

Joint development agreement scheme for management of world's largest shared oil & gas reservoir

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Abstract: South Pars/North Field has been the largest shared oil and gas reservoir and offshore field ever discovered. This super giant reservoir is shared between Iran and Qatar and unreasonable over drilling and dissipation close to the border of both countries have rapidly removed enormous amount of gas out of the reservoir. Undoubtedly, this non-scheduled exploitation has caused migration of fluids to the other side, and reduced the reservoir pressure. In case of sudden ruin of reservoir or any prevailing loss in any side of the border, the parties is likely to come across a complicated legal conflict in their relationship. In the same situation the States in different regions have done precautionary measures to resolve the problem. They have entered in to agreements in various structures affected by political, regional and historical conditions of the parties. In the present condition, the joint development agreement along with the joint authority is recognized to be the best solution. If Iran and Qatar come to an agreement for joint development of South Pars/North Field in their marine delimited border, the parties will benefit from surveillance management of the reserve, and this would lead to an outstanding model for other shared oil and gas resources and it reinforces the formation of customary international law as one of the most impressive State practice.

Key words: Shared resources; Oil and gas; Cooperation; Joint development; Joint authority; South Pars/North Field

1. Introduction

The South Pars/North Field in the Persian Gulf is the largest offshore petroleum reservoir in the world. South Pars is the Iranian side of the reservoir in Iran territory (3700 km²) and North Field is located in Qatar Territory (600 km²). This reservoir is a cross border deposit and these crucial characteristics have associated it with international law. The subject of shared oil and gas resources involves international rules and principles, however no binding rules, regulations, customary international law and relevant international law conventions has been specified for the issue (Fox et al., 1989; GAO, 1998; Ong, 1999; Alberto, 1986). Exploring over the international law enables us to determine precisely the rights and responsibilities of states in the development of shared petroleum deposits. The international law only proposes recommendations and advises for the States cooperation, information exchanges, prior consultation and the conservation and harmonious exploitation of shared natural resources (Kashani, 2010; Cameron, 2006; Bastida et al., 2007) .

This paper looked through a single case in the world energy basin in the Middle East which is impressive and significant. The previous researches have mostly reviewed international law position and rules and states practices relating to shared natural

resources. The predominant achievements in the prior works claim that Joint development agreement and international unitization managed by joint authority applied by some states are the best agreement and method of cooperation (Lagoni, 1979; Miyoshi, 1999; Miyoshi, 1988). Both solutions are meant to help coastal states to proceed to the exploitation of maritime resources that either straddle their maritime boundary, or are subject to opposing claims when there is no boundary yet (Onorato et al., 1999). Joint development of trans boundary resources in maritime areas constitutes one of the recent major trends of international practice in the law of the sea (Vasco, 2014).

Qatar and Iran have respectively commenced the development of North Field/South Pars gas field unilaterally, uncooperatively and competitively regardless of the two significant Articles in their delimitation agreement 1969. In a soft suggestive language this Article (2) is affirmed that the parties have to cooperate in the exploitation of potential existence of any shared natural resource over the mutual borders. This agreement was signed while neither of the parties has any knowledge of the existence of this giant gas reserve exactly over their marine border. Such practices of both countries would cause adverse effects on the behavior of the united single reservoir stretched widely in both sides of the two states' sovereign territories, and

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jeopardize mutual interests and rights of the parties involved (Kashani, 2009). The sudden drop of the pressure of the reservoir on either Iranian or Qatari side prepares the basis of a potential complicated international dispute between two States. Specifically the South Pars is likely to face subsidence due to high rate of extraction and wide area stretch of the South Pars (Taherynia, 2013).

This article attempts step by step to present a scheme for both States by analyzing international law sources especially the other States practices in the same situation. The most tangible method would be to focus on the States' practices in cooperation with the neighboring States to develop their shared oil and gas deposit (Onorato, 1968). Data gathering of the paper were library-based consisting of books, articles, journals, the Internet and authentic websites, documents and deeds, international contracts and agreements; moreover, some related organizations and companies were visited especially those in Malaysia and Iran to acquire related information on relevant contracts and agreements.

In this paper, joint development agreement (JDA) along with joint authority (JA) scheme as the most efficient and comprehensive agreement inferred from previous states' practices is proposed for the development of North Field/South Pars. The method of JDA managing by JA is recognized to be the most optimal efficient, feasible, sophisticated and comprehensive, since the process of development is being managed by "Joint Authority". This Administrative body is an independent international legal personality equipped well with adequate legal administrative authorities and this does not tackle both states sovereign rights (Ong, 1999). In other words, this commission of wide-ranging power and decision-making mandates supervise over all aspects of the joint development zone (JDZ) (Ong, 1999).

