

Crimes against Humanity: The Destruction of Iraq's Electricity Infrastructure. The Social, Economic and Environmental Impacts

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During 2009, after six years of occupation, with a population of about 30 million and required peak demand of 6800 - 7500 MW [2], only 3,300 MW of electricity was available. To date, Iraq cannot achieve it's 9,925 MW production of the late 1980s. In other words, the Iraqi population is getting only 30% of the electricity production the pre-occupation government had previously provided for them. Electricity came to Iraq in 1917 [1].

According to UNDP, 2008 [2], until 1990, Iraq enjoyed an excellent electricity infrastructure, where generation capacity exceeded the demand of about 6000 mega watts (MW), and additional power generation plants were under construction prior to the Gulf War in 1991. The total installed generating capacity was 9,295 MW, for a population of (22) million at that time [3]. The system supported a peak demand of about 5,100 MW. 87% of population had access to electricity during the eighties.

Out of the thirty power plants which were built prior to the American occupation, twenty were installed and commissioned into service within the period of 1970 - 1980 [2] by the national government of the Republic of Iraq.

During the multiple attacks, economic sanctions and occupation, the electrical power production network was systematically and intentionally destroyed by American forces [2] [4]. After the invasion of Iraq in 2003, the electrical power production capacity dropped to only 3,300 MW [2], which was drastically under the national requirements.

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Destruction of the Electrical Power Generation System in Iraq

Barton Gellman wrote in Washington Post, Jan 23, 1991; [In 1991 war, 700 targets were identified and bombed, 28 were "key nodes" of electrical power generation. The allies flew 215 sorties against the electrical plants, using unguided bombs, TC, and laser guided GBU-110 bombs. Between the sixth and seventh days of the air war, the Iraqis shut down what remained electrical grid "not an electron was flowing" said one target planner] [4].

The UNDP report [2] emphasized that about 70% of Iraq's installed power generating capacity was damaged or destroyed during the 1991 Gulf War. All major power stations were damaged and nearly 80% of the gas turbines units were affected.

Gellman also wrote that "we have to emphasize here that the periling planning for the bombing campaign began before Iraq even invaded Kuwait last Aug." [4].

This all indicates that the major goals of the bombing was not liberating Kuwait or Iraq, rather, it was the total destruction of the civilian infrastructure. With the combined impacts of the comprehensive economical sanction & the deteriorating health care system, a crime of decimation and depopulation was put into place and committed.

The destroyed electricity generating stations and oil refineries were partially repaired during Iraq's reconstruction campaign of 1991-1993 [2]. However, without the spare parts required during the economical sanction imposed on Iraq, only about 5300 MW generating capacity was repaired [2].

In 2003, during the military operations of the invasion, the United States forces retargeted electrical power distribution facilities [5]. Attacks on distributing systems were carried out with carbon fiber bombs. Electrical power was out for over thirty days after US strikes on transformer facilities in al-Nasiriya. After all this destruction, the electrical power generating capacity in Iraq dropped to only 20% of its original capacity [6]. Accordingly, daily electricity blackouts for about 20 hours became a fact of life. With that Iraq's water purification & sewage treatment systems, health care, sanitation, and other related services faced major malfunctions.

Since the occupation of Iraq, average daily electricity supply in Baghdad homes has been only 3-5 hours [7].

Electricity Crises in Iraq: Environmental and Health Impacts

Lack of electricity in a country where summer temperatures reach 120° F can be torture. With ever decreasing hours of supply from the national grid, each house in the country depends on house hold generators. These generators, depending on size, type & generating capacity can provide an average supply of (8-10) hours of electricity a day, often less.

Estimated number of household generators: According to the statistics of the Ministry of Trade that is related to the food ration distribution system; there were about four million families of different sizes in Iraq in 2004 [8]. Total related estimated population is 28 Million. No real census of Iraq's population has been conducted since 1997[9].

In 2010, according to projected number of population, the projected number of families became about 4,428,000. Depending on this number we assume that the approximate number of small and medium household generators in major cities are 2.5 million units. If we add 0.4 million extra units for commercial centers (restaurants, police stations, government offices, hospitals, municipalities), & other 0.3 million larger units for street grid generators. Total number of generators in Iraq becomes about 3.2 million units.

To conclude this point, since 2003 major sources of electricity supply in Iraq are:

1. National electricity grid, which ranges from (3-8) non-continuous hours/day in

Baghdad [7].

2. Small household generators within the capacities of (1- 12 KVA
3. Street & local grids electricity from medium size generators of private sectors (12-60 KVA). These sources sale few Amperes per line for houses in one or two streets for certain time schedule.

