opción

Revista de Antropología, Ciencias de la Comunicación y de la Información, Filosofía, Lingüística y Semiótica, Problemas del Desarrollo, la Ciencia y la Tecnología

Año 35, 2019, Especial N° 22

Revista de Ciencias Humanas y Sociales
ISSN 1012-1587/ ISSNe: 2477-9385
Depósito Legal pp 198402ZU45

Universidad del Zulia
Facultad Experimental de Ciencias
Departamento de Ciencias Humanas
Maracaibo - Venezuela

Opción, Año 35, Especial No.22 (2019): 1135-1151
ISSN 1012-1587/ISSNe: 2477-9385

The role of America in the development trend of Iranian nuclear program

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Abstract

The aim of the study is to investigate the role of America in the development trend of Iranian nuclear program before and after the Islamic revolution via comparative qualitative research methods. As a result, after passing 3 decades from the 1979 Revolution, many Iranians in particular the youth have lost their interest in the Islamic Revolution, however the nuclear program of their country is still a source of pride for them. In conclusion, America which undertakes the leadership of western countries on the nuclear issue of Iran should continue the direct negotiation with Iran to solve the Iranian nuclear issue.

Key Words: Nuclear, Energy, Uranium, NPT, IAEA.

El papel de América en la tendencia de desarrollo del programa nuclear iraní

Resumen

El objetivo del estudio es investigar el papel de América en la tendencia de desarrollo del programa nuclear iraní antes y después de la revolución islámica a través de métodos de investigación cualitativa comparativa. Como resultado, después de 3 décadas de la Revolución de 1979, muchos iraníes en particular, los jóvenes han perdido su interés en la Revolución Islámica, sin embargo, el programa nuclear de su país sigue siendo un motivo de orgullo para ellos. En conclusión, Estados Unidos, que asume el liderazgo de los países occidentales sobre la cuestión nuclear de Irán, debe continuar la negociación directa con Irán para resolver la cuestión nuclear iraní.

Recibido: 10-12-2018 •Aceptado: 15-03-2018

Palabras clave: nuclear, energía, uranio, TNP, OIEA.

1. INTRODUCTION

The historical comparison of the Iranian nuclear program in the time span of before and after the Islamic Revolution indicates a difference in the attitude of America and the western world in cooperating with a nuclear Iran. Before the Revolution, America and the western countries, due to reasons such as the danger of former USSR and the possibility of the influence of communism in Iran, were showing interest in atomic cooperation with Iran. The economic interests resulting from the cooperation in nuclear plants in Iran had marginalized its danger of access to nuclear arms. However, with the occurrence of Islamic Revolution and adoption of Not East, Not West Policy and following it the lack of dependence of the Islamic Republic of Iran to the east and the west, the western countries, in particular, America reconsidered their policy in atomic cooperation with Iran.

On this basis, the mentioned countries under the pretexts such as Iran's support to the terrorism, and possibility of access of terrorists such as Al-Qaeda and Hamas… to the nuclear arms manufactured in Iran, put forth the necessity of confronting the Iranian nuclear activities. In fighting against the nuclear activities of Iran, those countries made every effort. Stating some of the failures of Iran and its lack of commitment to the legal contents of the conventions related to nuclear energy such as NPT, they emphasized on the deletion of nuclear power and disconnection of Uranium enrichment.

In fact, the main reason for the western world in confronting the nuclear activities of Ian, is the political system of Iran, its anti-American and anti-Israel nature, arms competition and change of security equations in the Middle East in the event Iran becomes a nuclear power. The reality is that the actions made by America clearly state that the strategy of that country is to isolate, press and at the end weakening the Islamic Republic of Iran.

1.1. History of Nuclear Energy

After the discovery of fission in 1939, with the beginning of World War II, the American scientists for the first time put forth the presence of self-reinforcing chain reaction. Then Fermi et al in 1941, presented the plan of the first reactor of uranium chain. The first researches in this field which took place under the secret project namely Manhattan were for the construction of an atomic bomb for Word War II. Later on, the USA made a greater investment for the improvement of this science for non-military interests. In early 1951, it produced a generating reactor which could produce electricity. Today about 450 nuclear power plants are active which undertake the production of electricity for 367 gigawatts in 31 countries (MORTAZAVI, 2006).

