

Catherine Thomasson, M.D., National President of Physicians for Social Responsibility, to speak in Sacramento on June 29 regarding U.S./Iranian relations

Catherine Thomasson, MD is currently the President of Physicians for Social Responsibility and was President of Oregon PSR for the previous 5 years. Under her leadership, the Oregon Chapter created a video and program to educate about the War on Terrorism and alternative approaches for terrorism entitled Sensible Multilateral American Response to Terrorism (SMART) that has been given over 250 times in three years. She has been a coalition builder in the peace community and has produced community events for peace. She also works as an internist and resident educator at Portland State University Student Health & Counseling Center.

Dr. Thomasson visited Iran from March 2nd to the 12th, 2007 as part of a friendship delegation sponsored by the Fellowship of Reconciliation (FOR) and attended meetings with Iranian religious, educational, and political leaders. She will be speaking in Sacramento on June 29, at 7 PM at Trinity Cathedral, 2620 Capitol Avenue in the upstairs meeting room about common misconceptions that people in the U.S. hold about Iran and what missteps the U.S. has taken in its relationship with Iran. She'll also discuss Iranian history and political structure. Most importantly, Dr. Thomasson will discuss what peaceful solutions lie ahead for our two countries. The public is invited to her presentation. Below is an article written recently by Dr. Thomasson.

Diplomacy: Best Solution to Impasse with Iran

This article is written by Catherine Thomasson, MD president of Physicians for Social Responsibility. Significant analysis comes from the recent report by PSR entitled War is Not the Answer; Medical and Public Health Consequences of Attacking Iran. She has recently returned from Iran as part of a civilian diplomatic trip organized by Fellowship of Reconciliation.

There is a standoff between Iran and the west over its nuclear program. News releases increasingly frame the situation as a crisis. The United States has stated it will not commit to direct talks without preconditions and Iran has proceeded with uranium enrichment without adequate oversight by the International Atomic Energy Agency (IAEA) despite sanctions being placed by the United Nations Security Council. The United States has amassed military forces in the region and taken other steps to place itself in a position for a military attack though it claims it will not currently attack Iran. This article will review these issues to evaluate possible solutions to address Iran's nuclear program including an evaluation of the human and health effects of war that should be factored into decision-making.

The goal of this paper is to show that reasoned, respectful diplomacy and discourse is the only option for a satisfactory solution resulting in no new nuclear weapons in Iran and a safeguarded peaceful nuclear program. The importance for civilian diplomatic pressure on our respective governments is very important as both have resorted to rhetoric and demonization that distorts public opinion and is damaging to discussions and realistic expectations.

Nuclear Crisis?

Iran has had a nuclear program since the 1970's with plans for 20 nuclear power plants approved by the US government. The program stalled at the time of Iran's revolution in 1979 but resumed in 1985 under scrutiny of the International Atomic Energy Agency (IAEA) but with incomplete disclosure. Iran now has over 26 sites of nuclear research or development as well as nuclear power facilities in the process of being built.

Despite this, recent discussions with Iranian civilians are uniform in their belief that the government is not developing nuclear weapons; in fact they cite a religious fatwa (edict) against the use or development of nuclear weapons. Visits with clerics as well, underscored their opinion that the clerical community would rise up against the government if they found that nuclear weapons had been developed.

There is concern that Iran is pursuing nuclear weapons as part of its nuclear program and IAEA inspectors have not been fully satisfied with Iran's compliance with its safeguards agreement. Particular concerns include former nondisclosure of uranium conversion and enrichment facilities, which have the potential for legitimate civilian use but only under effective international safeguards. Iranian officials have also refused to provide copies of alleged documents related to nuclear weapons design acquired through the AQ Khan network for IAEA analysis. Lastly, inspectors were not allowed full entry at two sites, Lavizan and Parchin, and the suspect buildings were bulldozed with removal of everything at the two sites including several inches of topsoil.¹

In response to the IAEA's challenges in verifying Iran's continuous compliance with nuclear safeguards, the Agency's Governing Board voted to refer the matter to the Security Council in March 2006. The Security Council has voted twice to institute sanctions against Iran and to encourage diplomatic efforts, but seems unlikely to consider authorization to use force while substantial time remains for a peaceful resolution of this dispute. According to the American intelligence community, the US military and other sources, Iran is still at least three years away from even the most optimistic possibility of building a nuclear weapon with a more likely completion date to be 2015 if they are indeed pursuing a nuclear arsenal.^{2 3 4} Nothing about Iran's nuclear program constitutes an imminent threat or a cause for the United States to invoke the right to individual or collective self-defense would be appropriate. While there is substantial

¹ IAEA documents on Iran accessed at the website of the Federation of American Scientists <http://www.fas.org/nuke/guide/iran/nuke/index.html> - March 23, 2007. Series of IAEA papers at <http://www.iaea.org/NewsCenter/Focus/IaeaIran/index.shtml> - accessed March 23 2007.

