

Humanitarian problems from the use of a nuclear weapon on a UK city

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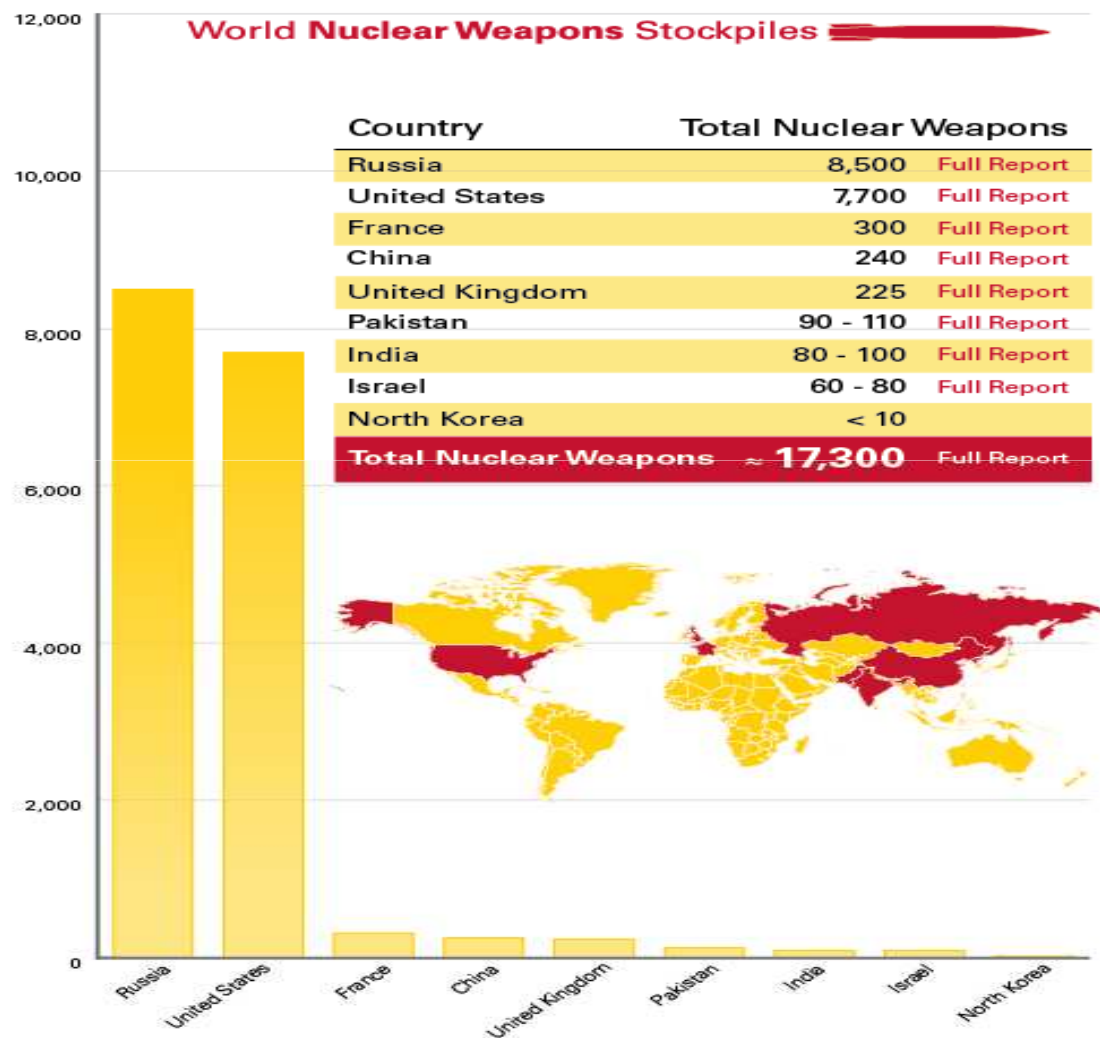
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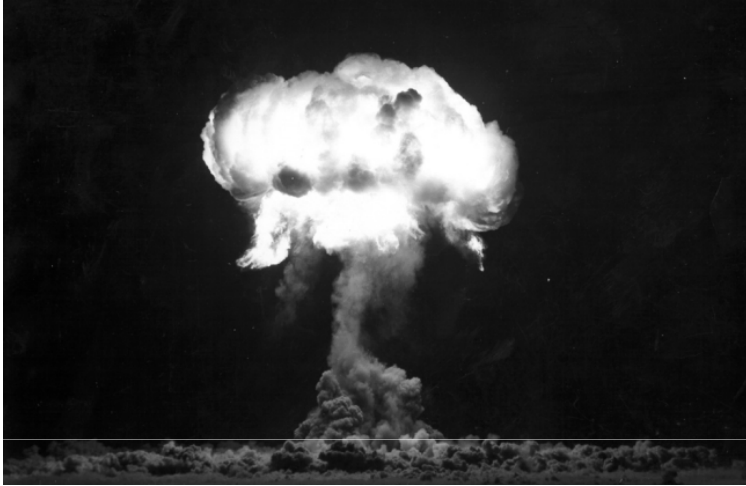
World Nuclear Weapons Stockpiles