This knowledge with its diverse and frequent application will guarantee the continuation of life and survival of human life in the future decades in which the fossil resources for the supply of energy

are diminishing and so far the irregular use of them has added to the environmental pollution. Today, countries, though enjoying the reservoirs of gas and coal, but for the supply of fuel and generation of electricity have no way but using the nuclear energy power stations which is more economical with less pollution. Today, a country like France supplies up to 75% of its electricity from atomic power plants. In addition to the production of electricity, this energy is also used for other purposes in the areas of medicine, agriculture, industry and so on. With the increase of nuclear activity, the need of countries to create an international body to control and redevelop and peaceful use of nuclear energy seemed to be necessary.

The proposal to form the Atomic Energy Agency was for the first time proposed by Eisenhower and in a speech (Atom for Peace) in UN in 1953 and on 29 June 1956; IAEA formally announced its entity formally. Following the expansion of atomic arms and control and removing it and conversion of the world into a world free of atomic arms, Nuclear Non-Proliferation Treaty (NPT) was prepared to be signed by the countries on the first of June, 1968. America, England, and 59 other countries signed it. After its approval in American parliament, this treaty was implemented on 5 March 1970. China on 9 March 1992, France on 3 August 1992 was joined to this treaty. Only Cuba, Israel, India and Pakistan are not a member of this treaty and North Korea disconnected its membership in this treaty.

From the very beginning of the establishment, in 1958 Iran became a member of this international organization and in 1968,

signed NPT and in 1970 had it approved by National Consultative Assembly (Parliament). In 1974, in order to redevelop and adjust the nuclear program and for the peaceful use of nuclear energy and long term planning for the electricity generation, it established the Atomic Energy Organization of Iran. Following a report by Stanford Research Institute was an American Institute and referring to the industrial development plan, the demand of Iran by 1995 was estimated to be about twenty thousand megawatts nuclear electricity. For this very reason, the most basic and most expensive nuclear program before the Islamic Revolution was spent on the establishment of the atomic power plant. From 1974 to 1978, a contract or letter of intent to construct eight atomic power plant was signed between Atomic Energy Organization of Iran and foreign contractors.

1.2. Nuclear cooperation between Iran and America before the Islamic Revolution

The first efforts of Iran to achieve nuclear technology dates back to 1950s. The first country which encouraged Iran to achieve nuclear technology and transferred this technology to Iran was the USA. Also, the first serious opponent to the fulfillment of nuclear activities in today is also the USA. The first serious step in using nuclear science and technology in Iran was taken in 1956. On 5 March 1957, an agreement of cooperation was signed between USA and Iran on non-military use of nuclear energy. Parallel to the agreement of nuclear cooperation between Iran and America, the Institute of Nuclear

Sciences which was under the supervision of CENTO (Central Treaty Organization) was moved from Baghdad to Tehran and the University of Tehran laid down a center under the title of Atomic Center of the University of Tehran for nuclear education and research. Sometimes later, upon the proposal of University of Tehran, the construction of an atomic reactor was put in the agenda of the state and was approved. In line with this ideal, Eisenhower, the President of America issued the permit for one atomic reactor to Iran in the same direction of his policy on the atom for peace (BABAEI, 2007: NGIRWA & ALLY, 2018).

Iran and America in 1974 agreed upon the establishment of a joint commission with an intention to reinforce cooperation in all areas including cooperation on nuclear sciences, in particular, the generation of nuclear energy. The nuclear cooperation between Iran and America was decided to be a part of the program of Iran-America joint commission and nuclear energy was under the supervision of the Office of Researches and Development of Energy in America. In September 1974, upon the invitation of the Iranian state, the Head of the United States Atomic Energy Commission (AEC) came to Iran and negotiated with the Iranian officials on the possibility of cooperation between the two countries. Following this negotiation, two months later, the cataract for the purchase of services related to uranium enrichment for fuel supply of Atomic power plant was signed between Atomic Energy Organization of Iran and representative of the United States Atomic Energy Commission (AEC) in Tehran (AZGHANDI, 2004: SADEGHI, AMRI, RAZEGHI, HAMID & ABDOLLAH, 2017).

