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Islamic & non Islamic Countries Cooperation: Perspective on Science Diplomacy Model

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Abstract

The scientific development in today's globalized environment calls for increasing interaction with scientific and technological centers. Scientific networks and networking with reliance on scientific and academic experts constitute one of the existing strategies to achieve this objective. Through the passage of history, Iran has had economic and cultural exchange with countries located in the Islamic world. Given the globalization of information and communication networks, the idea of enhancing scientific corporation among the said countries can be presented in order to create synergy for generating and developing science and technology. In this paper an attempt has been made to introduce strategic and tools for creating inter-geographical synergy from a theoretical point of view. Science diplomacy has been discussed as a suitable tool for networking among the scientific communities of Iran and Islamic world. This paper also proposes some other strategies to achieve science diplomacy.

Keywords: Networking, Science Diplomacy, Foreign Policy

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Introduction

The enhancement of Iran and Islamic world scientific corporation plays the pivotal role in bringing about ever greater proximity between Iran and Islamic region countries resulting in the creation of synergy or realizing the common goals and interests. Creating appropriate ground for identifying potentials and relative advantages of each of the said countries in the field of science and technology and efforts to transform it into a competitive advantage resulting in the development and innovation is an effective step for creating added value not only in the economic sectors but also on the socio-political scenes. In view of the above, this paper has tried to present appropriate mechanism patterns for relating a desirable situation within the context of scientific corporation from theoretical and conceptual points of view. Obviously through policymaking and implementation, and on the basis of the offered model and strategies, necessary ground can be provided for even greater participation of effective institutions in enhancing scientific and technological cooperation.

Networking

Networking in different countries and geographical regions of the production of knowledge, wealth, and power has become one of the main paradigms of international relations. The establishment of European Region (EU), BRICS, D-8 countries, Shanghai Cooperation Organization (SCO) and other similar unions can be cited in this connection. Therefore, the expansion of regional and interregional interaction for realizing the common goals is an important step for securing the interests of member countries of regional unions. For example, BRICS is an abbreviation of Brazil, Russia, India, China and South Africa. These 5 countries constitute 42 percent of the world population and 30 percent area of the planet. BRICS is making an effort to strengthen itself in order to emerge as a powerful block against western blocks. Goldman Sachs believes that as BRICS member countries are experiencing acceleration in their economies, they will turn in to serious rivals of the world powerful countries by 2015. Four of the BRICS countries constitute one fourth of the total area of the world and have more than 40 percent of the world population (SGI, 2011).

From historical perspective, Iran has always enjoyed a significant and sensitive position. Iran acts as a bridge between important continents of Asia, Europe and Africa. Major world energy routes pass through the Persian Gulf region, which has given it added significance. Iran’s efforts to seek presence in scientific and technological rivalries have lead to the opening of a new chapter in bilateral and multilateral cooperation between Iran and other countries. The Islamic world is an important geographical region for enhancing the bilateral cooperation. Having said so, it is a two-way traffic. Establishment and promotion of economic, scientific and technological cooperation can secure a lot of interests for both Iran and countries in the Islamic region.

Given the above, networking with the scientific institutions of the Islamic countries in order to enhance scientific cooperation and achieving synergy for the production and promotion of science, technology and

innovation is considered a main strategy. Networking can provide the possibility of identifying potentials and relative advantages of each other and turn them into a competitive advantage. Marilyn Clay believes that the era of atom has gone and dynamic network is going to symbolize science during the coming century. While the atom shows simple order, the network has the power to guide complexity. It is the network that can have growth without predetermined direction or can learn without a guide. It can also limit any likely topologies (Royal Society, 2010:3).

Some researchers have described networks and networking as an element of social changes and have reiterated that networks have an important role in uplifting reforms and ensuring their durability in scientific cooperation since the networks act as powerful tools for the exchange of information and knowledge and reach consciences regarding new methods. As networks bring together concerned groups over one subject, their influence and impact on people would be more than an NGO. It seems that the logic network activity brings social determination and can serve as important resources for bringing about a change in the scientific community. Another advantage of network activity is that it has an open structure, which can be enhanced without any limitations. It increases the capacity for innovation and act as an appropriate tool for deepening and expanding activities on the national or international level. Despite accepting the difference present among the members, the network provides a kind of convergence. The network is the main channel for flow of information among members, to members from outside the network and outside the network from members. Different mechanisms can be used in networking through which Iranian scientific institutions and their counterpart institutions in Islamic region can link with each other in order to develop and expand their cooperation. Science diplomacy is a proposal presented in this paper as a mechanism to achieve the perspective of mentioned desired scientific cooperation. Hence the science diplomacy will be reviewed (National Academy of Sciences. 2002: 17).