The methodology of the paper in the first section examined the international law and existing rules. In the latter sections, the States' practices concerning shared petroleum deposits are reviewed, and the north Field/South Pars development is overviewed and finally joint development scheme.

2. States' practices and international law

The recognition of rights and obligation of the interaction of states relating to shared petroleum resources involves review of international law sources. The subjects of ownership of states over petroleum resources and oil and gas law, general conventions and particular agreements between the states, customary international law, general principles, viewpoints of scholars, judicial decisions and precedent of dispute settlement authorities and United Nations' actions relevant to shared natural resources are the primary subject matters are discussed in this section.

2.1. International law sources and shared oil and gas deposits

Shared oil and gas resources" is defined as underground hydrocarbon reserves in one basin or reservoirs, and for obtaining features of a shared resource, they must have two fundamental attributes; firstly, such resources must straddle the boundary of two or more states, secondly; they must contain a unit petroleum reservoir.

Article 123, 77 (2), 74 (3), 83 (3) and 142(2) United Nations Convention on the Law of the Sea 1982 and the United Nations' General Assembly Resolutions 3129 (Resolution on cooperation in the field of the environment concerning natural resources shared by two or more States) & 3281(Resolution adopting the Charter of Economic Rights and Duties of States) are all the most significant international law in relation to shared oil and gas deposits and such rules for coastal states are permissive, non-binding (GAO, 1998; Vasco, 2014). Additionally, based on such rules, the international law only entails an obligation to negotiate, consult and cooperate in development of shared natural resources (Miyoshi, 1999).

The other international law sources are International law principles, States' practice and international judicial decisions. These sources would serve as discretionary actions that can be contributive in reviewing the behavior of parties over North Field/South Pars. For States' practice, numerous bilateral agreements can be found in many different regions of the world specifically the North Sea, the Middle East and South-east Asian regions, like joint development agreements, unitization along with delimitation agreements which are approved internationally all around the world (Vasco, 2014). The relevant International law principles are "Good neighborliness" and "sic utere tuo ut alienum non laedas", which are the state responsibility for actions causing trans boundary damage, the prohibition of the abuse by a state of the rights enjoyed by it by virtue of the international law, the principles of respect for each State's sovereignty and territorial integrity, permanent sovereignty over natural resources ((Philippe, et al., 2012; Article 2 and 74 of UN Charter; UNGA Res. 1803). Judicial decisions in the ICJ, conciliation commission and courts of arbitration cases relevant to shared natural resources and eventually the works of pioneer writers such as, David M. Ong, Masahiro Miyoshi, Onarato and Rainer Lagoni are the other source of international law. All the above-mentioned sources of law are references to encourage Iran and Qatar for the commencement of bilateral interactions and cooperation. Cooperative approach in petroleum exploitation and joint development is the best resort for optimal surveillance management of the shared hydrocarbon deposit.

Such international law sources are not binding. They only recommend the necessity of cooperation in good faith between states. In the lack of the binding international rule, the best procedure is to focus on states' practices, particularly joint

development agreement with a well-appointed joint authority (Ong, 1999).

2.2. States' practices

Since the ratification of the United Nations (UN) Charter (1945) much more emphasis on the territorial integrity principle and non-interference in the internal affairs has been given. The Law of the Sea Convention 1982 that entered into force on November 1994 leads higher concentration over shared resources (Ong, 1999). Moreover, The UN ratified resolutions related to the shared natural resources and their recommendations for cooperative exploitation of these resources, The Geneva Conference on the Law of the Sea 1958, the UN Charter of Economic Rights and Duties of States (UN Resolution 3281 on 12 December 1974) and the principle of good neighborliness of states are principles that urged the States to set out a cooperation provision in case of the existence of any natural resources that straddles their boundaries in their delimitation agreements. Such a provision in the delimitation agreements have been reached by most of the States. By this provision the states are obliged to negotiate for an agreement that would serve the best development of shared natural resources. Many continental shelf boundary delimitation agreements have contained such provision and clause (Lagoni, 1979).