In 1975, Hooshang Ansari, Minister of Economic Affairs and Finance of Iran, and the Secretary of State of America signed a vast economic contract including the sale of 8 reactors for 6.4 billion dollars to Iran. The United States Atomic Energy Commission (AEC) agreed to sell a reactor of light water with the capacity of 1200 megawatts along with its fuel to Iran and also a preliminary contract for the supply of the fuel related to other reactors of Iran was signed (ALJAZEERA, 2010). Following the agreement between Iran and America which was signed on technical cooperation on 4 March 1975, the Atomic Energy Organization of Iran and Ministry of Energy of America signed an agreement on training the Iranian personnel in the areas of nuclear engineering and science. On this case, the Esfahan Nuclear Technology Center (ENTEC) was launched (BABAEI, 2007). Following that, Iran announced that it is ready to invest for 2.75 billion dollars on a private factor of uranium in America (CETIN, 2018).

In 1976, also five contracts related to each other with the American company of General Atomic was signed. On the basis of these contracts, the mentioned company performed various duties including provision of necessary parts for the conversion, design and train services for personnel at Tehran research reactor, monitor and control of TRIGA (Training, Research, Isotopes, General Atomics) reactor in the work and tests, delivery of control devices to nuclear reactor and install and test of the reactor fuel sets (BABAEI, 2007). When the democrat state of Jimmy Carter came into power, the program of purchase of arms and export of atomic energy to Iran was revised but after some months of uncertainty, in December 1977, he

announced his agreement with the export of 8 nuclear power plants to Iran (AZGHANDI, 2004: MATANDARE, 2018).

1.3. Nuclear Cooperation of Iran and America after Islamic Revolution

With the victory of the Islamic Revolution of Iran, the western countries suspended the performance of their agreements and contracts including the construction of Bushehr power plant. Siemens Company did not accept to complete the Bushehr power plant and other western countries including America avoided transferring any kind of nuclear equipment and technology to the Islamic Republic of Iran. During the Iran-Iraq war, the existing installations were under air strike by Iraq several times and as a result, certain damages were imposed on the existing buildings and equipment.

America and the western countries acted in four areas opposite to their own commitments under NPT:

1. The lack of performing their own obligations vis-à-vis Iran and cancellation of credible and legal agreements of nuclear cooperation

2. Imposing pressure on the countries which intended to cooperate with the Islamic Republic of Iran

3. Lack of cooperation and participation in the peaceful nuclear program of Islamic Republic of Iran opposite to their own obligations under NPT

4. Creating obstacles in the path of nuclear self-sufficiency programs of Iran (ROUHANI, 2012).

In January 1994, the contract of completion of unit one in Bushehr atomic power plant was concluded in participatory form between Iran and Russia. In 1998, once again, it was generally revised and the completion of the power plant in form key in hands was shifted to Russia's Atom Story Export Company. It was decided to have it completed by the beginning of 2000 but this deadline has been postponed for some years due to many reasons. This reactor is of the type of reactors of light water under the pressure with the power of 1000 megawatt. Launching this power plant, Iran will become the 31st country with nuclear energy (BABAEI, 2007). After Vladimir Putin came into power, he tried to have a policy independent from America for his country.

So, he decided to reestablish relations with the countries which Russia had distanced from them. After improving diplomatic relations with Iran, Russia was interested to cooperate with Iran in developmental projects and one of the most important of these projects was Bushehr power plant and Putin issued an order to cooperation in continuing the construction of Bushehr Atomic Power Plant. As according to the estimations of the reports by IAEA, the reservoirs of

oil, natural gas and coal will be finished by next 40, 60 and 230 years accordingly – so this statistic, with regard to the 6.5 percent growth of crude oil consumption of Iran, will direct this country towards a nuclear development and peaceful use of nuclear energy.