² Washington Post, Aug 2, 2005, "Iran is Judged 10 Years from nuclear bomb", Dafna Linzer.

³ Washington Times, Aug 31, 2006, "US Military sees Iran's nuke bomb 5 years away".

⁴ CBS News, April 7, 2007, "Assessing Iran's Nuclear Program", Sheila MacVicar, Farhan Bokhari and David Martin.

hope and time for diplomacy, the use of force against Iran would not be justifiable under international law.

It is important to keep in mind that there may be other motivations for our administration to be pursuing military plans or provoking such an attack with Iran. Iran is geopolitically very strategic in the Middle East. It holds the third highest reserves of oil and the second highest reserves of natural gas.

In reality, the NPT is designed to allow no additional countries acquisition of nuclear weapons and of course to move nuclear weapons countries to abolish theirs. Given that Iran has not been in full compliance with its IAEA safeguards obligations, it is exceedingly important determine which course of action will result in a fully monitored nuclear program with adequate safeguards in Iran. Political and civilian advocacy should be greatest for the plan that is most likely to achieve a nuclear weapon free Iran and a safer Middle East.

Potential actions for Iranian compliance to the NPT

There are three primary means of bringing Iran into compliance with open inspections of their nuclear program to insure no acquisition of nuclear weapons. One is to advocate for truly open diplomacy addressing the security concerns of all parties. The second option is to attempt to force Iran into negotiations by the means of isolating sanctions to reduce their ability to acquire nuclear materials or even to do business. The third is to aerially bomb their nuclear sites in an effort to destroy any nuclear potential.

NEGOTIATIONS

Negotiation implies that both sides are able to address their concerns for security. The US and the west are concerned that Iran desires nuclear weapons and supports Hezbollah and Hamas, (as does Saudi Arabia). Iran is concerned that the US has plans to invade, after its pre-emptive invasion in Iraq. The US Congress has passed several pieces of legislation spending about \$50 million yearly supporting groups dedicated to “regime change” in Iran.

How have negotiations gone? Soon after the disclosure of Iran’s hidden nuclear program and after the US invasion of Iraq in 2003, Iran offered to negotiate with the United States directly on the nuclear issue as well as very key issues relating to Middle East peace.⁵ Despite urgings by some leaders in the State Department, Senior US administration officials spurned the chance for dialogue. From 2003 to 2006, the EU3 (France, Germany, and the UK) pursued talks with Iran. In late 2004, Iran again offered to include the United States to no avail. Talks just with the EU3 were fruitless as they could not offer guarantees of security. Finally in 2006, the US joined in with an offer but required significant pre-conditions to resume open negotiations and Iran refused the offer.

In summary, there have not been adequate attempts at negotiation.

⁵ <http://www.democracynow.org/article.pl?sid=07/02/26/157241>. Interview by Amy Goodman of Trita Parsi former aide to Rep. Ney who brought the offer to the US. Accessed 2/24/07

SANCTIONS

The second possible means of achieving Iranian compliance is to apply sanctions. The US has had full unilateral economic sanctions in place against Iran since 1979 without any apparent effect and applied additional sanctions under Clinton in 1993. Despite IAEA's chief ElBaradei repeatedly advising that the use of sanctions is counterproductive⁶, the Security Council unanimously imposed sanctions against Iran avoiding, however, any threat of military action. Sanctions imposed in December 2006 bans trade with Iran for all items, materials, equipment, goods and technology which could contribute to Tehran's uranium enrichment program and contains a list of persons and entities, whose assets are subject to a freeze.

The response in December and again in March with additional sanctions has not led to renewed talks or the suspension of uranium enrichment. In fact, the Majlis (Parliament) of Iran in December voted to suspend compliance with IAEA inspectors if further sanctions were imposed. There is also evidence within Iran that additional sanctions, strengthens the position of hard-line politicians and increases likelihood of repression of women, political reform and workers rights.