Russia - 1800 deployed
USA - 2150 operational

Typical warhead size
100 - 300 kT

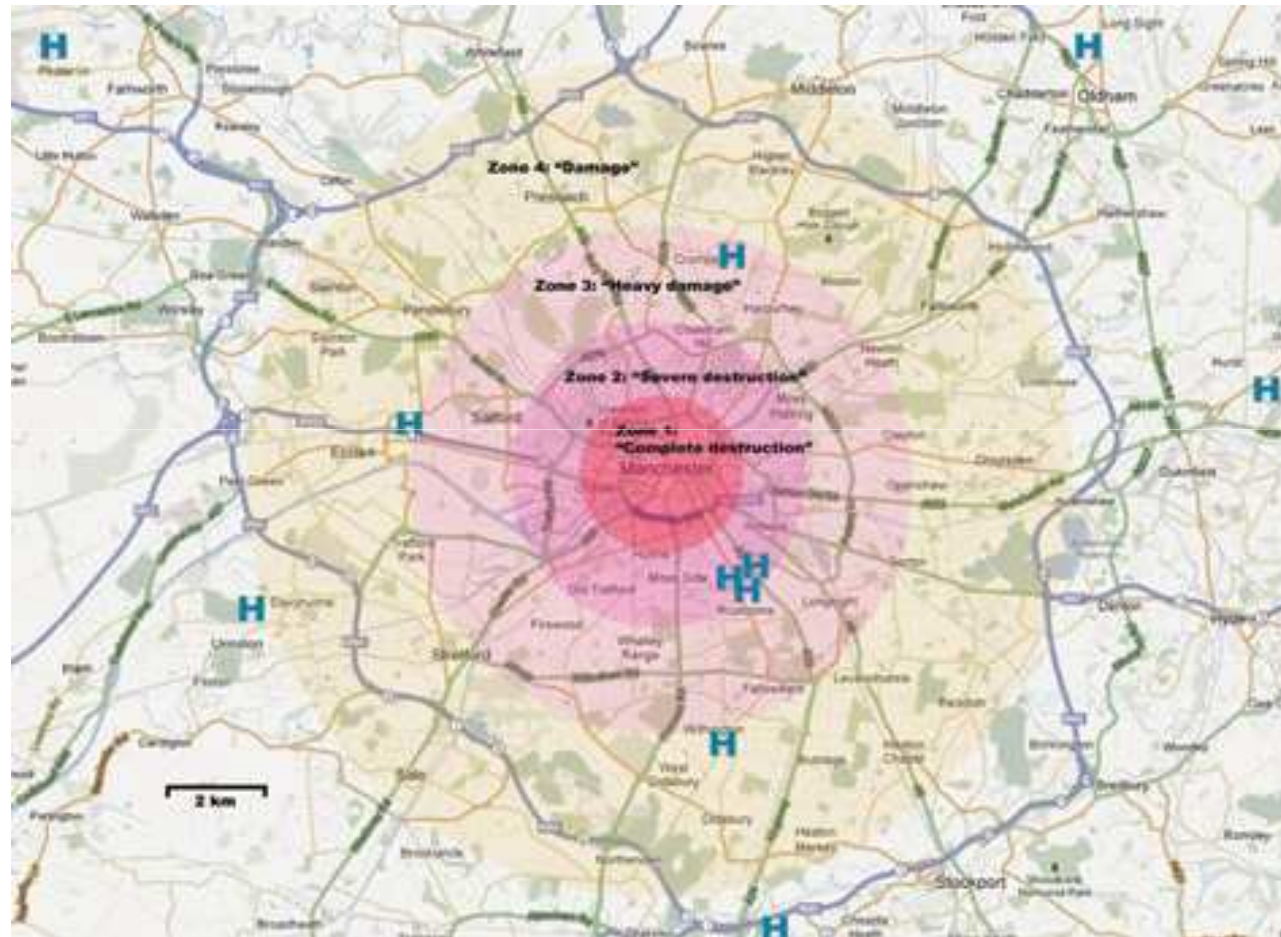
Weapons Effects



Nuclear weapons effects

- Electro-magnetic pulse
- Immediate radiation
- Intense blinding flash & flash burns
- Intense and rapidly rising fireball
- Long duration supersonic blast wave
- Fires, possible firestorm
- Delayed radiation (fallout)
- Complex damage to infrastructure
- Complex health effects
- Climatic and unknown ecological effects

