

Legal Aspects of Technology Transfer Through Foreign Investment in Oil and Gas Industry

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ARTICLE INFO

Keywords:

Foreign Investment
Technology Transfer
Oil and Gas Industry
Mutual Trade
Intellectual Property Rights

Received: April 01, 2019

Revised: April 28, 2019

Accepted: May 20, 2019

ABSTRACT

Foreign investment contracts are one of the major ways to absorb the technology in oil and gas industry. Studies show that governments and investing companies prefer to gain more profit and control economic resources and political influence by investing financially and technically in developing countries than to buy foreign technology and intellectual property rights directly. On the other hand, for developing countries, the sum of foreign capital and technology within a contract is a great opportunity for advancement provided that the technology transfer is chosen with due regard to the country's needs, requirements, and economic future. In this work, after examining the relationship between investment and technology transfer and its various methods in oil and gas industry, we will analyze the constraints on and the barriers to technology transfer through foreign investment in developing countries, including Iran, and provide a solution.

1. Introduction and Discussion Plan

Technology transfer involves the transfer of capital goods, such as the devices and components used in the manufacture of consumer and capital goods, the acquisition of licenses for intellectual property rights, and the transfer of technical knowledge. As the level of technology transfer awareness of the technology being transferred is greater than that of the recipient, naturally, further collaborations will be discussed in terms of expert training and technical service delivery. This difference in consciousness will be effective in the unfair formulation of the contract on the one hand and in its interpretation for the benefit of the government or the transferor company on the other hand. Even if the two

parties' level of knowledge of a particular information technology is equal, the value that each of them considers for the technology and their expectations will be different.

The present paper deals with the legal aspects of foreign investment and technology transfer in oil and gas industry in addition to addressing the concepts; the role of organizations, companies, and governments; laws and regulations; legal barriers and economic challenges; and legal and practical solution applicable to our country. The topic is examined in the following parts.

- The general;
- The role of international and transnational corporations in technology transfer;

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- Foreign investment practices associated with technology transfer;
- Mutual trade and technology transfer;
- Iranian law and foreign technology attraction;

2. The General

International technology transfer primarily happens through private markets but may also take place through governments, nongovernmental organizations, and research bodies such as universities (Fox, 2019, p. 4).

If we accept the equation that in the world of business, knowledge is equal to money (investment) and ignorance is equal to poverty, then we can easily analyze the relation of knowledge and capital with the types of contracts that are considered as foreign investment. In fact, except where foreigners invest indirectly through the trading of stocks and so on to gain a certain degree of benefit from the economic backbone of a country, there is a logical relationship between knowledge and capital. The existence of this connection allows for the intersection between technology transfer and investment.

Investigating this relationship requires explaining the concept of technology and its transfer and other related terms.

It should be noted that investing in oil is not only for profit but also for ensuring energy supply. Investing in oil industry is a type of investment in which the host country and the owner country have common interests regardless of profit (Shiravi, 2018, p. 79).

2.1. Concept of Technology Transfer

In simple terms, technology transfer is a process by which technology, expertise, technical knowledge, and/or advanced facilities are transferred from one person, institution, or organization to another person, institution, or organization. New technology is often complex for the recipient country, so it must take account of technology transfer results, training to manpower, assembling parts, setting up production units, and even in some cases changing management and export systems.

Technology transfer involves the diffusion and adoption of technology between the parties. It can be direct or indirect and always involves the transfer of technology from one institution (which has developed the technology) to another (which adopts, adapts, and uses it) (Fox, 2019, p. 4).

The technology and technical knowledge transferred must have four characteristics: usefulness, novelty, confidentiality, and value (Haji Azizi, Bijan (1992), p.

24). What is considered in this paper is the transfer of technology internationally and its association with some forms of foreign investment.

Of course, we have to differentiate between technology transfer and technical knowledge transfer. As the transfer of technical knowledge is an essential part of technology exchange, not all knowledge is necessarily implemented. Technology transfer occurs when devices, materials, or methods are used in practice to complete a project (Doscher, 1974) and do not preclude intellectual property rights.

2.2. Intellectual Property Rights and Technology Transfer

One of the issues in technology transfer is the intellectual property rights arising from patents, technical knowledge, and capital goods. An examination of the role of trade-related aspects of intellectual property rights (TRIPS) regulations in accelerating or slowing down technology transfer shows that theories in this area differ depending on whether the theorist belongs to the technology exporting country or to the technology importing one. It is obvious that the companies owning technology value economic intellectual property rights and insist on it in their respective contracts as one of the important clauses of the contract.