MILITARY ATTACK

The third alternative is to use military force. A limited attack on only 3 key nuclear sites identified as "chokepoints" in the technology is one option. A moderate strike would target all the major nuclear research and technology sites estimated at around 24. Lastly an all out aerial attack could take place on major military installations in addition to the nuclear targets.⁷

Assessments on the likelihood for success of any military strategy are overwhelmingly negative, whether from the Heritage Foundation or the US military. A successful strategy is one that would keep Iran from pursuing development of nuclear weapons as well as avoiding retaliatory actions such as sabotaging the war in Iraq, stopping the flow of oil through the straits of Hormuz.

Despite these assessments, US and Israeli plans are drawn up. This threat of war makes the Iranian government concerned for its security.^{8 9} Historically as well, Iranians have been the recipients of US aggression. The CIA supported overthrow of the democratically elected Prime Minister Mohammed Mossadegh in 1953. The US also supported the Shah Reza Pahlavi, who supported a ruthless and repressive secret police.

The build up for military action or threats of regime change by the US are numerous. Increase in aircraft carrier groups and mine sweepers in the Persian Gulf, as well as US arming of surrounding countries with missile defense is markedly threatening. The US has begun arresting Iranians in Iraq¹⁰ and has backed three different terrorist groups against Iran.¹¹

⁶ Francois Murphy, "Sanctions could Escalate Iran Standoff" Reuters. <http://today.reuters.com>. Accessed 3/3/07

⁷ Plesch, Dan. "Iran – Ready to Attack." *New Statesman*. London. February 18, 2007.

⁸ Hersh, Seymour. "Last Stand—The Military's Problem with the President's Iran Policy." *The New Yorker*, July 10, 2006.

⁹ Peter Baker, Dafna Linzer and Thomas E. Ricks. "U.S. Is Studying Military Strike Options on Iran." *The Washington Post*, April 9, 2006.

¹⁰ Hersh, Seymour. "The Re-Direction;

Brinkmanship with Iran seizing then releasing fifteen British sailors and marines increases the likelihood of armed battle with disastrous results. Indeed evaluating the health consequences of U.S. actions should be an integral part of national security decision-making.

Health Effects of an Attack

The medical consequences of even a narrowly targeted military plan would have severe public health impacts. The Esfahan Nuclear Technology Center holds the Uranium Conversion Facility which makes the uranium hexafluoride that can be enriched for nuclear fuel. It is staffed by over 3000 workers. It is also only four kilometers from the city of Esfahan with one and a half million people. Two other nearby villages are also at risk from contamination if this site were bombed because of the tons of uranium and fluorine that would be released.

Uranium is toxic just as a heavy metal. If inhaled or ingested it primarily harms the kidney and with adequate concentrations will cause kidney failure. It also has negative effects on the thyroid, bones and nervous system similar to other heavy metals like lead or mercury. Tons of this metal is present at this site.

Estimating the amount of radioactivity released by bombing is difficult but it certainly would have a significant impact on the large population nearby (see below for radiation affects). The numbers of people affected would easily overwhelm the five hospitals present in the city. The panic alone would cause incredible casualties as civilians would be in a rush to leave the city. Chronic ongoing concern about radiation contamination would be present for years in the third largest city in Iran.

¹¹ Brian Ross, Christopher Isham, "The Secret War against Iran" ABC News online, April 3, 2007.