Iran and Qatar signed their delimitation agreement (Agreement concerning the boundary line dividing the continental shelf between Iran and Qatar, 20 September 1969). Article 2 of this agreement recommends both states to reach an agreement as to the manner in which the operations on both sides of the boundary line could be coordinated or unitized. The mere success that the parties have achieved up to now is that they have been able to arrange for regular meetings every year for relevant general data exchange regarding the process of development in both sides (Kashfi, 2011).

There are two agreements frameworks; "Joint Development Agreement" and "Unitization Agreement" (Gault, 2009; Weaver, et al, 2005). The conception of joint development agreement has been defined by various scholars in different senses (Lagoni, Rainer, 1988). The research team of the British Institute of International and Comparative Law defines joint development as an agreement between two states to develop, so as to share jointly in agreed proportions by the interstate cooperation and national measures, the offshore oil and gas in a designated zone of the seabed and subsoil of the continental shelf to which either one, or both of the participating states are entitled in the international law (Fox, et al., 1989).

Increasing numbers of joint development agreements are perceived during the last decades of 20th century and also last decade. The states have created various styles and models of joint development agreement functioning for that specific relevant geographical, political, historic and

economic factors and status (AFM Maniruzzaman, 2004). For the formation of customary international law as binding the countries worldwide, two factors have played an essential role; first, there must be widespread and consistent state practice and secondly, a belief in legal obligation must be universally set (Mohamad, 2013). The first factor is the consistent states practice as a widespread or universal act (*jus cogens*) and second is a belief that such practice is required, prohibited or allowed as law (*opinio juris*). Focusing upon the second factor, we can recognize that the variation of JDA in form, structure and the way they are executed are not adequately the same to be considered as an authentic model and reference. As this obligation involves positive obligation (usually oblige action or to apply the rule) than negative obligation (usually oblige inaction or not to apply a rule), thus this positive obligation require higher degree of consistency. However the final assessment and interpretation of the issue whether has passed the elements of customary international law or not, requires to be offered in International Court of Justice (ICJ) and judgment of the Court on this topic.

Joint development agreements of shared oil and gas resources are executed in various models (Ong, 1999) by the states involved. The three recognized models are as follows;

a) Single State Model: The simplest choice in operational stage requiring the lowest amount of struggles and challenges of development for the interested states in which one state undertakes the development management of the reserve situated in a disputed zone on behalf of the other state. Examples are the Saudi Arabia and Bahrain Agreement 1958 (UN Doc. ST/LEG/SER.B/16, UN Sales, No. E/F.74.V2 (1974), Australia and Indonesia (1989) and Norway and England Agreement (2005).

New tendency towards such model was enhancement to the growth of good-neighborly relations, economical consideration. As an example of recent agreement to avoid such risk of state autonomy, is the Norway and England agreement 2005, in which both countries that have 35 years of experience in cooperation of petroleum exploitation, agreed that in case of existence of a shared field or reservoir between them the state in which most extent of the reserve is located, would develop the field unilaterally and the agreed revenue will be shared afterwards (Cameron, 2006).

b) Compulsory Joint Venture System Model is an agreement in which states and any other relevant oil company from each state or those granted a concession are forced to establish a joint venture for development of every aspect of the project in the area. (Fox, et al., 1989) Examples of such model are Japan and South Korea Agreement (1974) and the agreement between France and Spain (1974) in the Bay of Biscay that was adopted a day before Japan and South Korea Agreement. The agreed zone is divided between France and Spain with separate jurisdiction and sovereign rights. The concessionaries of either interested state applying to

develop the zone are urged to enter into joint venture with the nominee of the other party on equal bases. Financial affairs and costs are in proportion to their shares (1988) (Miyoshi, 1999).

c) Joint Authority Model is the third and the most efficient and complex option requiring highest level of cooperation in an institute, managing board, administrative council or commission consisted of the influential authorities in each position equally from the interested states. International joint authority under joint development agreement has gained legal personality and adequate decision-making powers to manage development zone. Comparing to the above-mentioned models that jeopardize the reduction of national autonomy, it is the best method of wide ranging cooperation and prevent any possible intervention to sovereign rights of either states (Nicholas, 2011); (Ong, 1999).

The Sudan-Saudi Arabia Agreement (1974) is the first example of this style along with Malaysia-Thailand Joint Development Agreements (1979-1990) (MTJA).

In the organizational system of joint authority which is transnational, this authority has enough power and responsibilities to perform the exploration, exploitation, development and production over the JDA. It has right to grant concessions for development and seismic, exploration, drilling, production operations, commercial and environmental affairs.

