction, to identify those responsible, to impose the appropriate punishment and to ensure the victim adequate compensation. (para 174).

- **ICCPR, Article 2(3)(a), Right to Effective Remedy.** "[A]ny person whose rights or freedoms as herein recognized are violated shall have an effective remedy" that state parties shall undertake to ensure.

The scope of obligation under Article 2(3) includes, for the first place, cessation of the ongoing violation, and investigation of human rights violations. The Human Rights Committee General Comment 31 stated, "a failure by a State Party to investigate allegations of violations could in and of itself give rise to a separate breach of the Covenant. Cessation of an ongoing violation is an essential element of the right to an effective remedy." (Para. 15) "Indeed, the problem of impunity for these violations, a

⁸⁹ ICCPR Article 2(1) states that the ICCPR applies to persons "within [a party's] territory and subject to its jurisdiction". The ICJ interpreted the "and" disjunctively to allow application either in a state's territory or subject to its jurisdiction.

⁹⁰ Advisory opinions are not binding on states, but the ICJ's interpretation of the ICCPR, CRC and ICESCR could be argued to have weight under international law through its authority as principle judicial organ of the UN under Article 92 of the UN Charter and as an interpreter of treaty provisions states may designate under Article 66(a) of the Vienna Convention on Treaties.

matter of sustained concern by the Committee, may well be an important contributing element in the recurrence of the violations.” (Para. 18)

General Comment 31 also states,

The Committee considers that the Covenant generally entails appropriate compensation. The Committee notes that, where appropriate, reparation can involve restitution, rehabilitation and measures of satisfaction, such as public apologies, public memorials, guarantees of non-repetition and changes in relevant laws and practices, as well as bringing to justice the perpetrators of human rights violations. (Para. 16).

- **ICCPR, Article 19(2), Right to Information.** “Everyone shall have the right to freedom of expression; this right shall include freedom to ... receive ... information and ideas of all kinds, regardless of frontiers.”

- **The International Covenant on Economic, Social, and Cultural Rights (ICESCR), Article 12(1) Right to health.** The ICESCR binds the UK and Iraq as ratified members, and the US to the extent (as a signer) it refrains from acts which defeat the purpose of the treaty through them.

The ICESCR “right to health” is given content in Art.12(2) by calling for “steps to be taken” for:

- (a) “The ... reduction of the stillbirth-rate and ... infant mortality and for the healthy development of the child”,
 - (b) “The improvement of all aspects of environmental and industrial hygiene”,
 - (c) “The prevention, treatment and control of epidemic, endemic ... and other diseases”, and
 - (d) “The creation of the conditions which would assure to all medical services and medical attention in the event of sickness.”
-
- **Convention on the Rights of the Child (CRC),⁹¹ Article 24(1), Right to health of the child.** The CRC binds the UK and Iraq as ratified members, and the US to the extent (as a signer) it refrains from acts which defeat the purpose of the treaty through them. Art.24(2) requires that member states “shall take appropriate measures”
 - (a) “To diminish infant and child mortality”
 - (c) “To combat disease... through, inter alia ... adequate ... food and clean drinking-water, taking into consideration the dangers and risks of environmental pollution”.

⁹¹Convention on the Rights of the Child, G.A. Res. 44/25, annex, at 167, U.N. GAOR, 44th Sess., Supp. No. 49, U.N. Doc. A/44/49 (Nov. 20, 1989)

- **CRC Right to Information.** Article 13(1). Children have a right to “freedom to ... receive ... information.”
- **Convention on the Elimination of Discrimination Against Women (CEDAW).**⁹² The UK and Iraq are ratified members and the US is signatory to the regime.
 - **Right to Health.** Article 12(1), (2). States shall ensure equality for women for health care, access to services, and appropriate services in connection with pregnancy, which may implicate obligations involving mitigation of risks of birth defects.
 - **Right to Information on health issues.** Article 10(h). States shall take measures to ensure for women equal “Access to specific educational information to help to ensure the health and well-being of families”.