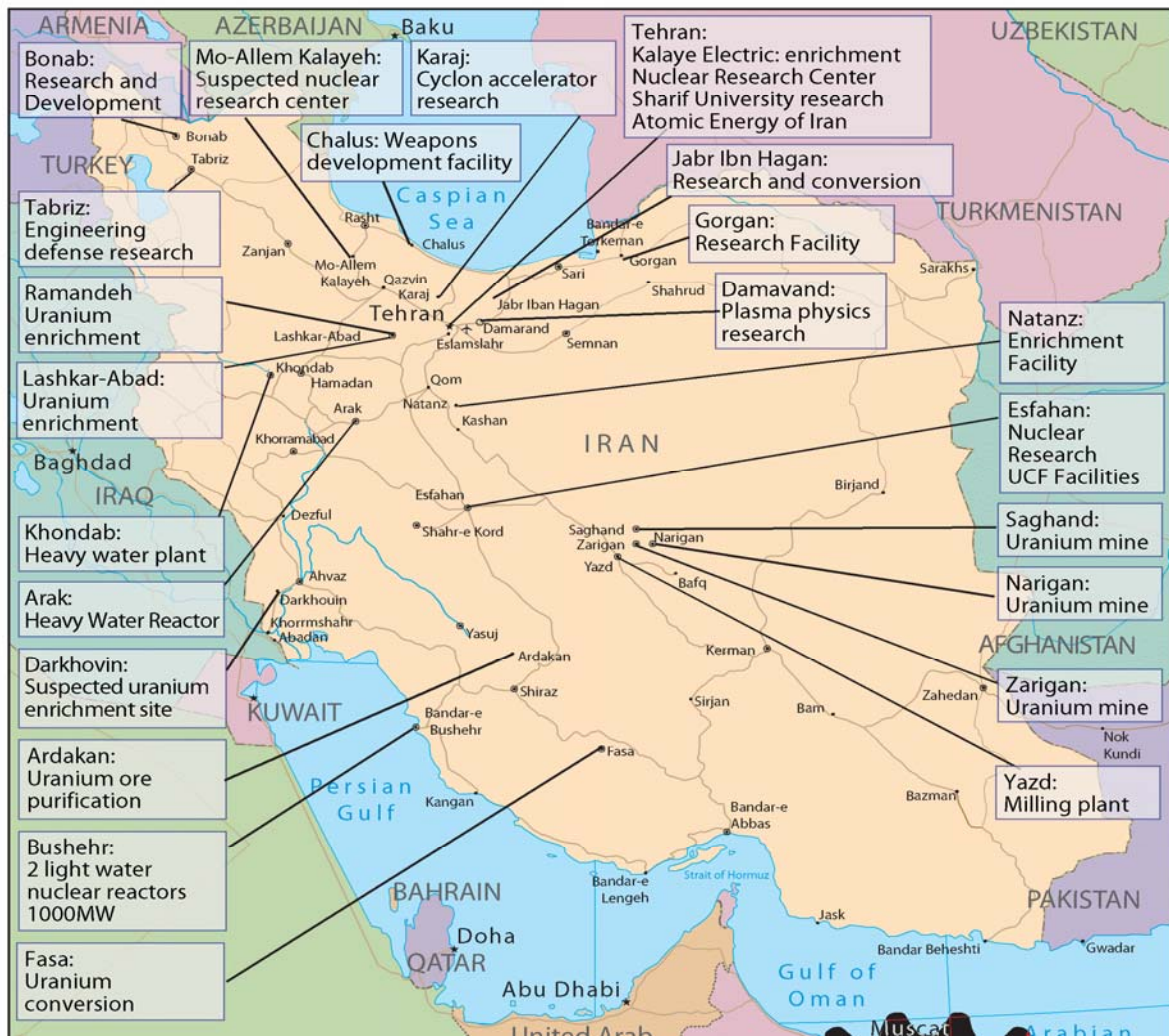


Figure 1. Iranian Nuclear Facilities www.nti.org, copyright 2006 Nuclear Threat Initiative. All rights reserved.

Bombing the site would also release fluorine gas and other fluorine chemicals. Fluorine gas is corrosive to the lungs with potential for respiratory failure depending on duration and concentration of exposure. Fluorine gas also reacts with water vapor to produce hydrofluoric acid another corrosive agent. It can penetrate the skin causing severe burns that are typically very slow-healing. Elemental fluorine is a powerful oxidizer which can cause organic material, combustibles, or other flammable materials to ignite. Both have the potential to kill nearby populations similar to the accidental explosion of the chemical plant and release of chlorine gas in Bhopal, India.

The second likely target in any military plan is the uranium enrichment center near Natanz. It is widely believed that repeated strikes of conventional weapons or specialized weapons such as thermobaric weapons, depleted uranium munitions or nuclear weapons would be needed to penetrate 70 feet down through reinforced concrete to demolish the site. This facility is

relatively isolated 25 miles from Kashan, a city of 275,000 and near a village called Deh-Zireh. So even though the weapons used to destroy this complex would cause immense damage, there would be much lower civilian casualties compared to the attack on Esfahan. Given the amount of firepower used, though all the workers at the site would be killed.