What could *one* 100kT warhead do?

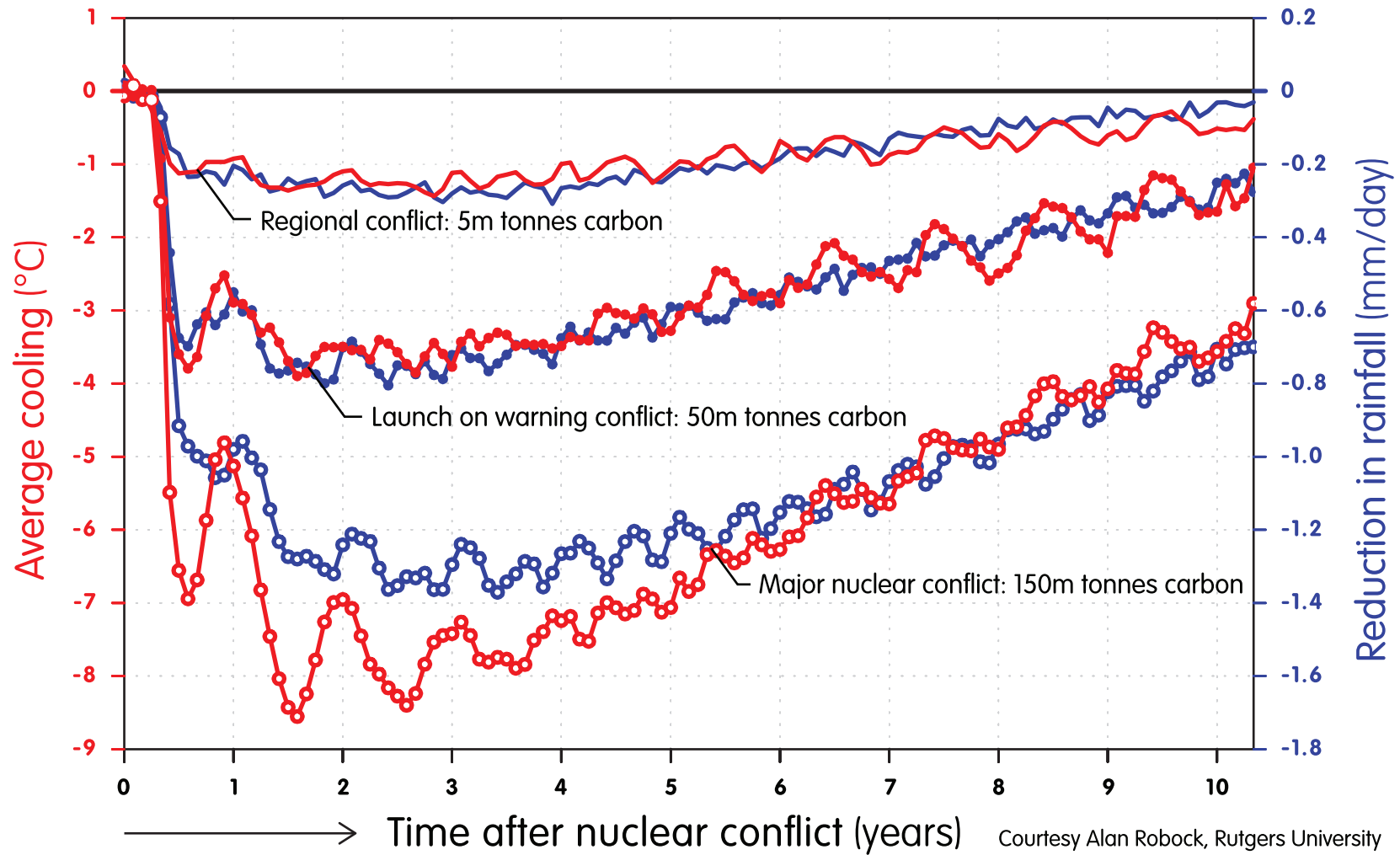


In less than one minute of devastation: 81,000 dead, 212,000 injured
Loss of 40% hospitals, 50% police, 25% fire, 30% ambulance services