While technology transfer typically occurs “formally” via foreign direct investment (FDI) or licensing agreements, it may also happen “informally” through processes such copying or reverse engineering (Correa, 2007).

The complexity and the existence of different aspects of technology transfer preclude the mere observance or disregard of intellectual property rights to the degree which the recipient of the technology succeeds.

It should be noted that the era of violations of the intellectual property rights of others has passed and, at least, the reflection of this violation reflects the disregard of others by the violating state. On the other hand, investing in or contracting for technology transfer should not become one-sided for the benefits of the investor because one of the important aspects of technology transfer is the transfer of intellectual property rights arising from the invention, design, or new technology to the transferee (Maskus, 1998. pp 109–161). Thus, the transferee should have the ability to transfer technology or its product to others or fully own the technology after a while.



Article 7 of the TRIPS agreement indicates that this document has chosen a middle ground in protecting the interests of the holders of the intellectual property rights and the technology recipients: The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology to the mutual advantage of the producers and users of technological knowledge and should be, in a manner, conducive to social and economic welfare and to a balance of rights and obligations.

2.3. General Barriers to and Problems of Technology Transfer in Oil and Gas Industry

Despite of the dependence of oil-producing countries on oil production, there is a big gap between them and oil corporations from a revenue point of view. This is mainly because of oil technology that has not been developed in oil-producing countries. In the world, the business of big oil corporations is based on engineering capability and strong technical infrastructure (Asghari et al., 2013, p. 264).

A look at domestic regulations, especially the constitution of the Islamic Republic of Iran, indicates that there are relatively major obstacles to foreign investment and technology absorption through the oil and gas industry. Barriers to technology transfer in the general sense mean any law, custom, or culture that poses an obstacle or challenge to the parties and to a private law relationship and makes it difficult to comply with the terms of its “agreement”.

Another set of obstacles originates from how the government views its position as “capitalist” because it is possible that the government, assuming that it is superior to a foreign private individual, does not in practice oblige itself to strictly observe the provisions of the contract, the international law governing intellectual property rights, and so on. However, immunity is not conceivable when the government engages in “corporate practices”, both domestically and internationally.

Therefore, the entrance of foreign investors into developing countries often faces two major problems which will briefly be addressed herein using the technology transfer approach in oil and gas industry.

The laws and regulations of the host government are inconsistent with the principle of foreign investment. This in itself may be one of the two forms of constitutional opposition to aliens entering the economic structure or in the form of ordinary law. In some cases, either the absence of legal certainty in the prescription of

foreign investment or the existence of cumbersome laws and regulations imposes unnecessary restrictions on foreign investors, which can serve as a barrier to or restriction on foreign investment. In such a case, often one of the following two solutions is first chosen:

1. The purchase of foreign technology necessitates the high price and acceptance of the conditions imposed by the foreign company (which is not often the most well-known company in the field) and the abandonment of unnecessary technologies through foreign product import preference. “Necessity” is recognized by the government and parliament of developing countries, which often includes the adoption of oil and gas extraction technology, the manufacture of military equipment, and consumer goods. It is clear that in such a case the question of technology development and bargaining power is rarely raised when concluding technology contracts. This situation, by itself, leads the government to conclude contracts secretly or vaguely and to avoid reflecting their true nature in public opinion.
2. Trying to interpret the constitution extensively, abolish ordinary law, revoke circulars, and grant foreign investors amenities and concessions. In practice, this approach has been responsive in most cases and attracts foreign capital provided that the investment and technology transfer are economical. The only major disadvantage is when the constitution is obstructed; in such a case, the foreign investors often act cautiously and in their investment contracts incorporate excessive and unfair conditions only on the pretext of constitutional restrictions and the full guarantee of their interests.

Particularly in the case of transnational corporations, the ignorance of the capacities, requirements, and internal needs of the technology dimensions makes developing countries virtually a suitable environment for the maximum economic benefit of foreign companies. Cheap labor and natural resources, a non-competing market, lack of consumer rights, and ignorance of superior quality are important factors that generate profits for transnational companies and only increase the consumption on the domestic market.