The use of thermobaric weapons is controversial and human rights groups advocate for outlawing them. These weapons have been used by the US in Afghanistan and possibly in Fallujah, as well as by Russia in Chechnya.¹² They work by creating an intense fireball from ignited volatile gases or powdered explosives which consume all the oxygen in the area creating a subsequent blast of pressure that propagates especially well in enclosed spaces killing everything in its path. The pressure injuries greatly affect air filled structures of the body, such as sinuses, lungs and abdominal structures so that if people are left alive the injuries are difficult to diagnose and treat.¹³

Alternatively, Depleted Uranium (DU) munitions could be used to ensure that a high explosive charge or kinetic warhead penetrates a hardened target like Natanz. DU munitions incinerate on contact and are much heavier than other metals resulting in better penetration. Depleted uranium, however, is both a radiological and chemical toxic hazard. As an emitter of alpha radiation when it enters the body as a blast fragment, it is carcinogenic and mutagenic. Studies are ongoing to determine the extent and significance of aerosolized or ingested DU particles.

Lastly, there is grave concern that one or more nuclear weapons could be used specifically to penetrate the dense concrete at Natanz. Many don't believe this would be used, but the Administration's policy allows for the use of nuclear weapons in a pre-emptive strike to prevent nuclear weapons development.

Nuclear Strike

Even though the city is over 25 miles away from the Natanz facility, the detonation of nuclear weapons would cause total death and destruction of the estimated several hundreds of civilian workers on site immediately from the heat and blast damage as well as the radioactivity. Radioactive fallout would be a serious issue for downwinders in Kashan and further east through the country.

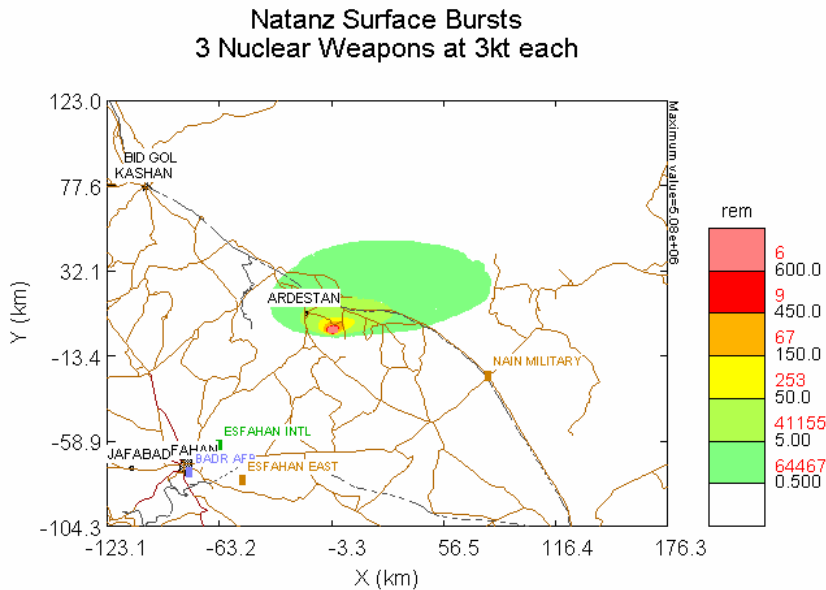
Physicians for Social Responsibility used the Department of Defense computer tool called Hazard Prediction and Assessment Capability (HPAC v3.2) for the calculations and chart on this page estimating the use of three, 3-kiloton nuclear weapons. The number of people exposed to radiation would be in the tens of thousands and the panic caused by the use of a nuclear weapon would affect even more.¹⁴

¹² George Monbiot, "Behind the phosphorus clouds are war crimes within war crimes", Guardian, Nov 22, 2005.

¹³ "Thermobaric Weapon." *Chemistry Daily* January 4, 2007. Accessed March 2, 2007
http://chemistrydaily.com/chemistry/Fuel-air_explosive

¹⁴ *Projected Casualties Among U.S. Military Personnel and Civilian Populations from the Use of Nuclear Weapons Against Hardened and Deeply Buried Targets* by P. Wilk, et al www.psr.org. Accessed 4/4/07

The weapons would be designed to detonate underground and National Academy of Science experts report a higher level of radiation exposure due to increased radioactive debris that is thrown up to 30,000 feet into the air.