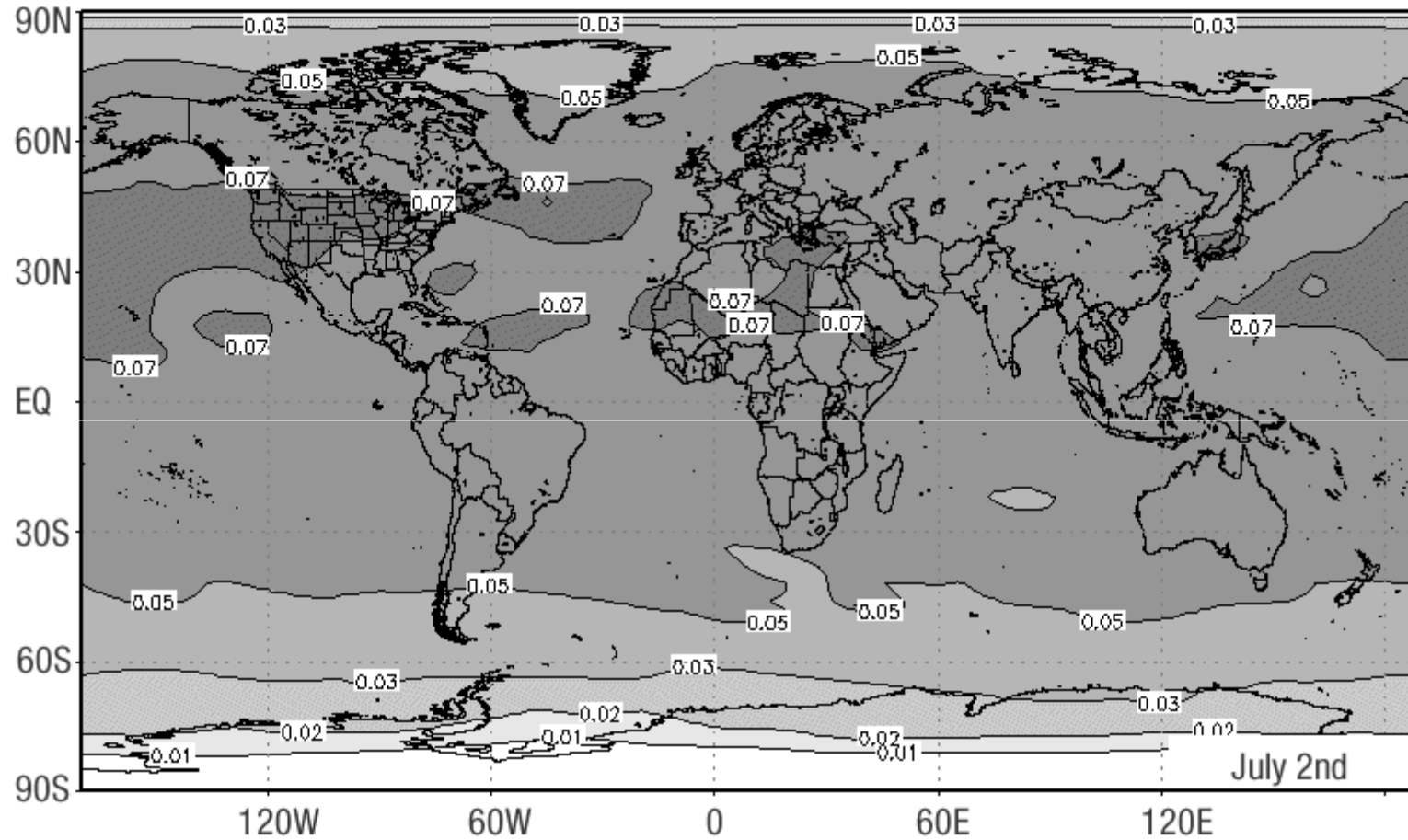
One detonation over Manchester

- 2km radius zone of complete destruction – 39,000 dead
- 3 km radius – to Cheetham Hill, Old Trafford Rusholme, 50%: 34,000 people dead, 27,000 injured.
- Blunt trauma, burns, crush injuries, severe burns
- Roads blocked, cars set alight
- 5km radius – heavy damage - to Salford, Crumpsall, Lonsight, Fallowfield, Whalley Range. 900 dead, 85,000 injured
- Severe cuts, burns injuries, flying debris (glass, masonry) Complex health effects
- 8km radius, Eccles, Didsbury, Stretford, Sale, broken windows, damaged roofs,
- 10km - depending on wind direction – lethal fallout and another 40,000 delayed casualties over 2-3 weeks. Nausea, vomiting and diarrhoea. Blood loss.
- Children, the elderly, those with medical conditions most vulnerable
- Loss of 1420 hospital beds, 8 ambulance stations, 3 fire stations, 17 fire engines, fire service HQ, 5 police division HQ, 588,000 people in severely – heavily damaged homes, 600,000 displaced persons.
- Loss of main railway stations, bus stations, tram termini, Trafford Park World freight centre. Obstructions to M60.
- Man U and City Football stadiums, Media City, Trafford centre destroyed / badly damaged.
- Fallout danger in central areas for over a year afterwards

Climatic changes caused by nuclear conflict

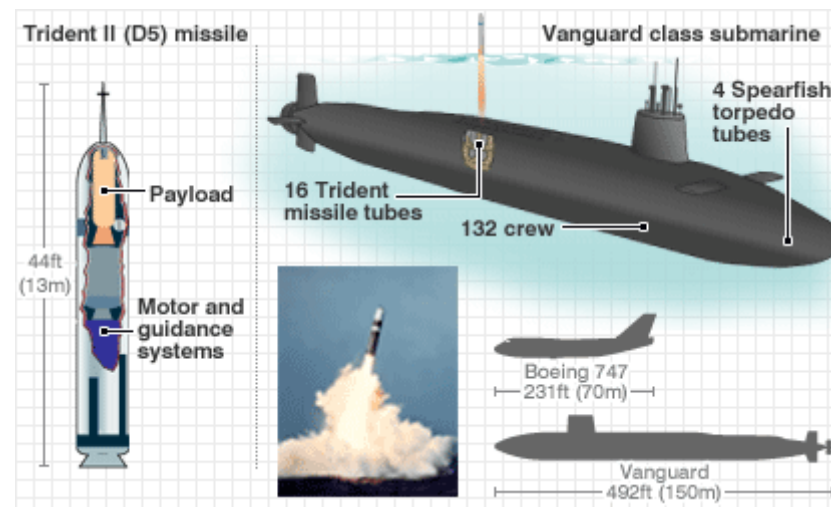


Smoke from US – Russian conflict



UK Trident

- 4 x large submarines
- “up to” 8 missiles per sub
- “no more than” 40 warheads per sub
- Firepower in one sub *greater* than WW-2 !!



Summary city impacts

- **40 x 100kT warheads - one Trident submarine – 2% of US or Russian weapons - could directly kill 10 – 20m people – depending on the targets**
