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US-Iran Nuclear Controversy And Unifying Concerns Of The West

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Abstract

Iran's nuclear program was initiated by United States through Eisenhower "Atom for Peace" doctrine. United States supported Shah in the development of nuclear weapons for an increase in its influence and the containment of communism in Middle East. After Iranian revolution, friends become enemies and whole scenario was changed. Primarily, nuclear program was halted but then external players: China, Russian and Pakistan restarted it. In the beginning of new century, Iran's nuclear issue became a hot topic for international debates. IAEA and UNSC moved forward and played their part to stop Iran from further uranium enrichment. In spite of massive external pressure, economic sanctions and diplomatic breakup Iran kept its stance. On economic, political and security reasons; it pursued its nuclear technology. Currently, Iran is enriching uranium for nuclear weapons and it has an advance level of missile development program. This thing disturbs Western interests in Middle Eastern region. So, US, with EU lobby, is alarmed for nuclear Iran will not only disturb their interest but will also pose different threats to Israel: the child of US.

Keywords: Nuclear Iran, IAEA, Energy, Western Concerns

Introduction

Iran is neither malevolent nor mysterious. Its ancient civilization has a history of five thousand years. Geo-strategically, its North border connects it with Russia, its West is a key junction between itself and the Arabs, in South it has Indian Ocean and Persian Gulf and in East it connects itself with Sub-Continent, holding world's second largest oil's reserves (Ansari & Ansari, 2015). The past few years have seen a steady rise in international tension revolving around Iranian nuclear program. It gives a greater challenge to the international

fabric of Nuclear-Non-Proliferation regime and illustrates every complexity that proliferators may offer. Basically, Iran has a potent leadership which would never compromise on its national interests. Moreover, on nuclear issue, all groups of Iran are agreed on the acquisition of nuclear technology as their first and foremost priority. Through nuclear technology, Iran is securing its national interests and would not compromise with the West. For the security of its national interest, Iran is in conflicting position with the US and the like-minded.

In its regional context, neighboring states have no issue with nuclear Iran but Israel. Russia and China, the permanent member of UNSC, have no issue with Iranian nuclear program. Both feel uncertainty about their borders due to military presence of US in Middle East and Persian Gulf. They supported Iran in the development of peaceful nuclear program. Moreover, these powers supported Iran in UNSC and IAEA on its nuclear program and are in favor of Iran for its right to pursue nuclear technology. Many experts question Iran's pursue of nuclear technology, though it has sufficient reserves of oil and gas. Since 1960, Iran has been stressing on its dire need of nuclear technology in case it runs out its oil and gas reserves. So, contemporarily, this duel has become an international crisis. In this duel, United States, the initiator of nuclear program, is the key 0rival of Iran (Cordesman & Al-Rodhan, 2006).

Genesis and Maturity of Nuclear Program

In 1943, Iran-US relations boomed from the meeting of Franklin Roosevelt, Winston Churchill and Josef Stalin in Tehran for defining the strategy against Japan and Germany. After WWII, United States, in its foreign relations, gave importance to Middle East. US considered Middle East vital for its national interests like oil and for the containment of Soviet Union. US started planning for installing its representative government to secure its political, economic and military interests. During that period, US policy makers emphasized orientation of Iran towards the West and saved Iran from the umbrella of Soviet communism (Kibaroğlu, 2007).

- **US Initiative and Iran's Nuclear Ambitions**

Iran, during cold war, was a major alley of US in its containment policy against former Soviet Union in Middle East. US-Iran relations have been experiencing key swings since 1950s. In 1953, Mohammad Mosaddaq's government was toppled by US sponsored coup. Consequently, Shah came into power and remained in the mainstream of Iran's politics till 1979. In 1957, during the period of Mohammad Raza Pahlavi, Iran's pursuit for nuclear program began with the help of United States. This nuclear program was executed under the mandate of Eisenhower's 'Atom for Peace' program (Ehsaneh, 2005). In 1968, Shah signed NPT which was ratified in 1970. In 1974, with the hike of oil prices, Tehran's intentions to establish nuclear capability for electricity generation become serious and oil became a noble commodity (Jahangir, 2006). Ten years later, Iran brought nuclear reactor for research in

Amirabad Technical College. In 1974, Shah of Iran established Atomic Organization of Iran (ATOI) and proclaimed attention for building 23 nuclear power plants in next 20 years (Ehsaneh, 2005). Meanwhile, for training of human capital, ATOI signed different agreements with prominent universities and nuclear research centers. Massachusetts Institute of Technology received $20 million and produced future decision makers of Iran like Ali Akbar Salehi and others. Till 1977, with massive royal support, ATOI enlarged itself and employed 38,000 professionals, engineers, technicians and interns. Moreover, during shah's period, students were sent to western universities and they come back as nuclear experts. In 1974, only 67 nuclear scientists were working in ATOI and their number became 862 by 1977. In the last year of Shah's government, ATOI had second largest budget and its workers were generously paid. In 1975, ATOI budget was recorded to be $30.8 million which became $1.3 billion in 1976 and in 1977 it became $3 billion.