According to the current regulations of Iran, there is a possibility of private investment, both domestic and foreign, in the downstream sector of oil and gas industry. However, in the case of investing in upstream activities,

Iranian laws and regulations do not have the necessary transparency but mostly imply a ban, especially when it comes to foreign investment (Shiravi, 2018, p. 321).

3. Role of International and Transnational Corporations in Technology Transfer

A review of the international actions of the United Nations and other relevant organizations (in particular, UNIDO and UNCTAD) points to the efforts supporting developing countries in attracting foreign technology. These measures are often limited to the formulation of regulations, codes of conduct, and action plans and do not have much guarantee against the governments with technology savvy.

In technology transfer programs, the international community initially focused exclusively on the acquisition of hardware and machinery, dispatching tangible items to least-developed countries. Consequently, technology transfer from developed to least-developed countries rarely included the development of human resources or domestic capacity building (Correa, 2007, p. 23).

3.1. Actions of the United Nations and Related Organizations in the Field of Technology Transfer

Because of the importance of technology transfer to developing countries, UN General Assembly Resolution 3202 and its subsequent declaration establishing a new international economic order (United Nations General Assembly Resolution 3202) require respect for this principle. "Developing countries should have access to new science and technology, promote technology transfer, and produce indigenous technology in conditions that benefit developing countries." (UNCTAD 1996. Vol. I, p. 50). Also, Resolution 3281 of the General Assembly and the Charter of the Rights and Economic Obligations of Governments (Resolution 3281 (XXIX), 1974) provide in Paragraph 4 of Article 13: All states should cooperate in research with a view to evolving further internationally accepted guidelines or regulations for the transfer of technology, which fully takes the interest of developing countries into account.

3.2. Role of Transnational Corporations in Technology Transfer

The long-term policy of transnational corporations is to set up a branch in the country of origin and ultimately use technology to "outsource" and deprive developing countries of all proprietary rights. Unfortunately, the

efforts of international organizations, most importantly, UNCTAD, to eliminate or at least modify this cycle have not yielded a result that can be presented in figures so far (See: UNCTAD 2001). From what has been said, it can be inferred how the constitutional backwardness of a country from the unimaginable technical and commercial developments of the world may pave the way for the abuse of economic superpowers.

The benefits of this approach include the technology being updated and updated by the parent company, and the disadvantages are the economic dependence, the production and promotion of trademarks and merchandise owned by a foreign company domestically, and the lack of actual transfer of technical knowledge in most cases.

The enormous financial and managerial power of transnational corporations, including the seven sisters in oil and gas industry, has made them unattainable economic superpowers. These companies are the leading international oil and gas technology transfer agencies, providing services; investing in local products, staff training, and local expertise; offering and providing technical services to product providers; and introducing scientific principles in related science research as development and engineering do (Chen, 1994, pp. 25).

4. Foreign Investment Methods Associated With Technology Transfer

As noted, except in the case of foreign indirect investment, in almost all cases, foreign direct investment is directly associated with the temporary or permanent transfer of technology to the host country. This fact itself implies a variety of investment contracts combined with technology transfer or stand-alone technology transfer contracts. Technology transfer practices in the form of foreign investment, in whatever form they are, follow two general trends. First, in most cases, the goal of technology transfer is to protect the interests of the investor rather than to serve the host government. Second, especially if the host government representatives are unaware of the contract, the investing companies use technology transfer as a "means" for their own benefit, not a "matter" for the development of the host country; also, they may, in the course of their contract, provide for the departure of machinery and technical knowledge from the host country upon completion of the project.

4.1. Foreign Direct Investment

The oldest form of technology transfer is foreign direct investment, through which the investor has



complete ownership and control of all the facilities and subsidiaries it creates. With well-crafted national policies and institutional arrangements FDI helps to build technological capabilities (Manyuchi, 2016, p. 78).

Therefore, foreign direct investment is a form of investment that operates internally, through which all transfers, and in general, all operations of the parent company and its subsidiaries are carried out (Ameri, 2001, p. 55). This method is the most common way of investing and transferring technology to transnational companies (Haug, 1992, p. 214). In direct investment, the investor is the decision maker himself, the purchaser of the factors of production, the worker recruiter, and the decision-maker of the type of commodity, the market for sales, and the price and the activity manager (Bakhtiari, 2001, p. 14). The advantages of direct investment for the investor include supporting the competitive market through the production of goods in different countries; the creation and access to a new market; the avoidance of customs duties and double taxation resulting from the export of goods to the host country, due to the production of goods in that country; access to the inexpensive labor force; use of abundant and available natural resources, which eliminates the need for material import from abroad; and enjoying the legal and economic protection of the host country (UNCTC, 1986).