Science Diplomacy

Diplomacy is an important tool for realizing the objectives of foreign policy. Diplomacy is related to management of relations between governments and governments' relations with other players. Diplomacy is also relevant to counseling, planning and implementing foreign policy. Therefore, it can be said that diplomacy is a means by which governments secure their special interests. In this connection governments conduct correspondence, special negotiations, exchange of views and seek influence. They also hold meetings and counter threats (Baraston, 2006:21).

In more clear terms, diplomacy is an important tool for increasing influence of a country over other countries in order to realize maximum interests. Influence is a form of power. Influence is used in different ways with the aim of changing attitude, policy and approach of players on the international scene in order to secure national interests. Diplomacy is one of the most common methods to exercise influence (Riordan, 2003:127).

Diplomacy is defined as an act to run foreign policy, adjust international relations and resolve international disputes through peaceful means. With this definition diplomacy can be described as a collection of strategies and art employed by governments to advance their programs on international level. Governments also adopt diplomacy in dealing with other issues. The endpoint of diplomacy is war, although certain experts of international relations and foreign policy say that war is the last phase of diplomacy.

Complexity of international relations and the significance assumed by international relations in the 19th and 20th centuries have lead diplomacy to be known as the act of negotiations and dialogue for securing national interests and objectives pursued by governments. The nations and governments are the only players on the international scene while diplomats act as the executive arms of governments in realizing their programs and policies. The executive forces equipped with the art of negotiations implement the instructions of their rulers in dealing with other governments. Morgenthau describes the following four main obligations of diplomacy (Morgenthau, 1995):
Defining goals within the context of power;
Review and assessment of objectives of other government and their potential and actual power;
Compatibility of different goals and objectives;
Acquiring appropriate tools for achieving the said objectives.

Jawad Sadr describes diplomacy as a method to resolve issues related to foreign relations of a government with other governments through dialogue or any other peaceful means (Freeman, 2007:4-5).This definition includes three important points.
First, diplomacy is a method to further advance desired issues and seek success.
Second, the issues are related to foreign relations of governments, not internal affairs.
And third, diplomacy should be employed through dialogue, talks and any other peaceful means. Validity and reliability of method depend upon achievements and goals.

Success of diplomatic negotiations and realization of set goals depend on various factors which are as below (Freeman, ibid 210):
Correct comprehension of national interests and objectives.
Having sufficient power, capability and expertise in describing demands and convincing other players.
Awareness of own power and resources and those of other players.
Ability to reach compromise between demands and objectives of the opponent.
Using unique options for realizing goals.
Awareness of shape of alliances and unions present among governments and possibility of change in them.
Correct assessment of changing trends of other players.
Employing appropriate techniques in implementing diplomacy.
Having room for retreat of other side in critical situation.
Correct understanding of international conditions.
Sufficient preparedness to react against other player’s options.
Correct analysis of ongoing incidents and developments.

Awareness of international system.
Commitment should not exceed potential.
Dealing firmly in talks.
Coordination at different levels of diplomacy.

In reviewing the definition of diplomacy Nicholson views it from two angles. One is a military perspective toward power. A diplomat in a way is a warrior and champion. His attitude is refined by spontaneous diplomacy. As in the battlefield, his objective is to seek victory over enemy. Second outlook is a commercial outlook also known as salesman diplomacy. Hence, the diplomat reaches agreement and compromises through talks. It is a give and take negotiation. Confidence and confidence building constitute the basis and outcome of this diplomacy (Akhavan Zanjani, 2002:181).