During Shah's rule, different French and German companies were working in Iran. ATOI ordered a German company Kraftwerk Union to build two 1196 MW pressurized water reactors. In 1975, a French company got a loan of $1 billion for the construction of Eurodif Nuclear Consortium enrichment plant. Also, another French company signed other projects of $2 billion worth for two 9 MW nuclear power generators. Similarly, a project of $4.3 billion for power plate was given to a Turnkey contractor. Furthermore, Iran signed an agreement for purchasing uranium from South Africa (Vaez & Sadjadpour, 2013). Five years later, before revolution, Shah signed another agreement for four more reactors when Busher nuclear plant was completion.

- **A Long Tragedy and the Revolution of 1979**

Before revolution, US interests in Iran were pivotal. In 1978, US investments were worth $700 million with more than 5000 US experts at work. In 1977, US arms sale were on top which were worth $6 billion. Similarly, till 1979, US companies were purchasing 40 percent of its foreign oil from Iran. In 1976, United States and Iran signed a trade agreement that by 1981 bilateral trade must reach $15 billion (Gillespie, 1990).

In February 1979, Iranian revolution brought a tragedy for Islamic republic. It toppled Shah's government, halted US-Iran relations and put both countries on two opposite tracks. Overnight, this revolution changed geo-politics of Iran and friendship became hostility. Differences emerged cooperation ended. In November 1979, Iranian students stormed US embassy in Tehran and detained fifty-two American officials for 444 days. US clogged economic and diplomatic relations with Iran and tried its best to isolate Iran from international community (El-Khawas, 2005). Drama of hostages put devastating impacts on US. President Carter lost elections and Ronald Regan administration came in the main stream of US politics.

So, Iran faced international isolation and western powers refused to deliver machinery so Iran was forced to halt its nuclear program. In 1980, Iran-Iraq war consumed resources and

damaged Iran's nuclear infrastructure. Busher nuclear plant was bombed and it suffered massive damage. This war decelerated Iran's nuclear program because of high economical pressure. In 1980, Iran reopened its nuclear program and went for foreign assistance to continue its nuclear research. In the same period, Iran signed different agreements with Moscow and Beijing (Khadim, 2010).

External Assistance

External assistance was necessary to support the continued growth of nuclear program and this significant assistance was adequately provided by Russia, China and Pakistan.

China

China, the major partner of Iran, cordially shares some common interests with Iran and disagrees with US when the later calls it a major threat to the security in Middle East (El-Khawas, 2005). Iran can provide energy to China, its core national interest. So, China is in the favor of diplomatic solution, rather than the waging of war (Dingli, 2005). In 1985, China, the major nuclear partner of Iran, concluded agreement of supplying four small research reactors and fissile material. These reactors, inspected by USA and IAEA, confirmed no threat of proliferation. Iranian engineers got training from China and became capable of designing larger reactors.

Beijing was a major supplier of cheap and low–tech weapons. China provided nuclear technology, chemical weapons and helped Iran in its Missile Program in Oghab plant which launched artillery rocket in 1987. It assisted Iran in its satellite program, selling C 802 missiles in 1996 (Roshandel, 2008). In 1990, a ten years agreement was signed on nuclear cooperation between Iranian Defense Ministry and Chinese Commission for Science, Technology and Industry. In 1991, China provided Iran with 1600 kg uranium and Chinese Premier Li Peng visited Iran and promised to assist Iran in completing Bushehr nuclear site which was left by French and German companies after 1979 revolution. Also, both countries signed an agreement of 300MW. US intervened disturbing the cooperation. Western media was speculating that China was assisting Iran on its nuclear aspirations. Later, China refused to work on this site for it wasn't a suitable place for building nuclear plant. On China's withdrawal, Iran suspected that China did it under the pressure of US. So, Iran turned to Russia for its nuclear program (Kemenade, 2009).