The oil producing states have cooperated in development of shared oil and gas resources consistently and firmly, and such cooperation is endorsed in their municipal legal regime, therefore it is recognized as a general principle of international law (Ong, 1999). In the lack of binding international law, unilateral exploitation earlier than notification, consultation and negotiation with the other interested state is not permissible. In other words, the interested states, after accomplishing the exploration, would notify, consult and negotiate with the partner prior to the exploitation and production (UN Res. 3129 & 3281, Art. 1 & 3). It should be noted that Qatar commenced exploitation about 12 years earlier than Iran, pretending that the field was not recognized to be an international shared one (Seyed Sadegh, 2009).

3. North field/south pars development status

The South Pars/North Field in the Persian Gulf is the largest offshore field in the world (see Table 1). It is located 105 Km southwest of Asalouyeh port of Iran at 52°E to 52.5°E and 26.5°N to 27°N. The area of this field is 9700 Km² (see Table 2). The South Pars, which is located in Iran territory, is 3700 Km² and the rest, North Field, belongs to Qatar (Tavakoli V, et al, 2010). On 1974, Shell Company discovered a gas field located in the north west of the zone. The field extends north from Qatar mainland into the Persian Gulf, with an aerial extent of 6,000 Km². After 5 years, in 1979, a new study and reserve appraisal had revealed that the reserve might be 100

Tcm. The first project of the North Field development was opened in 1992 after a 5-year construction and production were commenced. Qatar began production from North Field phase one (Alpha) in 1989. In 1989 after a seismic operation by Geco-pracla and Western Geco, the South Pars gas field that is the extension of the North Field was formally discovered (Seyed Sadegh, 2009). The Development of South Pars practically commenced in 1996 and the first phase was opened in Nov. 2004 (Qatar Petroleum Annual Report 2012). This demonstrates that Qatar has started the production from the North Field about 12 years earlier than Iran. This is a significant point to be discussed legally and commercially considering the fact that two-third of this single shared reservoir is located in the Qatar territory.

Main gas-bearing formations in the field are the Upper Permian and Lower Triassic carbonate series and Early Silurian dark shales are identified as the main source rock (Tavakoli et al, 2010). The Kangan and Dalan Formations together are equivalent to the Khuff Formation in the Arabian terminology. The North Field/South Pars is considered to be the largest single non-associated gas reservoir in the world (Qatar Petroleum Annual Report 2012). The singularity of the North Field/South Pars main non-associated gas reservoir proven by the petro physical, geological studies .

After the discovery of the field, Iran and Qatar's gas reserves increased to about 36% and 99%, respectively and this easily made them the second and third largest natural gas reserves holders in the world, after Russia (Fig. 2). At the moment, Qatar is the world's largest producer of liquefied natural gas (LNG), accounting for about 15% of the world's liquefaction capacity .

Back in 2012, the average production of Qatar was 838 million standard cubic feet per day (mmscf/d) of gas and 23,088 barrels per day (b/d) of stabilized condensate. Total production was 305 billion standard cubic feet per day (bscf/d) and 8.40million barrels (bbls) of stabilized condensate. Qatar surpassed Indonesia as having the highest rate of LNG exporter in 2006 and became the largest LNG-producing country in the world, with an annual LNG production capacity of 42 million tones yearly (EIU, 2013).

In the North Field, Qatar development plan for production comes in four separate programmes; 1) Qatar's LNG Industry 2) Dolphin Gas Project 3) Gas to Liquids (GTL) Project 4) Barzan and Al-khaleej Project.

Iran originally divided South Pars into 24 phases (Fig. 2), contracting with many international companies and domestic ones. The gas produced from the first ten phases of South Pars is allocated for the domestic consumption or reinjection into oilfields, whereas gas from the remaining phases is destined for export (Seyed Sadegh, 2009). In 2012 Iran exported just 8.4 bcm (less than one-tenth of Qatar's total exports), mostly to Turkey, according to

the BP Statistical Review of World Energy 2013. Iran's natural gas production has had a lower profile after the statistic in 2012 due to international sanctions and Iran delays (Erdbrink, 2010).