The second perspective of international policy resembles the concept of a market and diplomacy is considered as salesmanship. Hence, international relations is a field where each government policy puts its items under the title of foreign policy. It looks for particular customers to sell its products and through this get its interests. In other words, the interest would not be discussed unless it realized its foreign policy. In international relations, countries produce items reflected through its foreign policy. Then there are other countries, which are considered as the customer of the said item. Sale of items requires marketing and in international policy diplomacy would be required (Freeman, Ibid: 20).

As we have seen the latest concept of diplomacy is based on talks (diplomat's obligation), distinction between inside and outside on the one hand and between the policy maker and implementer on the other, as well as on how to make use of power. However, the important point to note in diplomacy's meaning and application is the deep and all sided impact that globalization has put on its meaning. Akhawan Zanjani believes that in the era of globalization, the diplomat is the creator of power and reality. Therefore, not only the entire dimensions of man's life assume a dimension of diplomatic performance, but also everyone in a way becomes a diplomat. This is because all men potentially participate in the process of creation of power and reality (Akhavan, 2002:181).

Although power can still be considered as the guiding stage of diplomats in this age of globalization but it seems that the meaning of power has changed. If during the cold war power rested in military and security superiority, today as economy, technology and knowledge have assumed significance, the meaning of power has also changed. Besides the complexities of globalization have lent diplomacy a wider spectrum of meaning. Therefore, the form and kind of game, as well as the players in the international arena in the globalization era have undergone change. In such an environment, sportsman, businessman, university professor, researchers, an artist and etc. can play a part as representative of a country, something that was the responsibility of the official representatives of government and mostly diplomats.

These players of the globalization era can be divided into two groups. The first group comprises the players within the structure of the government while the second group has players who have freed

themselves from the limitations of the government. They are institutions of civil society or NGOs. International state organizations and second track diplomatic organizations are placed between these two groups (Akhavan, previous: 184).

The second track diplomacy can be considered as a supplement to normal diplomacy. Moreover, this diplomacy can have many other achievements such as creating the basis for normal diplomacy and reviewing extremely sensitive and debatable subjects by experts within the possibility that the debate would enter the normal diplomacy after the passage of unspecified time period (The same: 185).

In todays networking world, a country can achieve the target of its domestic development, which has based the main direction of its foreign policy and interaction with international environment. In such interactions adoption of comprehensive diplomacy compatible with the condition of time is essential. It is here that the application of new diplomacy becomes apparent for the governments to achieve the goals of development, benefit from opportunities, and reducing damages.

The important point to note here is that during the past two decades science and technology especially advance technologies have had an important role in merging markets and the process of globalization. Actually, technology has acted as a motivational element in setting up global markets and creating competitive advantage. Technology can guide innovation while it itself is the product of innovation. The advancement in technology has reduced costs, increased productivity and lead to increase in experts. New technologies have strengthened the shifting of production factors and creating greater variety in production. Technology has also brought a change in relative costs of production and distribution as well as increasing the competitive advantage of countries leading to greater merging of countries on the international level. Another factor leading to global economic change is the application of knowledge-based resources. In most countries this factor is shifted rivalry from heavy industries to knowledge based industries and services based on technology (Behkish, 2002: 349).

The increasing role of science and technology in the international arena of politics has lead the institutions responsible for production, distribution and transfer of technology to enter the field of diplomacy of countries as new players. These institutions which include scientific, educational and research centers of state and private institutions, through their activities in relation with the international environment, have introduced new conditions in foreign policy of countries. This is known as diplomacy of science and technology. In this scenario, besides the foreign policy institutions, there are other national players who play their role in the process of development of technology.

According to the views like Joseph Nye's, science is one of the sources of soft power. Scientific cooperation usually goes beyond borders and plays a part in common issues between nations. Therefore, new diplomacies are born which are related to tradition of nations, sectors and NGOs. If it is accompanied with political objectives, these scientific exchanges help in resolving problems. Scientific diplomacy strengthens

coexistence between scientific interests and foreign policy. International cooperation usually results from a tendency to have the best people, research facilities and new financial sources. Science introduces useful linking networks that can be effective in realizing political objectives (Royal Society, 2010).