Russia

In the development of its nuclear program, Russian relations with Iran are multifaceted. Only Russia openly cooperated with Iran in its nuclear program. Iran imported largest part of nuclear arsenal from Russia, including advanced delivery system and high technology weapons. After Soviet Union's collapse, to support its nuclear program, Iran recruited Russian scientists for the development of its biological weapon system. Aerospace Institutes of Russia and Georgian physicists contributed in the development of Ballistic Missile

program of Iran (Roshandel, 2008). In 1995, it concluded an agreement of $800 million to complete the structure of Busher nuclear power plant. Iran offered Russia construct 3 more power reactors within $3 billion. Russia concluded a ten year agreement of nuclear fuel supply for Busher which was cancelled latterly (Wehling, 1999). George- Ghernomyrdin agreement was concluded between Russia and United States in which Russia agreed to slow down its work on Bushehr plant for US thought that its completion would enable Iran to divert fissionable material to fabricate deteriorated material. In the same year, Russia and US relations become problematic. In 2000, when Putin came into power, he abolished George- Ghernomyrdin agreement and resumed nuclear cooperation with Iran (Shaffer, 2001). Though the work was started yet Russia delayed the completion of project. Then in September 2006, Moscow and Tehran made a firm agreement of completing Bushehr project till September 2007. Moreover, it said that two months later it'd be connected to Tehran power grid station. Russia also promised to deliver uranium in six months, when the plant will go into operation (Katz, 2008). In February 2007, a dispute emerged between Moscow and Tehran on financial issue and Russia halted work and disconnected fuel supply. So, Atomstroiexport Prorogue extended the completion date of the reactor till autumn 2008. Iran's officials announced that if Russia would not complete the project then Tehran might turn to some other country (Katz, 2008). Russia always denied any wrong doing in its nuclear cooperation with Iran. Moscow always pledged its nuclear cooperation to be in the limits of international obligations and strictly according to nuclear non-proliferation regime (Mizin, 2004).

Pakistan

China and Russia were major nuclear supplier but not the sole ones. Pakistan's cooperation in civil nuclear program and weapons technology is apparent. Pakistan's support started after 1979's tragedy. Iran was interested in buying nuclear technology from Pakistan. There are no clues as to when and by whom the bilateral cooperation started but it was seen between 1980 and 1990. In 1987, Pakistan transferred the blue prints for centrifuges but technology was transferred years later. In 1990, Pakistan claimed its support in the building of nuclear reactors (Mishra, 2004).

> "Evidence discovered in a prob of Iran secret nuclear program points overwhelmingly to Pakistan as the source of crucial technology that put Iran on a fast track toward becoming a nuclear weapon power, according to US and European officials familiar with the investigation (Warrick, 2003)."

In 1987, Iran concluded a civil nuclear cooperation agreement with Pakistan and six Iranian scientists were trained by Pakistan at PINSTECH. Similarly, Dr. Khan visited Iran to look at the damages caused by Iran-Iraq war (Fitzpatrick , Nuclear Black Markets: Pakistan, A.Q.

Khan and the Rise of Proliferation Networks (A Net Assessment) (An IISS Strategic Dossier), 2007).

After Gen. Zia in 1988 and Khomeini in 1989, Iran became more interested in nuclear technology. The new military leadership of Pakistan was in favor of extending cooperation with Iran but it denied any nuclear cooperation with Iran though frequent nuclear dialogues were observed in early 90s. Later civil governments also supported Khan's network which resulted in nuclear talks (Fitzpatrick , Nuclear Black Markets: Pakistan, A.Q. Khan and the Rise of Proliferation Networks (A Net Assessment) (An IISS Strategic Dossier), 2007). In 1994, a major deal between Pakistan and Iran was concluded which included P-1 designs and a sketch for advanced P-2 centrifuged (Corera, 2006).

Security Council, IAEA Moves and Iran's Stance

The rivalry with Iran on its nuclear program reached a turning point. United States and its Allies are blaming Iran for making secret attempts to development nuclear weapons. Iran always denied this allegation and proclaimed the peaceful purposes of its nuclear program under the right of NPT. Since 1990, it remained the top priority of US to halt Iranian nuclear development by blocking external assistance. The disagreement over Iran's nuclear program was started in August 2002, when a rival group of Iran pointed out two secret locations of nuclear sites near Nantaz, 130 miles in Tehran's South. IAEA started its investigation and found that Iran had been working on advanced uranium enrichment for 18 years (Einhorn, 2004).

In February 2002, in response to Tehran's undeclared uranium enrichment, IAEA started its investigation on Iran's nuclear facilities and an investigation team visited Iranian nuclear sites. In September 2003, IAEA passed a resolution (GOV/2003/69) directing Iran to fully cooperate with investigation team and suspended all nuclear facilities. It also demanded the unconditional signing and the ratifying and implementation of additional protocols.

In October 2003, Iran Signed an agreement with EU3 (France, Germany and UK) to stop all nuclear activities, to sign and support all additional protocols with IAEA, safeguard agreements and to fully cooperate in the investigation of the matter. In the same year, Iran signed a protocol and showed its willingness for all pending agreements approval (Saikal, 2006).