European Convention on Human Rights

Human rights jurisprudence by the European Court of Human Rights, which binds the UK as a member of the European Convention on Human Rights (ECHR),⁹³ gives content to the ECHR’s corresponding right to life (Article 2(1)) by establishing duties of governments to protect persons from mortal environmental risks, under the leading case *Oneryildiz v Turkey* and reinforced by later jurisprudence.⁹⁴ The Court requires duties to eliminate mortal environmental risks as part of the right to life. In addition to the substantive duty, the jurisprudence also recognizes two procedural rights the state owes affected persons, the right to provide information about the risk to potentially affected persons, and the obligation to investigate when loss of life occurs.

3. Convention on Certain Conventional Weapons (CCCW)

The Convention on Certain Conventional Weapons (CCCW), which both the US and UK have ratified, contains two disciplines relevant to weapons used in the Iraq War. Protocol III prohibits incendiary weapons, in all circumstances, directed at civilians with the design to set fire to objects or cause burn injury to persons, which would include white phosphorus munitions when used as a weapon against civilians. If the US used white phosphorus munitions as an anti-personnel weapon on humans, as some have reported, it would be a violation of Protocol III of the CCCW conventional weapons convention.

⁹²Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), 1249 UNTS 13 (1979),

⁹³ European Convention on Human Rights, available at <http://www.echr.coe.int/ECHR/EN/Header/Basic+Texts/The+Convention+and+additional+protocols/The+European+Convention+on+Human+Rights/>.

⁹⁴*Oneryildiz v Turkey*, 48939/99 [2004] ECHR 657 (30 November 2004), Right to Life, Art. 2. The case involved an explosion of a trash heap which killed several inhabitants living there illegally. The Court found the right to life applies “in the context of any activity whether public or not, in which the right to life may be at stake”, creating a duty of care depending on the danger (take preventive measures to protect individuals or cleanup), the risk to individuals, the status of people creating the risk, and whether it was deliberate. On the Right to Information & Investigation, the case is also notable in that the Court recognized the affected persons’ right to information in light of the danger (alongside the substantive rights), giving the government the affirmative duty to inform the affected persons concerning the risks to life and to investigate when loss of life occurred.

Protocol V of the CCCW gives states which used explosives in conflict the obligation to clear their remains, unexploded ordinance, such as unexploded bomblets of cluster bombs, land mines, and abandoned explosive weapons, at the cessation of active hostilities. Parties are also required, subject to some qualifications, to provide information on their use of explosive weapons.

4. International Environmental Law

The Rio Declaration on Environment and Development (1992) states in Principle 10 that, for environmental issues, public access must be guaranteed to information, public participation, and access to effective judicial and administrative proceedings, including redress and remedy, since “environmental issues are best handled with the participation of all concerned citizens, at the relevant level.”

Principle 16 states the Polluter Pays Principle, whereby states are encouraged to direct environmental liability for harms and cleanup costs to a source polluter to both mitigate an unfair benefit that innocent victims paid for, and to create an incentive for polluters to avoid future pollution.⁹⁵ It is related to the common practice of states compensating other states for environmental harm they cause to the latter and the principle that costs should fall on the polluter before the innocent victim, although many states do not recognize this as an obligation under customary law. The Polluter Pays Principle traditionally applies to unintentional industrial pollution, with its application to duties for cleaning up pollution following armed conflict still a developing area of law; however, the polluter pays principle may provide guidance or a best standard to state practice for managing the dangerous remains of conflicts after their conclusion in order that innocent victims do not pay the full costs of harms.

5. Domestic US Law and Military Law

The most practically enforceable obligations on US and UK military conduct would be domestic and military laws and rules on use of weapons, environmental considerations, protecting the civilian population, and meeting humanitarian needs which have an environmental component. Even if the United States argues that it would not be obligated to treaty obligations which the US is not a party, it is bound to the following domestic laws which apply to contingency operations such as those conducted during the Iraq War and later occupation.

The Foreign Tort Claims Act provides jurisdiction for compensation claims for personal injury, death, or property loss from non-combat activities of the US Army or government involving negligent or wrongful acts, although in the context of weapon remains the claim would have to rely on a negligent failure such as possibly not cleaning up dangerous remains.⁹⁶ The US government has waived sovereign immunity for valid claims under the act.

⁹⁵Principle 16. “National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.”