- **Against largest 5 Russian cities – about 10m dead**
- **Against mega cities in Asia – over 20m dead**
- **Huge fires → massive smoke clouds → reduced growing seasons by 10 – 30 days → global famine – 1bn at risk**
- **A capability to destabilise the world's climate is a grossly disproportionate and perhaps suicidal response to uncertain security concerns**
- **Nuclear weapons do not address real and present security issues, e.g. reliable energy & food supplies, terrorism**

Main sources

- **Based on recent work for:**
International Campaign Against Nuclear Weapons – ICAN, Article 36, Scientists for Global Responsibility (SGR), Acronym Institute. *Also published in Nuclear Monitor, Bulletin of Atomic Scientists, 2007, evidence to US Congress.*
- **Weapons effects from US nuclear test data, including bombing of Japan and widely accepted US casualty models.**
- **Previous work by Scientists Against Nuclear Arms and MEDACT.**
- **SCOPE study 1983, latest atmospheric models by US and Russian scientists published in *Atmospheric Chemistry and Physics*.**

2013 reports

- **Moyes R, Webber P and Crowther G (2013).**
 - Humanitarian consequences: Short case study of the direct humanitarian impacts from a single nuclear weapon detonation on Manchester, UK. (Article 36.)
 - <http://www.icanw.org/wp-content/uploads/2013/02/Article36-Manchester-Report.pdf>
- **Webber P (2013).**
 - The climatic impacts and humanitarian problems from the use of the UK's nuclear weapons. (Scientists for Global Responsibility.)
 - <http://www.sgr.org.uk/publications/climatic-impacts-and-humanitarian-problems-use-uks-nuclear-weapons>