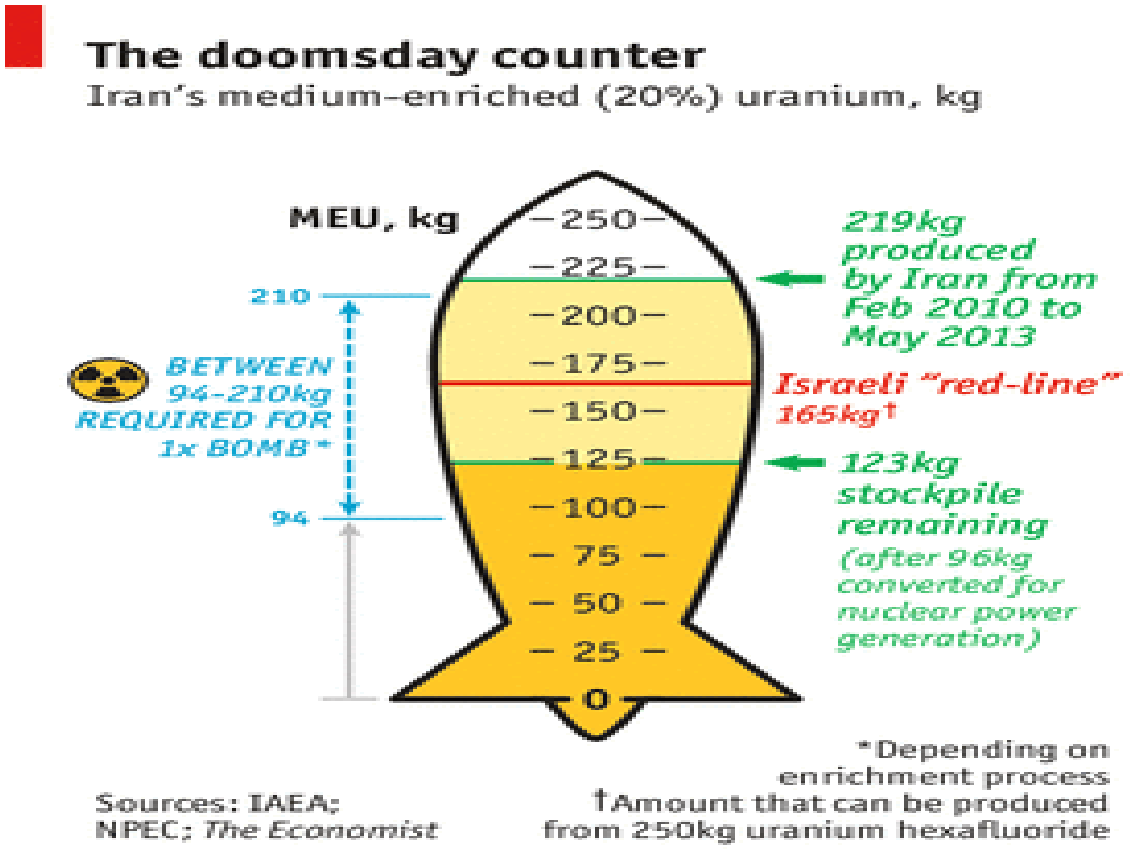
Later in 2006, Iran didn't keep its word regarding additional protocols. On 4th February 2006, IAEA put a complaint before Security Council. IAEA, approach to investigate Iranian nuclear program was very limited as EL Baradi stated in his interview of 2005:

> "We don't have all encompassing mandate to look for every computer study on weaponization. Our mandate is to make sure that all nuclear materials in a country are declared to us (ElBaradei, 2007)."

In Security Council, P5 and Germany called Iran to enhance its cooperation about its nuclear material and clarify the purpose of its nuclear program. Iran didn't comply and so Security Council adopted many other resolutions to stop Tehran. On 31st July 2006, SC passed resolutions (1969), 23 December 2006 (1737) and 24 March 2007 (1747) which call for the same. Moreover, 1737 and 1747 called for imposing sanctions on different Iranian organizations and individuals, involving Iranian nuclear and missile developing program (Katz, 2008). Iran ignored everything and continued its nuclear development program. In 2009, US, along with EU-3, started negotiations with Iran and failing in them, UNSC imposed four rounds of economic sanctions on Iran.

According to IAEA report, Iran is not complying and nothing proves that Iran's nuclear program is only for peaceful purposes. Also that, as per demand, Iran did not stop its work on heavy water projects. The report also said that Iran is refusing to cooperate with IAEA's concerns regarding possibility of military dimension of nuclear program. The agency reported that Iran has succeeded in uranium enrichment for more than 20% U-235 which is necessary to operate a civilian reactor.