⁹⁶Foreign Claims Act, 10 U.S.C. § 2734-2736, available at <http://www.law.cornell.edu/uscode/text/10/2734>. Regarding the application of the act to the debris of war, we must distinguish debris left for non-combat and combat purposes. 10 USC § 2734(b)(3) states that “A claim may be allowed under subsection (a) only if (3)it did not arise from action by an enemy or result directly or indirectly from an act of the armed forces of the United States in combat...” Debris

Under US federal law, Executive order EO 12114, “Environmental Effects Abroad of Major Federal Actions” requires federal government organs, including the military, to advance the purpose of the National Environmental Policy Act (NEPA), Marine Protection Research and Sanctuaries Act, and the Deepwater Port Act in its actions, consistent with foreign policy and national security.⁹⁷ It requires environmental impact assessments, environmental studies, and reviews to be conducted before the actions occur. However, the military directive that implements this order (DODD 6050.7) excludes actions taken “when the national security or interest is involved or when the action occurs in the course of an armed conflict.”

Under military law, the Department of Defense directive DODD 3000.05 (2005), establishes “stability operations” as a core U.S. military mission requiring support with priority comparable to combat operations. Stability operations consist of immediate goals, which include restoring essential services and meeting humanitarian needs, both of which apply to environmental and civilian protection, and long-term goals, including developing local capacity for securing essential services, which also has important environmental components, including rebuilding or establishing water and sewage infrastructures, public health systems, and food supplies. These rules may provide some leverage for obligations of environmental cleanup of dangerous munitions and other dangerous post-conflict debris, providing information to protect persons from their risks, and treatment for post-conflict related illness.

Other army rules with rules on environmental protection include field manual FM3-100.4, *Environmental Considerations in Military Operations*, which mandates specific cleanup duties for operations (including contingency operations) in sections on the treatment of military wastes (paras. 1-37, 1-38), stability operations (para. 1-39), sensitive site exploitation (3-38), and reconstruction operations (3-43). Joint-force instructions for engineers also have environmental standards, including for cleanup operations, including JP 3-34, *Engineer Doctrine for Joint Operations*, and JP 4-04, *Joint Doctrine for Civil Engineering Support*.⁹⁸

6. Summary

Based on the above international and domestic laws, the US, UK and Iraq have at least the following core legal obligations. With regards to the fact that the US and UK are not currently occupying states anymore, they are still currently responsible for some violations that occurred when they were occupying states in the past, and some violations extend from their actions even aside from their status as occupying states. As a member of the major human rights treaties (ICCPR, ICESCR, CRC, CEDAW), Iraq also has obligations to take necessary measure to ensure the rights to protect life, health, disclose information, and ensure effective remedies, although some may be mitigated by the roles of the US and UK in leaving war wastes and having exclusive control over information about them.

left for non-combat reasons, such as establishing a base (or a stated exception such as an accident or malfunction of an aircraft), may give rise to a claim straightforwardly. For toxic debris left by combat, such as munitions, one would have to find a claim other than the deposition of the debris itself. One argument may be that a claim arises not from combat shooting (an act of combat) but from a failure to clean-up the toxic material under its control after combat operations have ended.

⁹⁷ Executive Order 12114, Jan. 4, 1979, 44 FR 1957, 3 CFR, 1979 Comp., at 356.

⁹⁸ http://armypubs.army.mil/doctrine/DR_pubs/dr_a/pdf/fm3_34x5.pdf

(1) Obligation to Investigate Risks and Violations

The US, UK, and Iraq are obligated by ICCPR Article 2(3) to conduct a prompt, thorough, and effective investigation when of serious breaches of the Convention are alleged, the failure of which may count as a separate violation of the ICCPR itself. Any failure of the US and UK to cleanup war scrap and munitions which threaten lives implicates a violation of ICCPR Article 6(1) right to life.

Iraq also has an obligation to conduct an investigation due to the presence of a life-threatening environmental risk in its territory that implicates the right to life as well. The UK is under a further obligation to conduct an investigation when loss of life occurs due to an environmental risk within territory it controls under the *Oneryildiz v Turkey* line of jurisprudence on ECHR Article 2(1), the right to life.

(2) Obligation to Disclose Information about Risks

A core obligation of humanitarian law on the US and UK under Geneva Convention IV, Article 56 is to prevent the spread of illness among the civilian population in occupied territory, and informing civilians about risks is a vital part of preventing the spread of illness.⁹⁹

ICCPR Article 19(2) obligates member states to ensure that persons have the right to receive publicly important information as part of their freedom of expression.¹⁰⁰

Principle 10 of the 1992 Rio Declaration states the important principle in international environmental law that public access must be guaranteed to information about environmental issues, which should include serious environmental risks.