Environmental and Health Impacts Related to Electricity in Iraq

Electricity supply crises caused enormous environmental and health problems. Some of these problems are related to the use of hundreds of thousands house hold generators that consumes fossil fuel (crude oil, heavy oil, gas oil, gasoline, kerosene, etc.). Problems such as the following:

1. Emission of about (8.2) Million Metric Ton of CO₂ /year to atmosphere, Calculations of Co₂ emissions according to:<http://www.epa.gov/cleanenergy/energy-resources/calculator.html>, In addition to other measured sources of annual CO₂ emission in Iraq (118.309 MMT) [10], and (141 MMT) from Iraq's occupation military operations from 2003-2007[11]. This additional amount of CO₂ emission is contributing to global warming.
1. Increase of hydrocarbons (HC) emission as a result of unburned or partially burned fuel from generators. HC includes many toxic compounds. Continues exposure to such toxicants causes cancer & other adverse health effects [12].
1. Existence of hydrocarbons (HC) fumes from the generators in residential areas would react with Nitrogen oxides in the presence of sunlight to form ozone. Ozone in the lower atmosphere would form the photochemical smog. Photochemical smog cause respiratory problems, continues watering of the eyes. Cardio-vascular problems if continuously exposed to ozone. Increase of the rate of cancer cases in Iraq partially attributed to these toxic pollutants.
1. Noise pollution, where most of these generators roar together in residential areas. Noise interference peaks up to exceed the acceptable level of ambient noise pollution.
1. Excessive heat losses from unit generators add to already unbearable heat of summer in Iraq.

Other health impacts are:

1. Continuous hardship, discomfort & psychological problems related to inconsistency of electrical supply especially for family members with health complications.
1. The problem of getting enough fuel from black markets in a country suffers from lack of security, cities divided into cages and cells by huge concrete walls, and hundreds of military check points. A trip to a gasoline station might take 3-4 hours with high risk of getting killed or injured by side road car explosion.

1. Financial problems where each family has to spend about (200-300) USD on private electrical supply.
1. Without continuous electrical supply no cooling systems, refrigeration systems do not work properly. As a result food poisoning is a very familiar disease among the population of Iraq with highest rate of children mortality in the region.
1. Health care & hospitals dis-functioning problems. Without continuous and consistent electricity supply, hospitals cannot function, perishable medicines spoil, water cannot be purified and raw sewage cannot be processed properly.
1. Deterioration of sanitation & life quality parameters. Baghdad ranked No 221 city, or the worst city according to Mercer quality of living cities of 2012[13].
1. Economic problems related to industrial and irrigation water conversion & drainage systems, where millions of acres of agricultural land are turning into desert areas.

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Notes:

[1] Ministry of electricity in Iraq. www.moelc.gov.iq/pages-en.aspx?id=4.

[2]UNDP report 2008: Overview of Iraq's Electricity..http://iraqslogger.powweb.com/downloads/Overview_of_Iraq_Electricity.pdf?PHPSESSID=1d0997c112323e42a279e5b1a99a65f4.

[3] Table of Electrical Generators in Iraq. www.auptde.org/newsite/uploadImages/News/110/322.pdf.

[4]Barton Gelman. Washington Post, jan23, 1991." Allied Air War Struck Broadly in Iraq".

[5] Off Target. Human Right Watch. Dec. 11, 2003. www.hrw.org/en/node/12207/section/6.

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[7] Electricity crisis at its worst point in Iraq. NBC News.com.

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[8] ASHARQ AL_AWSAT Newspaper. No 9634. Thursday, April 14, 2005.www.awsat.com/details.asp/Sec=48issueno=9634&article=293503&feature.

[9] Niqash/Society. 'Iraq last official population census was conducted in 1997". www.niqash.org/content.php?content.

[10] eia: Independent Statistics & Analysis.US Energy Information Administration. <http://www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=90&pid=44&aid=8&cid=r5.JZ.&syid=2006&eyid=2010&unit=MMTCD>.

[11] Nikki Reisch and Steve Kertzmann. "A climate of war: The war in Iraq and global warming"

OILCHANGE International. 2008..

[12] USEPA, 2004"Photochemical Smog- what it means for us".http://www.epa.sa.gov.au/xstd_files/Air/Information%20sheet/info_photosmog.pdf.

[13] Mercer's 2012 Quality of Living ranking highlights - Global <http://www.mercer.com/press-releases/qualityoflivingprcanada>.

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