Mean population exposed at indicated level
NOTE: Exposures based only on the displayed portion of the plume

The figure lists the numbers of people exposed in red numbers (top number listed next to each color bar) and the amount of radiation measured in rems per hour in black (or the second number). Exposure at 10 rems/hr routinely causes death from damage to the bone marrow or gastrointestinal system. The population within the light green area would be exposed to 5 rems/hr. They would have significant radiation sickness with nausea, vomiting and diarrhea as the lining of their guts die off. Bone marrow suppression of the radiation leads to infections, bleeding and potential death depending on the availability of intensive supportive treatment. Radiation doses at this level very significantly affect birth outcomes for pregnant women at the time of exposure. Increase in miscarriages especially early in the pregnancy will occur along with birth defects. Acute radiation exposure will result in higher cases of thyroid cancer, leukemia, lymphomas and other cancers.

Chronic exposure to contaminated soil and water will result in cataracts, ongoing negative birth outcomes, increases in cancers and even mental health disorders from radiation exposure not to mention the fear and anxiety caused by exposure and concern over future health effects.

Public Health Implications?

Targeting the 23 known nuclear research and development sites as noted on the map many of which are located in cities, on university campuses, or near business zones or including many military or dual use sites would result in a far more public health disaster. It is impossible to predict in advance the number of people that would be killed and injured in a full attack on Iran's

nuclear facilities. The larger the number of sites over the minimal scenario described above, the greater civilian death and injury will occur.

Parallels can be made from the aerial attacks on Iraq in 1991. Widespread attacks result in long term effects on the economy and public health. One of the worst public health impacts is loss of electricity both for refrigeration but also for water purification systems. With sanctions and loss of water purification systems in Iraq after 1991, over 1 million people additional people (over half were children under five) died from 1991 to 1998 due to infectious diseases.¹⁵ Likewise the great strides in improved infant mortality in Iran, down to 26.7/1000 from 80/1000 in 1980,¹⁶ will undoubtedly rise as availability of clean water decreases, currently estimated available to 92% of the population. In Tehran and other cities there is inadequate sewage treatment which combined with inadequate safe, clean water would result in increased risks of epidemics of cholera and typhoid.¹⁷ The increased child mortality values never declined in over 12 years in Iraq and are even higher now with the new war and occupation.

After extensive aerial attacks, civilian deaths and injury occur, refugees stream out of cities as homes and businesses are destroyed and the area is littered with unexploded bombs acting as landmines. (10-20 % of the 4 million cluster bombs recently dropped in Lebanon are unexploded.) In the 1991 Gulf War, there were between 142,000 and 200,000 deaths with a huge refugee population as people fled attack zones. Again in Iraq, a country one third the size in both population and area, the refugee numbers were approximately 1.8 million with approximately 750,000 internal refugees still present over 10 years later. Unexploded bombs act like landmines and almost always affect civilians. The psychological scars of being under direct attack with resultant post-traumatic stress disorder, depression and grief cannot be underestimated. Iran has three times the population hence the numbers should be increased by as much.

Lastly, with a large scale attack demolition of the economic infrastructure of industry, roads and housing becomes an issue. Rebuilding after Hurricane Katrina gives us a sense in this country of the extent of the problem as the storm caused 1.1 million refugees. It takes years to rebuild the infrastructure needed for human need and for the economy. \$200 billion tax-payer dollars have already been spent on providing services and rebuilding after Hurricane Katrina and the area still looks like a disaster zone.

Could Iranian Health Services Cope?

There is no direct example from which to draw an analysis of Iran's ability to provide medical care for victims of major air strikes. However evaluating the result of the earthquake that hit the city of Bam, Iran in December 2003--killing some 30,000 people and leaving more than 30,000

¹⁵ "The Sleep of Reason Produces Monsters: Human Costs of Economic Sanctions" *New England Journal of Medicine*, 336(17); 1247-1250.

¹⁶ <http://www.who.int/bulletin/volumes/83/11/837.pdf>. "Socioeconomic inequality i infant mortality in Iran and across its provinces", Hosseinpour, Ahmed, et.al. World Health Organization.

¹⁷ Safe Drinking Water; http://www.unicef.org/specialsession/about/sgreport-pdf/03_SafeDrinkingWater_D7341Insert_English.pdf. Accessed 3/10/07

in need of medical care--can provide some guidance.¹⁸ Despite major investment in medical and public health networks, Iran was immediately forced to rely on support marshaled by the World Health Organization from more than 40 countries. This is same scale of disaster relief that would be needed after a major series of air strikes against multiple targets, including nuclear, military, and leadership facilities in a number of Iranian cities, as well as in more isolated areas.