According to the report of the section of Environment in the World Bank, in 1994, the rate of greenhouse gas emission in Iran was 417 million tons. Taking into consideration the 57.7 million population of the country on that date, the per capita of emission of these gases will amount to the noticeable rate of 7.23 tons. When we compare this per capita with countries such as India (1.34), Indonesia (4.74) and Malaysia (3.38), the adoption of serious policies to reduce the greenhouse gases is specified (MORTAZAVI, 2006). As about 90 percent of 27 gigawatts electrical energy in Iran is supplied through thermal power plants which usually work with natural gas, also considering the daily need of Iran to energy resources, in addition to the development of thermal and hydraulic power plants, Iran is forced to put the development of nuclear power plants in its blueprint.

So, in line with this ideal, the supply of one-fourth of electrical energy needed by Iran through nuclear power plants is among the objectives of the Atomic Energy Organization of Iran. Since Iran has noticed that despite membership in NPT, the western countries make basic obstacles in transferring nuclear technology into Iran, so it started to do research and localized this technology. In this period, Iran began to construct some research reactors including the research reactor of heavy water of Arak (IR40) aiming at supplying the needs of

different radio medicine for purposes of medical treatment and diagnosis and various isotopes for industrial and research application to replace with Tehran research reactor. The capacity of the complex for the production of heavy water in Iran is 16 tons of heavy water with the 99.8 enrichment.

This project has a determinate role in medicine and in particular the control of cancer and AIDS and is used as cooler and slower of heavy water reactors too. With the opening of this industrial unit, Iran was introduced to the world as the ninth country with the equipment of heavy water. The other program in the nuclear development of Iran is the production of nuclear fuel with an aim to supply the fuel necessary for atomic power plants. The activities of the nuclear fuel cycle include exploration and extraction of uranium, uranium combinations processing, uranium enrichment and construction of fuel set. The saghand project of Yazd is the objective sample of activity in the area of extraction of uranium from the natural resources. The installations existing in this factory extracts uranium from the depth of 350 meters and then in the area of Ardakan in Yazd, after application of different chemical and physical processes, it is converted into the yellowcake.

What is performed in Isfahan under the UCF project, is the conversion of yellowcake into Uranium hexafluoride (UF6), metal Uranium and Uranium Oxide. UF6 is the main feed for the enrichment plant in Natanz. For the production of the fuel bar, the ZPP factory in Isfahan is under construction. Besides planning for the creation of power plant and production of nuclear fuel, by creating different

research, production and service labs and centers, Iran has tried to have a peaceful use of nuclear energy in different areas such as the production of different isotopes, radio-pharmacy, use in agriculture for the improvement of production quality and conducting research to supply cattle vaccine and industrial applications (MOUSAVIAN, 2007).

One of the most important macro plans of Iran in nuclear development is to produce nuclear electricity. The construction and development of atomic power plant based on the demand of the country in accordance with the approval of Islamic Consultative Assembly in 2005 have been designed based on the production of 2000 megawatt of nuclear electricity by the end of 2020 (MOUSAVIAN, 2007). On 9 February, 2003, Mohammad Khatami, the then President of Iran, announced a news on the supply of nuclear fuel by the Iranian experts for the Iranian nuclear power plant which was faced with the hard reaction of the western countries in particular America and intensified the pressure of the western countries to prevent the nuclear activities of Iran. In that time, for the sake of trust-building, Iran accepted three agreements and gradually suspended all activities and studies related to the atomic knowledge of Iran.

After Paris agreement, in the first year of the activity of the 9th state, Iran announced that it has completed the voluntary suspension of enrichment and with breaking the seal, continues the activities of UCF of Isfahan under the supervision of The International Atomic Energy Agency (IAEA). Also Iran in January 2006, in the presence of the

IAEA inspectors broke the seal from the installations of Natanz nuclear research complex too. However, in March of the same year, the Security Council gave a one-month deadline to Iran to stop its nuclear activities.