It can be said that globalization and development of science and technology in today's world has created a complex network of official and unofficial players who are busy in their area of expertise within the context of international interaction. These interactions directly and indirectly have impacted the foreign policy of countries. In this networking scenario, in view of the increasing role that science and technology play in the development of countries and the increasing power of rivalry for getting a befitting place in the international system, the perspective of long term planning by governments to have active presence in the global system has become imperative. The mutual role that technology and foreign policy play in the advancement of each other has turned science diplomacy as an important tool in realizing the macro progress of countries. In view of what has been said so far, this we will try to define and identify the meaning of science diplomacy, its different dimensions and its main players.

With the increasing growth and development of science and technology in societies and the countries' increasing power resulting from progress in science and technology we are witnessing the impact of this sector on political issues and power equations on the international level. Industrial advancement is one of the most important reflections of application of technology in realizing the politico-economic and military goals (Royal Society, 2010).
Interaction of foreign policy and development of science and technology can be reviewed within the context of two main scenarios:
Use of science and technology for development of foreign policy and strategic goals of country.
Use of foreign policy for development of science and technology.

Scenario A: The complexity prevailing over foreign policy interaction in development of technology is unavoidable. In other words countries benefit from different tools and means to use their influence and power in face of other countries. Use of science and technological advancements is one of these levers.

Scenario B: Some developing countries by changing the direction of their foreign policy have prepared the ground for transfer of investment and technical knowhow needed for the development of the technology. Shift in the policy of communist China and Russia after the collapse of USSR can be cited here.

Some of the most important political motives and considerations effective in relation with the attitude and intention of providers of technology are as under:
The status and the role of a country receiving technology in its global and regional relations from the point of view of effectiveness in international and regional relations.

Type of government and politico-economic structure of a country receiving technology form the point of view of compatibility with the country transferring technology.
Direction and foreign policy goal of receiving country and its coordination with the country transferring technology.
Effect on receiving country and guiding it toward a particular political attitude.
Effect by country transferring technology for preserving or changing power relations in the region by transferring strategic technologies to particular country.

On the whole and in view of the dual dimension present in the meaning of science diplomacy, this reflects bilateral and mutual effects between the two dimensions of diplomacy and science and technology. As mentioned, the goals and programs can be presented within this framework by developed and developing countries and big powers. These goals and programs can be used as the most important factors impacting the foreign policy of countries. They can also be used when diplomacy is used as a tool in foreign policy to get the technologies needed by a country.

Proposed strategies

The meaning of science diplomacy actually oversees interaction between science and technology and foreign policy. Each of the two plays a pivotal role in realizing the goals of the other. Science and technology as a tool of realizing foreign policy has its application in four mains sectors including advancement of foreign policy objectives, strengthening soft dimension of diplomacy, strengthening hard dimension of diplomacy and a bargaining with rival countries. Science diplomacy can play an effective role in science, technology and innovation. This role can be reviewed in three dimensions: awareness of foreign policy goals in consultation with science (science in diplomacy, facilitating international scientific cooperation (diplomacy for science), and use of scientific cooperation for improving international relations among countries. (Science for diplomacy) (Royal society, 2010)

In each of these sectors the strategic application of science and technology can be identified as a foreign policy tool. Figure 1 shows the strategies.

Figure 1: Science and technology as a tool for realizing foreign policy

In reviewing the role of foreign policy in development of science and technology, 4 sectors have been identified namely: adoption of an open strategy in foreign policy for strengthening scientific and technological capacities; application of foreign policy capacities and tools for development of science and technology; preparing ground for development of new and superior technologies through international cooperation; and use of political bargaining in preventing the rival government to have access to science and technology which can tilt the balance of power in-favor of the rival. Each of these has strategies shown in figure 2.

Figure 2: Role of foreign policy in development of science and technology.

With respect to interaction between foreign policy and science and technology, strategies that shape the diplomacy of technology have been extracted. These strategies, as pointed out, can be divided in four main axes in each scenario. With each further divided into sub strategies. These strategies show the main axes in science and technology diplomacy for the promotion of scientific cooperation between and the Islamic countries. It is worth mentioning here that depending upon their power and status and international and the level of science and technology that they enjoy, countries can benefit from some of these strategies.