It is generally assumed that foreign investors produce at a higher level of technology than local firms and therefore can stimulate such effects through technology transfer from more advanced countries to developing countries (Osano, 2016, p. 14).

Unlike direct investment, in indirect foreign investment, the investor does not seek to form, control, or own a particular company or branch and does not directly intervene in the management and decision making of a unit. This type of investment is performed through the purchase of securities (stocks and bonds) of existing companies (Bakhtiari, 2001, p. 15).

4.2. Establishing a Joint Venture Capital Union

Although the term “joint venture” is not quite clear in the concept of “joint venture”, it refers to the participation of an investor in investment projects. The joint venture (J.V.) indicates that private or public law entities may participate in a project on an equal footing if they wish so (Khazaei & Badri Ahari, 1990, p. 59).

The creation of a transnational joint venture union enables its link to the discussion of foreign investment and technology transfer in oil and gas industry. Unions are divided into two major types, namely equity joint

venture and contractual joint venture. Due to the poor or technically weak (host) side of the joint venture, the foreign ally actually brings its technology and know-how to the company, thereby enabling foreign technology to be acquired and absorbed.

Despite legal issues concerning the nature, form, management, capital, structure, inspection, obligations, and nationality of trade, industrial, and international investment unions, these institutions are increasingly used, and even reports indicate the willingness of transnational corporations to form a joint venture in developing countries (Hayden, 1976, p. 26).

The external party’s commitment to technical investment (not in the form of money); technical training of the host nation’s personnel; direct intervention; and practical involvement of host managers, experts, and specialists throughout the process of pilot studies, design, production and management, export, and sales of the joint venture is among the factors that allow for maximum economic return and technology transfer to the host country.

4.3. Technical and Equipment Assistance Agreement

The investment of foreign companies in the industries of developing countries sometimes does not lie within the framework of conventional titles available. For example, the technical, equipment, and human assistance of a company (investor) in completing or upgrading the country’s oil and gas industry (host) may be in the form of non-cash investment with a percentage of the share of the profit. Such contracts are similar to foreign direct investment in a way they are associated with foreign investment in an important part of industry or domestic services. One of the differences between foreign direct investment and technical–equipment assistance is that the external party does not have a stake in managing the host company. In addition, the trademark of the foreign affiliate company shall be incorporated only upon the agreement of the parties and only in parts that the foreign affiliate company has a role of more than 60% in the production or supply. However, in foreign direct investment, the product is managed under the name of the foreign parent company.

4.4. Build, Operation, and Transfer Contracts (BOT)

One of the contracts awarded for infrastructure and macro-industrial and economic projects is the construction, operation, and transfer contract. In a

standard BOT contract, a project is licensed by the government to be built by a private company, then put into operation by the company for a period of time, and finally transferred to the contracting government after the contract expires (Shiravi, 2001, p. 32).

In almost all states, contracts with foreign companies for construction and operation are permitted only on condition that there is internal technical disability or weakness. According to the Law on the Maximum Use of Technical and Industrial Production and Executive Capacity in the Implementation of Projects and Facilitation for Export Services approved by the Islamic Consultative Assembly on 1997/03/12, producers and companies with Iranian nationality have priority in domestic industrial and production plans. In cases where the private party to the contract is one or a number of foreign or transnational companies, BOT may be regarded as one of the most important sources of help to transfer technology into the country. For this reason, under the BOT contract, the private party to the contract is required to bring equipment, skills, and technical knowledge to the country. As with other investment contracts that are associated with some forms of technology transfer, some internal issues can prevent the fulfillment of obligations arising from BOT contracts or dramatically increase the cost of such contracts for the host country. To conclude the BOT contract, first, the barriers to private sector entry into these activities must be remedied. Second, policies should be made to enable the private company to successfully implement and operate the project in the appropriate timeframe (Shiravi, 2001, p. 42). At the stage of the implementation of the contract, there are laws that prohibit the exchange of foreign currency under any circumstances; also, there is possibility of seizing, confiscating, and possessing foreign capital; moreover, there is a lack of a transparent system for resolving disputes over foreign investment and intellectual property rights. The implementation of the BOT contract is one of these problems. The unconscious, alienated, and pessimistic cultural space are also added to these problems.

