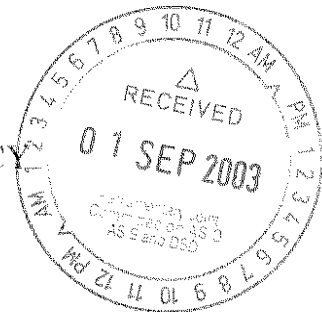


WEAPONS OF MASS DESTRUCTION - FACT AND FANCY

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Soon after detailed examples of discoveries of Iraq's supposed transgressions in the field of WMDs by the re-instated UN inspectors were announced last year, they began to be used by the US, British and Australian governments as pretexts for a pre-emptive war. However, to those working in the field of armaments it soon became obvious that the evidence presented was not only suspect, but so slim that it actually seemed to confirm the absence of such programs. The 'willing' were clutching at straws. The supposed weapons of mass destruction became weapons of mass deception.

A few definition first. In view of the destruction wrought by the events of 9/11 - directly by civilian airliners and indirectly by pen knives and box cutters - 'weapons of mass destruction' could mean many arcane devices to the public at large. For people working in the armament industry the definition is clear. WMDs are devices capable of causing significant physical, chemical, biological and radiation damage, projected at, or triggered from, a significant distance from the attacking agency. Nuclear bombs, cruise missiles, chemical or biological warheads on long-range missiles and stand-off bombs, daisy-cutter bombs and air-fuel explosives all fall under this category. Normal ordnance, long range artillery with explosive shells, short range missiles, surveillance drones, guided munitions and even flame throwers are not WMDs. These are the definitions. Now for the examples of the supposed transgressions.

The first case was the discovery, by the re-instated UN weapons inspectors, in a disused factory of several pigeon-dropping-covered cases containing empty short range missile nose cones. The official announcement was 'Chemical warfare weapon find'. Let's analyse the find. From the thickness of droppings and the level of dust on the crates it would appear that

they were left in situ for several years. The lack of any protective treatment in packaging the hardware, preventing corrosion, indicates the fact that they were not meant to be re-used. Probability of a relevant WMD program: less than 1%.

The next case was the discovery of a prototype of a small battlefield surveillance drone. The find was presented as evidence of another 'weapons program'. Let's analyse the data shown on public TV: The radio-controlled petrol-engine-driven aircraft was a primitive device, of limited endurance and capable of carrying a payload not exceeding 5kg. In view of the limited capability of Iraq's industry of miniaturising electronic components, the drone might have had some limited real-time reconnaissance capability, but no possibility of guiding or delivering other weapons. There is no comparison possible between this overgrown radio-controlled model aircraft and the mid-range US unmanned vehicle, the Predator.

Then came bunches of aluminium tubing. They were supposed to be a clear evidence of a nuclear weapons program, with the tubing "capable of being used in an uranium enrichment plant". Never mind the fact that, even if it were the case (which it was not) the actual enriched uranium would be several years down the track. To reinforce the case for existence of a nuclear program in Iraq a contract for sale of uranium ore from Niger was quoted. While this was a forgery, disproved by the CIA and the FBI, it was still quoted as evidence by the UK and US governments six months later.

The discovery that the 150 km range Iraqi missile, allowed by the UN after the 1991 war, could have had an actual range of 175km was another supposed evidence of a major transgression. As if the extra 25 km on an unguided missile, with a conventional head, suddenly made it into a weapon of mass destruction. It still remained a theatre weapon.

Now these were **all** the cases of supposed transgressions which the reinstated UN weapons inspectors were able to find in Iraq prior to the invasion.

A PhD student's thesis about Iraq and its weapons, a year old, and 'discovered' by some UK analysts, became part of the UK document 'justifying' intervention and was then quoted by George Bush in his speech to United Nations.

How does the situation look now? Almost four months after the invasion, and an examination of over 300 suspected sites, only two new 'discoveries' of 'weapons of mass destruction' were presented by the USA:

a) a couple of derelict semi-fitted trailers hailed as being 'mobile germ warfare laboratories'. Closer examination revealed lack of fermentation vats and what remained indicated hydrogen generating equipment for weather balloons.

b) Three parts of a small centrifuge, dug up from a garden of a retired nuclear engineer and presented as another evidence of an on-going nuclear program. A complete centrifuge of this size might have been useful in a lab, but much too small for a weapon program requiring thousands of litres throughput. Current indications are that these parts were buried there several years ago, again without protective treatment which would enable their re-use. So much for the existence of WMDs.

In any developments which may lead to potential dangers such as, for instance, construction of large dams or bridges, development of new aircraft and so on, rigorous risk analyses are undertaken to understand and minimise dangers to the public. Such risks can be quantified. In cases of conflicts, involving potential massive losses of human lives, such analyses appear even more obligatory. But in case of Iraq they obviously did not occur. Looking at the situation since 9/11 a logical examination of the facts would show the following:

1) The purported reason for action by the USA, namely 'the danger to the American people' from Iraq had less than a few percent probability. Constant aerial surveillance of the country

showed no troop movements and no suspect activities. Iraq presented little direct dangers to its neighbors, and had no means whatsoever to attack the USA. There were no proven connections of the Saddam regime with any terrorist organisations. In fact, the risks of terrorism and of religious fanaticism in other Muslim countries have markedly increased as a result of the occupation.

2) The ancillary reason for the invasion, now more frequently invoked as no WMDs have been discovered, was the purported 'liberation of the Iraqi people'. If this were the case, great care would have been taken to safeguard the country's infrastructure during and after the invasion, and organisations - such as multi-lingual police - would have been set up in anticipation. Thus this reason must also appear suspect.

3) The fact that, of all Iraqi ministries and facilities, only the Ministry of Petroleum was guarded during and after the occupation of Baghdad, points strongly to the real reason for the war: access to Iraqi oil reserves. That, and the revenge for 9/11 - since Osama bin Laden could not be captured 'dead or alive'.

The above are just headings to which probabilities could be assigned and the analysis confirmed in a manner which would be difficult to assail with logic.

In conclusion: I realise that words and facts present different things to lawyers and politicians on the one hand and to engineers on the other. We operate with probabilities not with remote possibilities. Thus I would like to suggest that any investigating panels dealing with questions relating to weapons of mass destruction should contain a few members of the engineering profession. As people who have to deal with facts and not with opinions, professional engineers would be less likely to be influenced by technical terms used out of context.