Figure-1



The report stated that, with current pace, Iran may create a weapon in six months (IAEA, 2013).

At present, in order to stop Iran from becoming nuclear power, United States is focusing on different options i.e., regime change, limited military strike and use of carrot and stick diplomacy. There is also an option of using Israel against Iran. But Iran has missiles which can easily hit any city of Israel and thus disturb the peace of Middle East.

Iran has a potent leadership with clear nuclear concepts. Iran's stance for nuclear energy is true on both legal and moral grounds. It claims that its nuclear program is benign, legal and authorized under NPT.

To justify its nuclear program Iran provides:

Economic Considerations (Iran's Political Economy: Oil, Patronage and Repression)

In 1970, Iran was economically weak so Shah adopted nuclear program with the help of Western powers to enhance its economic position. Iran needed to diversify its dependency of electricity on oil because petrol-consumption increases with population and oil reserves deplete with usage. Nuclear electricity may save revenue with the export of oil and gas. Since 2002, international community has been keeping an eye on Iranian nuclear program. They argue that an oil-rich country needs no nuclear energy. It is wrong because nuclear energy gives economic benefits and almost all rich countries are utilizing nuclear energy (Barzashka & Oelrich, 2012). Currently, Iranian nuclear program is being criticized by the US. On nuclear issue, United States calls Iran 'Axis of Evil". Iran confutes all charges and claims that its top priority, in nuclear research, is to generate electricity to fulfill energy demand of future. Regarding its nuclear program Iran gives:

1. If oil is used at same rate, in near future, Iran will have to import oil. So, it is working on civil nuclear programs.
2. Domestic use of fossil material will affect Iran's foreign exchange earnings.
3. Fossil material can be used in petrochemical and other industries for more revenue.
4. Fossil fuel dependency will cause environmental problems (Bowen & Kidd, 2004).

Political Considerations

Iran claimed its right for the acquisition of nuclear energy and its leadership denies information regarding its nuclear program. International community is of the opinion that Iran's nuclear program is not according to NPT. Iran's leadership asserts its right to acquire nuclear energy (Smedts, 2012). IAEA and Security Council repeatedly called Iran to remove its more sensitive nuclear enrichment in favor of world's public opinion but Iran comes to no option. All political groups of Iran vote for nuclear power as the top priority. Iranian president Mahmoud Ahmadinejad calls nuclear issue the national honor and so it's

impossible for Iran to draw back (Naji, 2006). Despite huge US pressure, Iran keeps its stance and its leaders give preference to nuclear program, saying that it is the question of their survival. Iran opines that without nuclear weapon it'd become isolated for Israel, Pakistan, India and United States have nuclear capability and in order to enhance its defense, it needs nuclear power. Furthermore, Iran considers nuclear weapon a source of protection, respect and regime legitimacy.

Energy Concern (Atom for Peace)

Iranian government argues its quest for nuclear energy as an alternative of oil. Till 1979, Iran's oil production was 6 mb per day with an export of 5 million. In 1980, it declined and reached half of what it was. For daily consumption of energy, 53% natural gas and 44% oil is utilized. In 2010, gas consumption was 5.1 tcf which may grow 7% per annum, from next decade (Dadwal, 2007). In past decade, there was a growth of 5% in the demand of energy. Iran's oil recovery just 20-30%, which means that off-shore Iran's production is reducing 13% and on-shore 8%. It is calculated that 4-7 thousand b/d are needed to maintain current level of production (U.S. Energy Information Administration (EIA), 2021).

To meet its growing demand, Iran's oil and gas industry is doing what it can. More than two-third of Iran's gas industry is located in poorly developed areas (U.S. Energy Information Administration (EIA), 2021). Yet, Iran has world's second largest oil reserve and it is 25th greatest exporter of gas. About, 70% of gas is injected into the market while 16% helps in increasing oil recovery. Remaining 14% is Shrinkage, loss and flaring (Alam, 2001). Poor infrastructure of energy sector requires repairing and renovation. Bushehr power plant produces 2% of required power. Mismanaged transformation causes the losses of 15% of electricity, 15% energy by power plants, 13 percent by refiners and 8 percent by infrastructure (Ghorashi & Rahim, 2011).