Most if not all of the tertiary care in Iran is present only in larger cities with limited numbers of beds for burn victims and trauma victims. In the event of large aerial strikes, Iran would undoubtedly need assistance with housing of internally displaced persons. In the end, the ability of Iran's health services to cope would be determined by the scale of the attack, whether basic public health necessities such as water and electricity could be maintained, the condition of roads needed to transport the injured, the number of essential personnel injured or killed, and other factors. If Iran required outside support, UN or NGO agencies would be hesitant to assist unless they could be certain that their staff would not be subject to further waves of air strikes.

How Might Iran Retaliate?

Iran might respond to a U.S. attack by seeking to further destabilize Iraq and attacking US forces; prompting Hezbollah in Lebanon to attack Israel; launching missile attacks against Gulf allies of the U.S., Iraq, and Israel; and/or disrupting shipping and oil exports from the Gulf. Any military response by Iran would only spread the human consequences across international borders, fuelling instability across the wider Middle East. It is likely with 20% of the oil supply needing to cross the Straits of Hormuz that the costs would be exorbitant causing a world wide economic crisis.

Iran's political recourse includes withdrawal from the NPT, as well as encouraging further isolation of the U.S. from much of the international community.

Would Air Strikes Succeed?

It is possible that a thorough destruction of Iran's known nuclear-related infrastructure would delay the bomb program, but for how long? At best, the program--which is not well understood--might be set back for a few months or a few years. But this delay would be gained at a huge security cost in terms of diplomatic disadvantage, increased hostility to the United States, and turmoil in the region. Nuclear physicist Frank Barnaby recently published a report detailing the possibility that air strikes could actually speed Iranian acquisition of a nuclear weapon by shifting the program from a broad-based, dual-use effort to a dedicated crash program to gain nuclear weapons with no international constraints.¹⁹

Policy Conclusions

¹⁸ U.S. Geological Survey. [Preliminary Earthquake Report.](http://earthquake.usgs.gov/eqcenter/eqinthenews/2003/uscvad/) <http://earthquake.usgs.gov/eqcenter/eqinthenews/2003/uscvad/> - accessed 3/1/2007.

¹⁹ Barnaby, Frank. Oxford Research Group. [Would Air Strikes Work? Understanding Iran's Nuclear Programme and the Possible Consequences of a Military Strike.](#) London: 2007.

Iran has not been forthright about its nuclear program. To be fully compliant with the International Atomic Energy Agency will require security guarantees for the Iranians as they are concerned about the security risks of full disclosure or leaks of their security information. Threatening Iran with sanctions and military rhetoric has not been successful; in fact it has resulted in less compliance with inspectors and a resumption of uranium enrichment. Furthermore, it would be senseless to attack Iran in an attempt to delay, disrupt or even terminate its nuclear program.

The devastating short and long term medical consequences of any attacks on Iran's nuclear or military infrastructure could only increase enmity against the United States and allies, in the region and across the globe – increasing the threat from extremist groups to civilian populations around the world.

But the principal argument against the use of military force in Iran is that it would cause terrible human suffering without achieving our goals. War is not the answer.

Recommendations

The first and best option that would enhance the likelihood of a successful, effective, and nonviolent end to the possibility of an Iranian nuclear weapons program is to offer immediate negotiations. Just as President Nixon went to China, President Bush should go to Tehran. The United States should offer immediate and unconditional talks to the Iranian government. In fact the EU is prepared to do so now.

The second important step is to strengthen the global Non-Proliferation regime. Non-nuclear states have no incentive to adhere to the Non-Proliferation Treaty, when nuclear states including the US are designing new nuclear weapons, upgrading their systems and threatening their use in a pre-emptive fashion. If the United States were to implement its own NPT promise to disarm, Iran and other countries would have more incentive to reciprocate by upholding its NPT promise not to acquire nuclear weapons.

Third, we must advocate for strengthening IAEA safeguards and enforcement mechanisms. In every case of disclosure of nuclear weapons plans from South Korea, South Africa and Iran more frequent and intrusive inspections backed by early, non-military enforcement was the most useful tool to halt the development of nuclear arms.

War is a terrible tool in the foreign policy arsenal. The medical and prolonged public health consequences of war are too dire to continue to use warfare as a means to blocking nuclear weapons development. We must all work towards peace. Green energy solutions, rather than nuclear solutions to our global climate change and the peak oil crisis will begin to solve the knotty problem of nuclear weapons acquisition and lessen concerns over control of the oil rich countries of the world.