(3) Obligation to Clean Up Environmental Risks

As mentioned above, Geneva Convention IV, Article 56 obligates the US and UK to prevent the spread of illness among the civilian population in occupied territory, which would require the cleanup of war wastes when they are the source of illness.

If a mortal environmental risk threatens the lives of civilians, ICCPR Article 6(1) right to life is implicated for the US and UK, requiring cessation as an effective remedy under ICCPR Article 2(3)(a).¹⁰¹ The cessation of the threat to life would begin with the cleanup of hazardous wastes threatening lives.¹⁰²

⁹⁹Since much of the information about use of weapons is in the control of the US and UK, Iraq cannot be expected to disclose information it does not possess, but needs disclosure from the US and UK.

¹⁰⁰ Under the *Oneryildiz v Turkey* line of jurisprudence on ECHR Article 2, the right to life, the UK is obligated to disclose information about mortal environmental risks to persons that may be affected. The Convention on the Elimination of Discrimination Against Women (CEDAW) also obligates the UK and Iraq in Article 10(h) to ensure women with access to information to provide for the well-being of their families. Under the ICESCR Art.12(2)(a),(b),(c) and Convention on the Rights of the Child 24(2)(a),(c), quoted above, the UK and Iraq are obligated to take measures to prevent various serious health problems, including child illness and mortality and environmental hygiene, for which disclosure of information about risks is a vital part.

¹⁰¹HRC General Comment 31, para. 15, requires “cessation” as an “essential element” to effective remedy. It may also apply to Iraq, even if it did not cause the harm, since the threat to life still exists

For the US, domestic military rules require environmental duties for contingency operations, which include duties to cleanup wastes and ensure humanitarian needs such as preventing illness under DODD 3000.05 on required stability and humanitarian operations and FM3-100.4, *Environmental Considerations in Military Operations*, which lists specific cleanup requirements in various conditions listed in the previous section.

For the UK, the aforementioned ECHR *Oneryildiz v Turkey* line of jurisprudence requires that states eliminate environmental risks that risk the life of persons in their control as part of the ECHR Article 2 right to life, which includes civilians in occupied territory. For military wastes in occupied territory they control, this would require cleanup operations to fully eliminate the violation of the right.

Finally, Principle 16 of the 1992 Rio Declaration states the Polluter Pays Principle, in which the actor most responsible for causing an environmental risk should be the most responsible in paying for its costs, which include cleanup of the harm.

For obligations which turn on the US and UK being occupying power, the US and UK may still be responsible now for violations in the past when they did occupy Iraqi territory. This responsibility may include an obligation to pay for or engage in cleanup operations.

(4) Obligation to Provide Compensation and other Remedies

As with the obligation to clean up hazardous wastes that threaten civilian lives, ICCPR Article 2(3)(a) on effective remedies to the violation of ICCPR Article 6(1) right to life also calls for compensation and other remedies.¹⁰³

The Polluter Pays Principle (Principle 16) of the 1992 Rio Declaration also advances the principle that the actor most responsible for causing environmental pollution should be the most responsible in paying for its costs, which include the costs of illnesses the harm caused.

within its territory; however, it may not have the full information or capacity as the US and UK to cleanup war wastes

¹⁰² Also, as mentioned above, ICESCR Art.12(2)(a),(b),(c) and Convention on the Rights of the Child 24(2)(a),(c), quoted above, obligate member states to take measures to prevent various serious health problems, including child illness and mortality and environmental hygiene. This would include eliminating the source of these health problems and environmental risk by cleanup operations.

¹⁰³ HRC General Comment 31, para. 16, notes that effective remedies “include appropriate compensation, rehabilitation, measures of satisfaction, guarantees of non-repetition, changes in relevant laws and practices, and prosecution of perpetrators of violations.”

VI. Responses by the US, UK, and Iraq Governments and International Organizations to the Birth Defect and Health Situation in Iraq

1. State Government Responses

The responses by the US, UK, and Iraq governments to the reported birth defect situation and health situation in Iraq has been limited and in some cases may amount to a failure to meet their obligations under international law. For Iraq, since much of the information about use of munitions, locations, quantities, and composition, are in the control of the US and UK, it may be impossible for them to meet their obligations without the disclosure of this information by the US and UK.