In April 2006, the Iranian scientists were successful in producing the full cycle of nuclear fuel at laboratory scale and Iran joined the member countries of atomic club. Security Council approved the 1696 Resolution in July 2005 which asks for the suspension of uranium enrichment in Iran. In the December of the same year, the Security Council approved the 1737 Resolution which had targeted most of the commercial, financial activities, rocket and nuclear industries of Iran based on the Paragraph 41, Chapter Seven of UN Charter. This Resolution was the first international legal document which was introducing the nuclear activities of Iran as a threat to the regional stability and peace. Emphasizing on Paragraph 4 of NPT, Tehran termed these accusations as undocumented charges and asked for a non-discriminatory behavior in connection with the atomic activities of this country.

With the continuation of the trend of the advancement of nuclear knowledge in the industrial scale in Iran, experts had put forth certain forecasts on a military attack by Israel against the nuclear installations of Iran similar to Opera operation which Israel did against the atomic installations in Iraq. According to Reuters News Agency, after passing 3 decades from the 1979 Revolution, many Iranians, in particular, the youth have lost their interest in the Islamic Revolution,

however, the nuclear program of their country is still a source of pride for them. In such a condition, in which the peaceful nuclear use has been converted into national pride, and even the 8th of April has been registered as the National Day for Nuclear Technology in the history of this country, it seems that the only solution for solving the nuclear problem of Iran is a negotiation.

After two years of direct and exhausting negotiations, based on mutual trust, transparency and an intention to solve the problems, Iran and 5+1 finally achieved a comprehensive and final agreement on Joint Comprehensive Plan of Action on international sanctions against Iran on 31 December 2015. It is hoped that after operating the contents of agreements, they could take a step towards the establishment of the world and regional security.

2. CONCLUSION

After World War II, the formation of UN and Security Council and following that the formation of IAEA, which all were in line with the establishment of peace and solving the problems of countries through dialogue and negotiation, the member states accepted to make their efforts to prevent from any war. As the nuclear fuel cycle and also uranium enrichment have not been prohibited in the NPT and also in the constitution of IAEA, the only restriction which exists in this way is the lack of deviation of member countries of the treaty towards non-peaceful purposes. Even in a period of time, Iran, in line with

trust-building on its nuclear program suspended all activities related to enrichment for more than two and a half years and performed the Additional Protocol voluntarily. Amides all this, America which undertakes the leadership of western countries on the nuclear issue of Iran should continue the direct negotiation with Iran to solve the Iranian nuclear issue.

Also, considering the Islamic ideology of the Islamic Republic of Iran and its opposition to the production and use of mass destruction arms, it should permit the experts of IAEA to visit and make further clarification on its peaceful and provides more transparency to the world and in particular 5+1 countries on its nuclear issue. The reason for such action is that in the present conditions, the removal of nuclear arms and a world free of nuclear arms and in general, removal of all weapons of mass destruction by the countries with nuclear weapons is an essential action for a united and integrated world and stable peace. Iran has always been a pioneer in mutual respect for international law and has defended peace.

In such a situation, based on agreements, America should lift the UN sanctions and even the sanctions made by American Congress against Iran and its financial institutions unilaterally and make effort to call the mutual trust of Iran to perform the Joint Comprehensive Plan of Action fully and finally bring about tranquility and peace for the Middle East and the world. In transferring nuclear technology into Iran, the western countries should meet their obligations and Iran should also try to have its nuclear program transparent as usual and

prevent from any excuse. It is the duty of all academicians to make an effort to present basic approaches to solving the problems among the states. As enrichment and access to the consumptions of nuclear fuel is the inevitable right of each country including Iran, so that controlling the peaceful nuclear activities of Iran, based on its inherent duty, IAEA can play a basic role in the transfer of nuclear technology into Iran.

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Revista de Ciencias Humanas y Sociales

Año 35, Especial No. 22 (2019)

Esta revista fue editada en formato digital por el personal de la Oficina de Publicaciones Científicas de la Facultad Experimental de Ciencias, Universidad del Zulia.
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