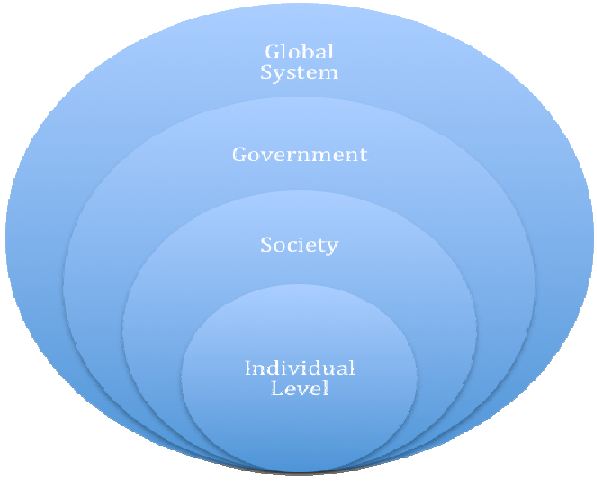
Conclusion

The scientific and technological development in Iran depends upon future research of incidents and trends shaping the future of science and technology in the country. Studying the changes related to the development and advancement of technology after the Islamic Revolution speak of the incidents and trends that should be paid attention to from the point of view of future research. The desired future of

scientific and technological developments in Iran calls for a study of past, present and future developments. The role and significance of understanding the international scenario and paying attention to foreign policy is very important in order to have science and technology developments. Interaction of foreign policy and development of science and technology can be reviewed within the context of two main scenarios:
Use of science and technology for the development of foreign policy and strategic goals of country.
Use of foreign policy for the development of science and technology.

In reviewing the impact of foreign policy on the development of science and technology it should be noted that precise assessment and review of foreign policy of every country requires knowledge of that country's domestic and international environment, which acts as an important factor in shaping its foreign policy. As a matter of fact, foreign policy is not a level ground; rather it is a complex and multilayered phenomenon that is directly and indirectly influenced by several variables. These variables can be classified in 4 levels of individual, government, society and global system. These are shown in figure 3. Therefore, one cannot recommend a strategy or present a scenario in this sector by casting a casual glance. It requires that a review of the foreign policy role in the development of technology should be conducted concurrent with studying all levels and layers shaping the foreign policy.

Figure 3: Levels of reviewing foreign policy



Given the pivotal role of science and technology in the development of a country and its significance in international relations, it can be said that foreign policy plays a key role in realizing the development of science and technology. Effort to uplift the level of cooperation with developing countries prepares the ground for the presence of the country in related international organizations and transfer knowledge and technology by

using the tool of three-sector diplomacy. Foreign policy can prepare the ground for development in science and technology. However, in the age of globalization where a number of players are present and playing their role in international interactions, different roles have combined together to change the earlier boundaries existing between different sectors. Science and technology diplomacy is an example of the combination of these roles, which has emerged out of the 2 sectors of diplomacy and science and technology.

Science diplomacy can be reviewed through two approaches. On the one hand, foreign policy and its diplomatic structure wants to realize development of science and technology with the help of tools that it has at its disposal. Besides the environment created by foreign policy for the development of science and technology, the role of technology policies of a country in advancing the foals of development is also important. As a matter of fact, science diplomacy as a strategy is focused on utilization of the foreign policy tools for achieving the scientific development and at the same time it also pays attention to the policies and programs for the scientific development of a country acting as a tool to realize the macro objectives of a country including the foreign policy sector.

In today's world science and technology is a main tool of diplomacy of advanced countries. The technology owning countries make use of it in achieving the objectives of their foreign policy. The advanced countries use science and technology as a trump card in dealing with other countries and its impact in bargaining at diplomatic talks can be seen in both direct and indirect fashions.

On the other hand, as the technological capacities of a country act as a tool of diplomacy, diplomacy can also act as a tool for development and exchange of science and technology. Turkey has prepared the document of its development perspective for 2009-2013 in line with the EU standards. The ultimate aim of Turkey is to present active regional diplomacy to play a role as a regional power on the one hand, and act as a bridge between the East and West on the other. Launching employment information system for software management of technology, guaranteed constant access to energy resources are among Turkey's strategies.