(1) On the Obligation to Investigate Risks and Violations

- United States

The US government has also not yet established any review committee to investigate its war policies, as well as any human rights violations during the war or occupation. Further, the US has not yet conducted any investigation on the use of toxic weapons, including depleted uranium and white phosphorous munitions, as well as any negative impacts they may have had on the health of the Iraqi people. This amounts to a failure of the US's obligation to investigate allegations of serious human rights violations entailed by the ICCPR.

- United Kingdom

On the issue of an investigation, the UK government established the Chilcot inquiry, which held 18 months of public hearings between the end of 2009 and early 2011. However, the inquiry has not yet issued a final report. The UK government has further conducted efforts for investigations on the grave human rights violations in Iraq, such as the Al-Sweady inquiry. However, the scope of the committee was limited. An investigation mechanism for conducting a thorough and comprehensive investigation of all alleged human rights violations perpetrated by UK forces during the war and occupation in Iraq has not yet been established. Further, the UK has not yet conducted any investigation on the use of toxic weapons, including depleted uranium and white phosphorous munitions, as well as any negative impacts they may have had on the health of the Iraqi people.

This insufficiency in investigation may amount to a failure of its obligation under the ICCPR's right to effective remedy (Article 2(3)(a)), and the European Convention of Human Rights Article 2 right to life.

(2) On the Obligation to Disclose Information about Risks

- United States

The US government has not publicly disclosed any information about its use of munitions in the Iraq War, including depleted uranium munitions, such as the quantities used, locations, and physical compositions.¹⁰⁴ This may amount to a failure of an obligation to prevent the spread of illness under Geneva Convention IV, Article 56 and to disclose important public information under ICCPR Article 19(2). It also

¹⁰⁴Id.

flaunts the Rio Declaration's Principle 10 on the right of potentially affected persons to information about environmental harm and risks.

- United Kingdom

The UK government has disclosed some of its use of weapons in the Iraq War, including its use of depleted uranium munitions.¹⁰⁵ The information it provided was rather general statements about the quantities and locations and could be made more specific however.

(3) On the Obligation to Clean up Environmental Risks

- United States

As mentioned above,¹⁰⁶ the Iraqi government's Radiation Protection Center is reported to have identified 300-365 contaminated sites as of 2006. The US has only conducted limited clean-up operations in areas such as Basra. However, neither the US nor Iraq government have provided detailed information as to clean up operations.¹⁰⁷ The refusal of the US to release data on combat operations and use of munitions has also hampered clean-up efforts in Iraq.¹⁰⁸

Without greater transparency of the US clean-up operations, or indeed of the locations of military operations and contaminated sites, it is impossible to identify failures to sufficiently clean-up contaminated sites. This means disclosure of such information is important to identify what clean-up operations must still be accounted for. Any failures to clean-up contaminated sites may amount to a failure of the US's ICCPR Article 2(3)(a) obligation to provide an effective remedy to violations of the right to life for mortal risks (Article 6(1)). With regards to the right, according to HRC general comment 31, para. 15, "cessation" is the most important remedy, which implies an obligation to cleanup contamination. To the extent dangerous debris, scrap, and munitions are insufficiently cleaned up and risks remain, it may amount to a violation of the Fourth Geneva Convention, Part III, Art. 56 obligation to apply "preventive ... measures" to combat the spread of disease.

- Iraq

The Iraq government also has obligations to cleanup environmental wastes that threaten the life of persons in its territory, even if it did not cause the wastes, since the ICCPR Article 6(1) right to life is implicated by the risk itself; however, it may need information disclosures from the US and assistance with capacity to meet its obligations, mitigating them to some extent. As mentioned above, a UNEP report identified difficulties in Iraqi domestic agencies carrying out assessment and clean-up of depleted uranium contamination due to a lack of appropriate knowledge and equipment for doing so.¹⁰⁹ While UNEP has implemented capacity building programs to try to tackle these issues, significant technical challenges continue to hinder Iraqi agencies from carrying out assessment and clean-up activities.

¹⁰⁵<http://www.bandepleteduranium.org/en/docs/131.pdf>

¹⁰⁶Supra, at 8.