- **Current Nature of Iran's Nuclear Program**

Iran is working on multiple sites for the development of nuclear weapons. IAEA and UNSC are strictly observing a few such sites. Detailed study of Iranian nuclear facilities goes as follows:

Tehran Nuclear Research Centre

Tehran Nuclear Research Centre, working on AEOI parameters, is working under University of Tehran. This centre manages many secret facilities like: platinum reprocessing, laser enrichment and weapon design R&D efforts. In 1967, US provided five research reactors which could produce 600g platinum annually (Schwarzbach, 1997). In TNRC, Iran is trying to produce heavy water and nuclear fuel for its reactors. There, Iran is also producing Yellow

cake from uranium ore but IAEA officials didn't find them operable. This site also works on nuclear weapon design (Koch & Wolf, 1998).

Bushehr Nuclear Reactor

In 1975, construction of Bushehr, started by a German contractor with the worth of 4-6M dollars, was to be completed in 1985. A German contractor was asked to build pressurized water reactor for nuclear power plants, two 1196 MW nuclear generating units which were to be completed in 1981 (Ufomba & Dode, 2010). After the revolution of 1979, it stopped working and during Iran-Iraq war, it was extensively damaged. Then in 1995, Russia came forward to assist Iran in the completion of this project. Initially, Russia was ready to build 1000 MW nuclear light water power reactor. In February 2005, Russia agreed to supply fuel for this reactor, for next ten years. On December 16th 2007, Atomstroyexport delivered the first delivery of LEU to Iran till last shipment was reached in the end of 2008 (Kerr, Iran's Nuclear Program: Status, 2009). In September 2011, this power reactor started working and so it was connected to Iran's grid station. Initially, it was generating 40% electricity while, in July 2002, with 75% of its nominal power, its production was above all. Second unit of this power plant would produce 4000MW, which would be added to 1000MW capacity (The Nuclear Threat Initiative (NTI), 2021). Iran has a plan to build five more nuclear reactors with total generation power of 6000MW. Bushehr nuclear plant reactor has a capacity to hold 103 ton of uranium in 193 assemblies. Four of these 193 assemblies have the capacity to generate enough material which would suffice the making of nuclear bomb in one year. Collectively, these six assemblies have the capacity to make 280-300 nuclear bombs, producing 1.5 ton Plutonium per year (Ufomba & Dode, 2010).

Figure-2

Esfahan Nuclear Technology Research Centre

In Esfahan, the largest nuclear research centre of Iran, has three thousands scientist. This centre trains the personnel for Bushehr reactor. In 1975, France signed an agreement to attach this centre with University of Esfahan. This leading institution had an experience of about fifty years. France has given light water for Esfahan reactor and China built a plutonium reactor. This site has biggest missile assembly and a production plant which was constructed with the help of North Korea (Corsi, 2006). In 2006, Esfahan uranium conversion facility started converting yellowcake into uranium oxide and uranium hexafluoride. This site includes a Fuel Manufacturing Plant, a Fuel Fabrication Laboratory, a Fuel Plate Fabrication Plant, a Tunnel Complex, a Uranium Chemistry laboratory and a Zirconium production Plant (Hesse).

Natanz Uranium Enrichment Facility

Natanz is uranium enrichment site which has Enrichment Plants both for Commercial and Pilot Fuel. This site has two underground buildings which convert enrich uranium to weapon grade uranium. These buildings have eight feet thick concrete roof with protected shields to ensure the resistance to explosions. Here, uranium hexafluoride gas may be converted to such a level which is required to run a reactor, like Bushehr, or to weapons-grade uranium-235. According to the calculations of Institute for Science and International Security, Natanz field has capacity to make three nuclear weapons, annually (Corsi, 2006).

Currently, Iran is installing next generation models of centrifuges to better Natanz Fuel Enrichment Plant. In last few months, Iran has installed 1800 centrifuges, twice to the number of the installation of previous quarter. At Natanz, Iran is going to install IR-2, the advanced model of current IR-1 centrifuge (Misztal, 2013).

Karaj Nuclear Research Centre

Karaj facility is centre of agricultural research and nuclear medicines which is located on the distance of 160 km in the northwest of Tehran. This facility has two buildings which have different laboratories related to nuclear research. It is also expected that this facility may be working on R&D of rocket production (Cordesman & Al-Rodhan, 2006). It is expected that, in Karaj, Iran is working on undeclared nuclear research so it is the target of both US and UN sanctions.

Arak Reactor

In 2002, Arak site was identified as a place of building heavy water reactors. The news of Arak discovery was a surprise for the inspectors because they were expecting some light water reactor like Bushehr. Experts feared that heavy water could produce sufficient amount of plutonium to produce nuclear weapons (Cordesman & Al-Rodhan, 2006). IR-40 heavy-water reactors were located there those which could be operated in 2014. IR-40, which Iran is producing at Esfahan, has capacity to produce 40 MW thermal powers which run on natural uranium-oxide fuel (Albright & Walround, 2013).