5. Mutual Trade and Technology Transfer

In the simplest form, mutual trade is the exchange of one commodity with the other, and in the most complex form, it is considered to be foreign investment (Baker & Cunningham, 1983). Since this type of business involves technology transfer, it is necessary to study it.

According to Article 1 of the By-Laws of Mutual Transactions, Subject to Paragraph I of Note 29 of the

First Economic, Social, and Cultural Development Plan of the Islamic Republic of Iran (Decree No. 82 / T 13 K dated May 01, 1990 of Council of Ministers), the mutual transaction contract is defined as a contract concluded between two natural or legal persons, in which one “supplier” commits to the other party’s exporter’s obligation to produce and deliver a specified quantity of specified goods or goods for export to the country during the time of the case. The agreement undertakes to provide the party with the materials, tools, machinery, parts, and services required to fulfill its obligation. However, what counts for cross-commerce and what is relevant to our discussion are its achievement in terms of technology transfer, especially in the oil and gas industry. Mutual trade can involve the process of transferring the technology necessary to produce a product or transferring the knowledge and skills required for a particular industrial product (UNCITRAL Legal Guide (1992), p. 56). Various types of cross-trade methods are sometimes so similar that it is difficult to distinguish between them only by examining the detailed terms of the contract. At the same time, all of these practices are in some way associated with the attraction of technology from the developing contractual relationship.

Mutual contracts can transfer technology in three dimensions. First, the investment that is being made to execute the contract or as a condition of doing so in the country seeking development. For example, in a reciprocal contract, a foreign company provides technology transfer by entering and deploying machinery, technology, and financial assistance to the host country.

Second, technology transfer through the import of goods using modern or nonexistent technology in the host country. For example, in the indirect offset contract, advanced equipment is imported from the exporting company to the host country for the reciprocal obligations, licenses, and skills required to use the software.

Third, the reciprocal commitment to supplying goods from the investing country sometimes provides the field of technology transfer, required license, and patent to the project site. For example, a direct offset contract may require the outside party to invest in the production of parts of the project with domestic producers and to coproduce those parts domestically (Shiravi, op. cit, p. 25).

The condition required for achieving new technology in any of the above ways, in addition to the physical entry of technology into the country, is to obtain the necessary



licenses to apply the achievements of others. There are various types of documentation to protect intellectual property rights that technology exporting countries never adopt, either contractually or non-contractually. For example, the European Patent Convention and Convention Establishing the World Intellectual Property Organization (1967 and 1979) emphasize compliance with these rights. It is natural that any licensing must be in the national laws of the investing country and in accordance with the internal regulations of the host country. Practically, in a cross-patent contract, the right to trademark and other industrial rights are envisaged and based on the agreement on technology transfer.

6. Iranian Law and Foreign Technology Attraction

The attraction of foreign technology in our country, for various reasons, faces major challenges. In the case of foreign technology, it must be acknowledged that the lack or the weakness of a dynamic system for development evolves in line with the needs of the time and with regard to specific aspects of foreign technology. In this article, after briefly reviewing the laws, regulations, and challenges of Iranian law in the field of technology absorption, we conclude that tangible progress in this area will require fundamental changes in the legal structure, that is, the elimination of redundant regulations and adherence to useful or necessary treaties. The tendency for private litigation and attention to international jurisprudence (in the judiciary) and the reform of the technology management system with a sustainable perspective and considering future needs are required.

6.1. Iranian Laws and Regulations Regarding Technology Transfer

Most of Iran's problems with technology transfer are related to laws and regulations. Existing or general laws have highlighted the importance of outsourcing without any restriction such as development program rules; moreover, a real or apparent obstacle to technology transfer such as some constitutional principles and adding to the investment formalities and the silence about technology absorption as a result of foreign capital inflows have led to a number of problems.

The statute of the Iranian National Oil Company approved in 2016, like other related acts, has not explicitly discussed technology transfer and only in general, in two articles, has indirectly referred to the subject. Article 6 deals with the duties and authorities of the oil company; in Paragraph 5, any patent and

exploitation of it and industrial designs, technical knowledge, registration, and other measures in the field of oil industry are some of the duties of Iranian National Oil Company. Clause 6 also considers the assistance and support of Iranian knowledge-based companies as one of the duties of this company.