¹⁰⁷"In a State of Uncertainty", IKV Pax Christi, at 4

¹⁰⁸<http://www.bandepleteduranium.org/en/docs/131.pdf>

¹⁰⁹http://www.unep.org/disastersandconflicts/portals/155/disastersandconflicts/docs/iraq/Iraq_pccleanu_p_report.pdf

(4) Compensation and other remedy

- United States and United Kingdom

Without any investigation on the sources contributing to serious birth defects in Iraq, neither the US nor UK governments have provided any compensation, restitution, rehabilitation, or measures of satisfaction. This may be a failure of the obligation under the ICCPR's Article 2(3)(a) to provide an effective remedy for violations.

2. International Organization Responses

The response of international organizations has also had shortcomings. The Commission on Human Rights (CHR) established a mandate for a special rapporteur (SR) on the situation of human rights in Iraq from 1991-2002 which issued some reports on health issues in Iraq from a rights perspective.¹¹⁰ However, the HRC abolished this mandate after the 2003 Iraq War. Since 2002, the SR on human rights in Iraq has not conducted any investigation in Iraq. While the CHR has continued to issue reports on human rights in Iraq, most recent reports do not focus on the right to health at all.¹¹¹ A 2005 CHR report mentions the terrible health situation for women and children in passing.¹¹² More recent reports by the CHR's UN Assistance Mission to Iraq (UNAMI) have focused on topics such as mercenaries and internally displaced persons, not health issues and the right to health, as the right to health is not within the mandate of UNAMI to address.¹¹³

Furthermore, human rights reports that are issued have largely been neglected by the international community. They are not made official submissions to the HRC, and in the last few years the HRC itself has not been investigating or issuing reports on the human rights situation in Iraq, only UNAMI, which, as just mentioned, has not investigated right to health issues in Iraq. Given this situation, UNAMI and HRC are neglecting the issue of health and rights in Iraq in their work on human rights in Iraq, and should focus more attention on the issue of birth defects and environmental risks from war debris and munitions. To date there has been no sufficient or comprehensive investigation of possible violations of the right to health or life with regards to health problems or birth defects in Iraq as an alleged result of war debris by any UN organ.

As mentioned above,¹¹⁴ the World Health Organization is currently in the process of conducting data gathering and an analysis of the prevalence of congenital birth defects on a large sample scale across many Iraqi governorates. While this analysis will be conducive to understanding the prevalence of birth defects, and help place witness reports of a rise in prevalence in a wider and more rigorous perspective, the mandate

¹¹⁰Documents on the SR and mandate are available here:
<http://www2.ohchr.org/english/countries/iq/mandate/index.htm> .

¹¹¹The homepage for the OHCHR's work in Iraq is available at
<http://www.ohchr.org/EN/countries/MENARegion/Pages/IQIndex.aspx>

¹¹²OHCHR Report on Iraq, E/CN.4/2005/G/12, 24 January 2005, p. 6, available at <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/G05/104/77/PDF/G0510477.pdf?OpenElement>; cf. http://ap.ohchr.org/documents/dpage_e.aspx?m=88. (2005 is the latest date of a general CHR report in the archive)

¹¹³Archive of UNAMI Reports available at
<http://unami.unmissions.org/Default.aspx?tabid=3174&language=en-US>

¹¹⁴Supra, at 24.

of the analysis does not include research into possible causes of the birth defect prevalence. It specifically does not offer any data or analysis into the role of depleted uranium, or any other munitions or war debris to the problem, and notes that further research will be needed to address these topics. While the current analysis may be a welcome and necessary prerequisite to addressing the role and correlation of the Iraq War's remains towards health problems in Iraq, the WHO's work should still be seen as insufficient until such further investigation on the topic is conducted.

VII. Conclusions

HRN found that the rights to health and life of children have been seriously violated in Fallujah, Iraq, and that the epidemic of congenital birth defects in Iraq needs immediate international attention.

Peer-reviewed studies on the birth defect issue in Iraq remain limited, but do point to the very real possibility of an epidemic of birth defects having occurred and to still be occurring in the post-Iraq War period. The causality of this phenomenon is yet to be established. However an overview of scientific literature relating to the effects of uranium and heavy metals associated with munitions used in the 2003 Iraq War and occupation, together with potential exposure pathways, strongly suggest that environmental contamination resulting from combat during the Iraq War may be playing a significant role in the observed rate of birth defects.