Anarak Nuclear Waste Disposal

Tehran stated that a little quantity of imported UO_2 was prepared at Jabr Ibn Hayan Multipurpose Laboratories. It was sent to MIX facility laboratory at Tehran to break up of I-131in a lead shield cell. In 2003, to IAEA, Iran informed that that was a waste disposal site. It was basically subsidiary of AEOI (Cordesman & Al-Rodhan, 2006).

Qom Uranium Enrichment Facility

This underground facility is located near Qom. It was previously known as IRGC missile site. This facility is working under the management of AEOI and was generally unknown. Since long, United States had been observing the very facility. In September 2009, Iran told IAEA that the facility at Qom is working on gas centrifuges enrichment. According to US, this facility could hold 3000 centrifuges. The location and greater capacity of the facility mean not for a peaceful program. It could be used for the development of research centrifuges or weapon grade uranium. This facility may produce one HEU annually (Kerr, Iran's Nuclear Program: Status, 2012).

Ardekan Nuclear Fuel Site

Ardekan Nuclear Fuel site is located at 33 km of Ardekan-Choupanau Road. It is said that this site is producing yellow cake (Ardekan (Ardakan) Nuclear Fuel Site, 2008). Annually it can convert 50-70 tons of uranium into yellowcake. In April 2013, this site was modified and till then Iran had not showed its intentions to international community, about that site. The production of this site was enhanced by China. In this site, Iran is working on full-scale mining facility (Nuclear Threat Initiative (NTI), 2013).

Bonab

On 11 September 1994, Amrollahi, president of AEOI, declared that phase one, of research on nuclear energy, would start working in 1995 at Bonab Atomic Energy Research Centre. Basically, Bonab Atomic Energy Research Center started its research on nuclear technology to resolve food irradiation and other agricultural problems (Gerardi & Aharinejad, 1995). Vinna's IAEA was interested in the site, located in South of Tabriz. It is the major nuclear research facility which is connected with AEOI and is not under the safeguard of IAEA. In 1997, IAEA director general Hans Blix, visited this site and found no prohibited material (Cordesman & Al-Rodhan, 2006).

- **Missile Program**

  According to CIA's calculations, Iran has developed many short-range missiles which include Tondar-69/CSS-8 with a range of 150 km; Shahb-1/ Scud-B with the range of 300 km and Shahb-2/ Scud-C with 500 km range. Moreover, Iran tested Fateh-110, a brother missile of Chinese M-11, having solid fuel ballistic missile with the range of 300-400 km (Iran's ballistic missiles, 2003). In the development of this missile, Iran got assistance from North Korea and developed shahb-3 with 1300 km range which can target Israel, Turkey and Suadi Arabia. Shahb-3 has the capacity to carry payload of one ton and more than 1.2 m diameter nuclear warhead. If Iran succeeds in building Shahb-3 or its substitute Shahab-3M, it would be a preferable vehicle to carry nuclear warheads. In September 2007, Iran presented Ghadr-1, a long-range missile, with the range of 1800km. In July 2008, Iran tested a version of Shahb-3, also termed as Shahb-4, with the range of 2,000 km. With the help of Soviet Union and North Korea, Iran is working on Shahb-5 or BM-25 which could easily target Europe. Development of two stage Safir Satellite, has enhanced Iran's missile capability. There is a rumor that Iran is working on Shahb-6, a medium range missile, which can reach London with the distance capacity of 4500 to 5500 km. These missiles are an asset of Iranian nuclear program, in order to carry weapons of mass destruction. In 2005, Ukraine said that Iran had bought 12 old X-55 cruise missiles, four years ago, from black market. This cruise missile had a capacity to carry nuclear war heads within 3000kms (Fitzpatrick, Framing the Problem: Iran's Pursuit of Fissile Material, 2008).

US and Like-Minded Concerns

Iran is the biggest enemy of US and like-minded which is posing greatest challenge to their interests in Middle East. Iran has conventional weapons with sufficient range not only in the region but outside the region also. Despite opposing efforts, Iran's nuclear capabilities are steadily increasing. The development of Iran's nuclear program and its possible use is increasing the concerns of US and like-minded.

Nuclear issue is the real issue for the United States. USA, along with its allies, is highly concerned about the development of nuclear technology of unfriendly and rogue states. Proliferation is arousing many threats about nuclear race for it may be passed to terrorist groups. Iran, as a nuclear state, can be dangerous for the region. Nuclear proliferation can undermine or weaken US interests in Middle Eastern region. In present circumstances, many states have shown their intention for acquiring nuclear technology. For the time being, this is not a big thing for US. But in long run, this development would reduce friendly states and many rouge states would emerge (Ottaway, Brown , Hamzawy, Sadjadpour, & Salem, 2008).