Paragraphs 21 and 22 of Article 52 also indirectly support the promotion of the company's activity index with international standards and the use of knowledge-based companies, which results in technology transfer.

A review of the General Policies of the Fourth Development Plan of the Islamic Republic of Iran indicates the importance of technology and its attraction. Some of these policies include:

- Acquisition of technology, in particular, new technologies including micro-technologies, biological, information and communication, environmental, aerospace, and nuclear technologies (Paragraph 9).
- Taking advantage of political relations with countries to institutionalize economic relations, increase resource absorption and foreign investment and advanced technology, expand Iran's export markets, and increase Iran's share of world trade and accelerated economic growth in the landscape (Paragraph 29).
- Striving for a diversified economy based on the sources of knowledge, human capital, and modern technology (Article 36).

Accordingly, Article 48 of the Fourth Development Plan Act, dated 2004/09/01, provides that the government, during the fourth development plan, is obliged to promote the continuity between the educational levels and the development of technology, entrepreneurship, and wealth production in the country by

- establishing and providing the necessary support for the creation of non-governmental technology development companies and engineering service companies with the mission of producing, transferring, and absorbing technology.
- developing standards and providing the necessary support for encouraging external parties in international contracts and urging foreign investment to transfer part of their research and development (R&D) activities to the country and to perform R&D activities with the participation of domestic companies.

Article 14 of the Fourth Development Plan Act stipulates that

- the government shall provide for the reciprocal plans of the entities subject to Article 160 of this Act, as well as non-state public institutions and banks, and submit them to the Islamic Consultative Assembly for annual budget bills.
- the government shall enhance oil production capacity and maintain and improve Iran's OPEC production share; encourage and support the attraction of foreign capital and resources in the upstream oil and gas activities, particularly in joint fields and exploration projects; ensure that the recovery coefficient of the country's oil and gas reserves is increasing; allow for the transfer and application of new technologies in the development and exploitation of oil and gas fields and for the possibility of using various international contracting methods; allow the National Iranian Oil Company to increase the additional production ceiling provided in Paragraph (c) of this Article concerning the conclusion of field exploration and development contracts; proceed with the financing of any field by providing funding for external parties or internal companies with the required qualifications.

Paragraph H of Article 14 of the above law states that in order to identify and explore more oil and gas resources throughout the country and to transfer and apply new technologies in exploration operations in all areas of the country (except for Khuzestan, Bushehr, and Kohkiluyeh and Boyer Ahmad provinces) where exploration activities related to contractor risk leading to the discovery of a commercially viable field are conducted, the government is permitted to select the action and the contractor in accordance with the legal requirements for the conclusion of mutual reciprocal exploration and extraction contracts. Exploration costs (direct and indirect) will be paid in the form of the said contract together with the development costs from the sale of products manufactured in the same field. The licenses issued are limited in time, are designated by the Ministry of Petroleum in each case, and can be renewed once.

Examining the abovementioned provisions does not imply the existence of a comprehensive and future-oriented program to attract foreign technology. The government and parliament should be thinking of providing a comprehensive system for clarifying the

current and future state of technology, technical knowledge, and research, rather than laying down detailed rules for foreign capital and technology contracts.

6.2. Challenges of Iran's Rights in Technology Transfer

Unlike foreign direct investment, which exposes one's own capital to all the risks that the business world faces, the tangible and objective aspects of indirect investment and other practices that bring about the transfer of technologies, sciences, and techniques have led to their protection under customary international law and international treaties. Today, over 80 international instruments, and even more bilateral treaties, mandate technology transfer (Fox, 2019, p. 4). Investor governments provide maximum protection to their subsidiary companies through their civil liability plan or through applying the principles of diplomatic relations as part of their duties (Sornarajah, 2004, p. 8); in such a structure, the sudden reliance of capitalist governments on domestic restrictive laws or their own judicial immunity is ineffective.