In South Korea, tech and commerce diplomacy is the main axis of policy making for promotion of its exports. The strategic tech and commerce diplomacy committee, by adopting policies in favor of active industries in the export sector such as scrapping tariffs for active exporters, reducing taxes, supporting new industries and cooperating in advance technology sectors within the framework of the country's foreign policy macro strategies, determines programs and strategies in this sector by focusing on promotion of relation with the West, especially the U.S. on the one hand, and with China on the other.

Malaysia is trying to increase the potentials for creation of indigenous technologies and develop marketing for its new products through its knowledge-based economy and thereby provide a strategy for the development of its domestic products. Its national program, the main reflection of which is the document of 2020 perspective, shows the future development of the country. On the basis of the document, creating an

advanced society with a view of the future is a priority. It is not only a consumer of technology but also helps the future scientific and technological civilizations. The main approach of Malaysia in presenting a practical model of tech-diplomacy is to uplift scientific and technological cooperation with other developing countries, strengthen regional and interregional cooperation and help the developing countries in achieving self-reliance.

India's science diplomacy can be reviewed from the perspective of two approaches. On the one hand, India's foreign policy and its diplomatic structure, with the tools at its disposal, are making efforts to develop its science and technology. India's efforts to accept the structure prevailing over the international system and its attempt to get closer to countries owning advance technologies, especially the U.S., have been the main aspects of its foreign policy in the wake of the dismantling of the bipolar system. This approach has provided appropriate ground for the technology owning countries to look at India as a friendly country having coordination with the global system. This view also leveled the ground for them to have technological and economic interaction with India, the best example of which can be seen in the U.S. relations with India. Despite imposing heavy sanctions on India due to nuclear tests conducted by it, relations between the two countries have moved towards lifting the sanctions and expanding relations in all technological and technical areas including nuclear technologies and the defense sector.

Besides referring to India's foreign policy, which has created the climate for the development of technology in that country, attention should also be paid to the role of tech policies of that country in advancing the goal of development. As mentioned in the theoretical discussion, science diplomacy, as a strategy, is focused on the use of foreign policy as a tool to achieve development in the field of science and technology and also on the country's policies and programs for the development of technology as a tool to advance its macro goals including the foreign policy sector. The presence of institutions responsible for policy making and control over international cooperation has lead to transparency in India's interactions, rules and regulations, strategies and priorities for domestic institutions and international partners.

This paper has attempted to look at regional and trans-regional networking as a model for realizing the national and trans-national goals of countries. It has also reviewed science diplomacy as a mechanism to achieve objectives in the international fields. From this perspective, preparation of foreign policy guidelines is important in achieving the goals of development in global scenario by relying on domestic technological potentials. It is also important to pay attention to the role of other players including those in the government and NGOs at different levels as well as in the real and virtual environment.

International climate is full of opportunities that are potentially beneficial and can be translated into reality by using different methods and tools. Science diplomacy is one of these tools. In science diplomacy, effort is made to use the scientific and technological capability for exercising influence and enhancing the strategic power in allied countries. It is also used as a tool for bargaining and earning power and national wealth.

The need to have interaction and scientific and technological cooperation at a global level for uplifting the national potentials is the most important conclusion of this study. Just as transfer of knowledge and technology is useful for a country, it is also necessary to pay attention to scientific and technological interaction. It is in this way that cooperation can be achieved in international joint projects in a way to have a win-win situation for the two sides.

The experiences of the aforementioned countries show that observing strategies of science diplomacy of every country requires that the particular political conditions and the principle of its foreign policy be also taken into consideration.

The potentials of embassies can be used for promoting scientific cooperation. The foreign missions act as eyes and ears of countries in the target countries. These agencies are the most important tools in international relations. Most of the missions of the embassies are of political nature whereas the involvement of these embassies in economic areas and scientific developments is quite essential. The recent progress in the fields of IT and communication means that we should not restrict ourselves within a particular frame of time and place. Under the present conditions, the sole reliance on traditional diplomacy, which was once considered effective for securing national interests and realizing the objectives of foreign policy, would no longer be sufficient. This is because basically, traditional diplomacy does not pay serious attention to the emergence of virtual environment and new state and non-state players in the foreign policy arena. Therefore, application of science and diplomacy as an appropriate tool in a virtual environment together with traditional diplomacy can become an effective tool in realizing national interests and foreign policy objectives.

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