In Middle East, United States is showing its imperial powers by adopting policies, generally, against the Muslim World and particularly against Iran, the owner of world's second largest oil reserves, having ambitions for nuclear power. Iran is a country which is not ready to adopt western culture and western globalization in contemporary world. Moreover, Iran is not ready to accept American values and culture in the present (Khan, 2009). US has a view that a nuclear Iran would pose threats to US and its allies and would challenge global security. Iran's effort to obtain nuclear, chemical and biological technology is disturbing US.

United States has multidimensional interests in the Middle East. US wants to continue the flow of oil in the world's markets, stop any state to become regional hegemonic and to reduce threat of terrorism in the region. Moreover, US is highly concerned with the spread of WMDs in the region, wants to promote peace among Arabs and Israel and it also wants to promote economic cooperation in the region. Keeping these interests in view, United States should adopt the policy which would help minimize the threat of blockade in the flow of oil. Moreover, any harsh step taken by United States against Iran would put a great impact on global war against terrorism and on the role of US in nation building of Iraq and Afghanistan. So, US needs such a policy which may prevent the threat of nuclear attack on US and its allies (Hemmer, 2007).

European Union

It's a fact that, it's hard for United and European States to curb Iranian nuclear program. EU efforts to address nuclear Iran started in 2003. These efforts are considered most ambitious and high profile in the field of nuclear nonproliferation (Meier, 2013). EU remained engaged in convincing Iran to discard its nuclear program and clarify its goals. EU was highly concerned when they gathered information and acknowledge that Iran was processing HEU near Yazd. This information warned them against the efforts of Iran in becoming self-

sufficient in nuclear technology. They realized that the speed of hampering was slower than the speed of progress. During EU talks, Iran refused the suspension of the enrichment of uranium and threatened EU about its withdrawal from NPT (El-Khawas, 2005).

Iran's nuclear issue provided an opportunity to EU to tell the world that it could live up with self-articulated ambitions. European Union is in favor of peaceful solution of nuclear program through diplomatic means. EU has a view that this thing will build international confidence in peaceful nature of Iranian nuclear program. EU respects Iran's right of nuclear weapon and its peaceful use. As NPT signature state, Iran has every right to develop nuclear technology to fulfill its energy demands in accordance with IAEA and UNSC parameters. EU has a view that Iran's nuclear program should deal as other NTP signature states.

Israel

Israel's officials find themselves in great trouble and uncertain international security environment when they find Iran armed with nuclear weapons. The pivotal developments of Iranian nuclear program are a great concern for Israel and United States. They are worried about its reliable status. These developments are terrifying Israel's decision makers and are appearing as a threat for them. A nuclear armed Iran would pose a threat to the existence of Israel in the Middle East. Moreover, Iran has ballistic missiles which can hit Israel. In the start of 21st century when Iranian nuclear program became a hot issue of contemporary international politics, Israel faced different views and actions by US. Instead of economic sanctions, Israel preferred to use covert means like, sabotage, cyber war and assassination. Similarly, it welcomed those reports which showed dead back of Iranian nuclear program.
In addition, many defense experts of Israel perceive Iran's possible strategy to use non-state actors against it. Israel is worried that Iran can use Hizbullah as proxy against it. Israel is also worried that, either intentionally or accidently, Iran may transfer its nuclear technology to Hizbullah, Hamas or to Islamic Jihadis which may threaten Israel's existence in the Middle East (Russell, 2008).

Conclusion

Iranian nuclear program is deep rooted and its uprooting is not easy. The permanent peaceful solution of Iran's nuclear program can be found in mutually agreeable diplomatic solution only. Iranian nuclear program is posing threats to US global interests. US wants to settle Iranian nuclear controversy without any military controversy which is a great challenge for its foreign policy. For that purpose, IAEA and Security Council are doing what they can. IAEA inspected different nuclear sites of Iran and found prohibited material. US and its allies alleged that Iran is pursing nuclear technology which will destabilize Middle East and Nuclear Iran may disturb regional balance of power and may transfer non-state actors which poses threat to world peace. On the other hand, Iran claims that, being an independent

state, it has right to develop nuclear technology especially when it is for energy concerns for, in near future, it may face shortage of energy as oil reserves are running out.
The nuclear tussle between Iran and the West has accumulated clouds of war over the Middle East. The intervention of US, in the form of Iraq and Afghanistan, war has disturbed regional security environment. Now, it can't afford another war between US and Iran. As a member state of NPT, Iran's struggle for the acquisition of nuclear technology, for peaceful means, is its basic right. Western powers, particularly US, must realize the sensitivity of the mater and so they must cooperate with Iran for the betterment, not the disturbance, of the region.

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