Realistically considering the issue of technology transfer, all of our rights problems with foreign investment and technology transfer are not due to a lack of regulation and legal vacuums. As a major impediment, the existence of extra-rigid laws, whether in the form of explicit and unexplainable constitutional principles or in terms of regulations and approvals that in some cases have a negative or disturbing function beyond the law, must also be addressed and added to the problems. Therefore, Iran's challenges to technology transfer through the attraction of foreign capital can be summarized as follows.

a. Insisting on Inefficient Domestic Legal Positions

Although decades have passed, some parts of the business practices and some laws have proven to be inadequate, yet insistence on them prevents the absorption of foreign technology and capitals. One of the problems is the emphasis on the presence of the government in the country's macroeconomic sector with a public face and not as a private business entity.

The inefficiency of legal system typically appears in upstream industries. The Foreign Investment Encouragement and Protection Act does not appear to be able to enact specific laws prohibiting investment in upstream operations and upstream industries that are constitutional. So far, no foreign investor has applied for,



or succeeded in obtaining, a license from the Investment and Economic and Technical Assistance Organization of Iran to invest in the upstream sector, which confirms that foreign investment in the upstream sector is not legally possible (Shiravi, 2017, p. 318).

b. Weak Legal Infrastructure and Inability to Adapt to New Developments

Protecting domestic producers and consumers from the violations of alien or indifferent intellectual property rights is one of the underlying problems in Iran's legal system. Countries possessing advanced technology and knowledge do not pay any attention to the legal structure of the related countries in the treaties and regulations adopted at a national and international level to protect intellectual property rights. Even the acts of the UN General Assembly presuppose the protection of these rights by default.

7. Conclusions and Practical Solutions

When choosing a foreign technology, one must keep in mind that the needs of different countries differ, and by the careful study of the economic conditions of our country, the appropriate method should be chosen according to the type of industry and its efficiency.

Before praising one method and denouncing other practices, one must assess the existing legal barriers and the status of the relevant industry in the country's economic system. Otherwise, the method chosen will not lead to technology transfer and will result in permanent dependence on foreign companies for the management of imported technology, marketing, and product sales. The topics discussed in this article provide the following facts:

First, countries are technologically hierarchical and may therefore be technologically superior to underdeveloped, but relatively advanced countries. This often results in the transfer of the most advanced technologies from country a to country b and the transfer of the second-hand technology from country b to country c.

Second, there are two important exceptions to this principle: (1) micro-technologies that are transferred from one private industrial company to another in a developing country such as food production technology; (2) in the case of strategic technologies, the transfer of technology is often infrequent, and in most cases, only the product is delivered under a contract prohibiting imitation or technology transfer. For example, ballistic missile technology is rarely traded in military-pole relations, and the countries with the technology savvy have relied on their internal capability and the

exploration of the content of the missile and military industrial espionage in the first country to produce it. They have achieved this technology.

Third, technology owners do not reasonably seek to trade with their competitors in the domestic (international technology transfer) and international markets (assuming that the technology has widespread and expandable user experience). For this reason, while reluctant to transfer technology, they often pass on their technical knowledge and tools to others who have reached the stage of technical exhaustion or are not economically viable. Assuming equal technology transfer to industrialized or partially developed countries, the transferee adjusts the contract such that its interests are maximized.

Fourth, bargaining over technology transfer contracts can affect all the stages, conditions, facilities, services, and the effects of the transfer. Only those developing governments which benefit from strong lawyers, economists, and business administration are successful in bargaining.

Fifth, to achieve higher performance, some countries seek to evade contractual obligations after technology transfer, including failing to comply with contractual conditions, patent infringement, licenses, or product and trademark simulation. Although in the short term, they consider the concept of economic growth, in the long run, the developing countries are forced to sign technology contracts because of their technical dependency, which causes them high costs. Therefore, the effect of cancellation or failure to comply with previous commitments is nothing but the surrender of some type of accession contract.

Sixth, the condition for the success of countries importing technology and scientific research is to enhance their scientific and technical capability and to not rely on the knowledge and technical strength of others in all aspects of industry. Today, economic dependency has proven to be the worst type of dependency and the best conduit for the abuse of industrial power.

Finally, it must be acknowledged that the introduction of foreign technology into the country does not necessarily indicate a "legal transfer". Foreign companies may import technology to secure their capital and then sell it to the host country at a high cost, reducing the profitability and introducing new technologies. What is important for this technology in the future of the host is the effort to achieve self-sufficiency and to promote

internal knowledge, otherwise the technical dependence on the general concept must always be tolerated.

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