Ten years after the 2003 Iraq War, there has not been sufficient investigation of the health consequences associated with toxic munitions in Iraq by the US, UK or any independent international organizations such as UN bodies.

In order to prevent further loss of life and health, it is urgent that a comprehensive investigation into the prevalence of birth defects and toxicity related illnesses in Iraq be conducted, including any correlation between such illnesses to scrap or munitions debris left by the Iraq conflict. It is essential to investigate the sources and spread of birth defects, identify causes, establish effective public health policies and medical care, and provide appropriate compensation for victims. To this end, it is crucial that there be a comprehensive disclosure of information about the use of weapons and hazardous materials in Iraq by US and UK forces during the conflict, such as the quantity and locations of munitions used, so that studies can be made regarding correlations between illness and munitions use or war scrap metal and other debris.

However, the responses of the US and UK governments to the issue remain completely insufficient to redress the ongoing health crisis in Iraq. Despite the gravity of situation, responses by international bodies such as UN human rights bodies and the World Health Organization are also insufficient.

Since the result of the investigation is alarming, it is crucial that US, UK, Iraq and international organizations conduct sufficient and comprehensive investigations in order to protect rights to life and health of people in Iraq, especially children.

VIII. Recommendations

Based on the findings, HRN recommends the following.

To the government of United States and the United Kingdom

(1) Concerning all grave human right violations during the war and occupation in Iraq

- To conduct appropriate investigations in conformity with international standards under the administration on all violations of international human rights and humanitarian law during the invasion and occupation to ensure justice, accountability, non-recurrence and adequate reparation for all victims;
- For the above purpose, to establish an independent, impartial commission under the administration;
- In the course of the investigation process, to identify and prosecute the most responsible persons for each crime and violation, seriously consider implementing a policy of non-recurrence and disclosure, and give a public apology to all victims.

(2) Concerning serious birth defects in Iraq

- To investigate all the types of weapons, all areas and points where weapons were used, the exact amounts of use of weapons as well as the composition of toxic materials;
- To disclose all the above information to the public;
- In the case of the US being identified as a polluter or a contributor to pollution to the environment, we request the US to take all necessary measures to protect the rights to health and life of all affected Iraqi people, especially children, including compensation, environmental cleanup, and the provision of appropriate medical care.

To the government of Iraq

- To establish an independent commission to investigate the serious health problems after the war, including birth defects and cancer.
- To take all necessary measure to prevent an epidemic of birth defects in its jurisdictions, including identification of contamination, measurements of contamination, establishment of an effective preventive policy and a public health policy and implement such a policy based on the above investigation.
- To provide proper information regarding the nature and amount of contamination to the public, as well as provide guidance and education for prevention of birth defects, based on the above investigation.

To the World Health Organization

- To disclose all the results and data of their investigation conducted with the Iraq government as soon as possible and, if an increase in prevalence of birth defects is found, to provide technical support and guidance for policies and measures to be taken in response to this finding.
- In the event of an increased prevalence being uncovered, to support the conducting of additional studies in order to try to better clarify the epidemiological nature of this

public health threat, including investigation of the potential link with environmental pollution caused by munitions used during combat.

- To provide technical assistance and guidance in creating policies and measures to prevent and mitigate the congenital birth defects in Iraq

To the UN Human Rights Council and its mandate holders concerns,

(1) Concerning all grave human right violations during the war and occupation in Iraq

- To establish a Commission of Inquiry to investigate all grave human rights violations during the war and occupation in Iraq to ensure justice, accountability and non-recurrence;

- To create a new mandate within the special procedure under the Human Rights Council to investigate all human rights violations associated with the use of inhumane, indiscriminate and toxic weapons in armed conflict.

(2) Concerning serious birth defects in Iraq

- For relevant UN special rapporteurs, including the special rapporteur on the rights to health and the special rapporteur on the toxic waste, to immediately conduct a country mission to Iraq to investigate matters associated with the epidemic of congenital birth defects in Iraq such as causation, prevention, remedy, accountability, and victims' needs.

This Fact finding team was headed by Ms. Nahoko Takato.

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In particular, Human Rights Now expresses its appreciation to the Fallujah General Hospital.

10 years after the Iraq war

Innocent New Lives are Still Dying and Suffering

Report of a Fact Finding Mission on congenital birth defects in Fallujah, Iraq in 2013



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