Table 1: Comparison between South Pars/North Dome and other world great gas fields (Arab Oil & Gas Journal, January 2003 & IEA, 2008)

	Field	Country	Reserve	
			bcm*	Tcf**
1	North Field	Qatar (Offshore)	25500	901
2	South Pars	Iran (Offshore)	12500	441
3	Urengoy	Russia	5500	194
4	Yamburg	Russia	5000	177
5	Bovanenkovo	Russia	4000	141
6	Zapolyaroye	Russia	3000	106
7	Shtockman	Russia (Offshore)	2500	88
8	Astrakhan	Russia	2500	88
9	Hass R'mel	Algeria	2000	71
10	Ghawar	Saudi Arabia	1800	64
11	Russanovskoye	Russia (Offshore)	1800	64
12	Kovykta	Russia	1500	53
13	North Pars	Iran	1400	49
14	Kharasavey	Russia	1300	46
15	Troll	Norway (Offshore)	1200	42
16	Daulat abad-Donmez	Turkmenistan	1200	42
17	Sovetabad	Turkmenistan	1100	39
18	Natuna	Indonesia	1100	39
19	Groningen	Netherland	1046	37
20	Krusenstern	Russia	1000	35

*bcm=billion cubic meters, **tcf=trillion cubic feet

Table 2: South Pars / North Field Gas Reserves (Qatar Petroleum Annual Report, 2005)

	In Place Gas Reserve (tcm)	Recoverable Gas Reserve (tcm)	Area (sq. km)
North Field	1300	900	6000
South Pars	500	360	3700
Total Field	1800	1260	9700

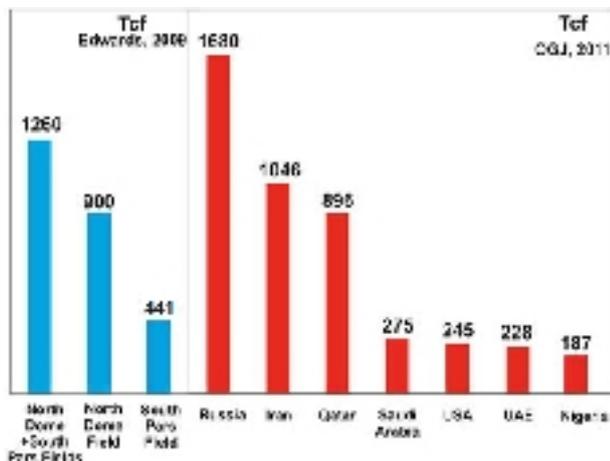


Fig. 1: Comparison between South Pars and North Field gas reserves and other countries' gas resources (Data from Oil and Gas Journal, 2011, and Edwards, 2009)

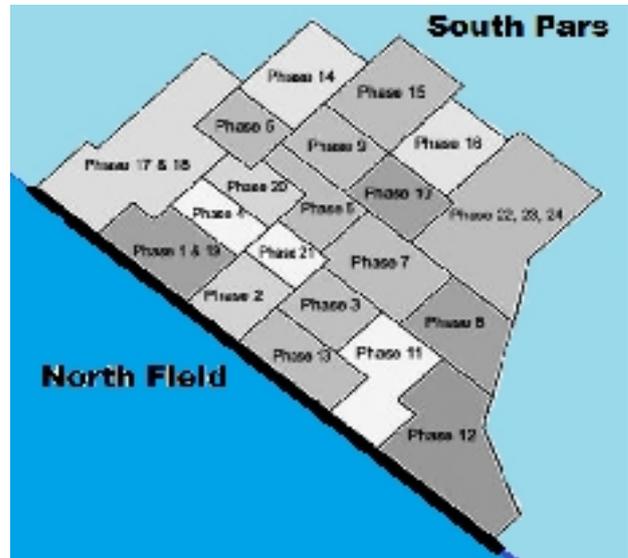


Fig. 2: Phases of development in South Pars

4. Iran and Qatar delimitation agreement

Iran and Qatar signed delimitation agreement in a preamble and in 5 articles in 20 September 1969 and officially it came to force on 10 May 1970 (Dehghani, 2008-2009). The median line or equidistance between Iran and Qatar was designated in 131 nautical miles long and an average distance between 5 demarcated points of 32.75 nautical miles (Fig. 3 & 4), considering the exceptional ignorance of all Iranian islands in the Persian Gulf (Charney, et al., 1997).

In Article 2 is concerning the existence of any single geological petroleum structure or petroleum field, or any single geological structure or field of any other mineral deposit, extends across the boundary line. This Article also states that neither party will place the producing section of any well closer than 125 meters to the boundary nor in the event that the development of the oil resources takes place, the parties undertake to endeavor to reach agreement on how operations can be coordinated (Article 2. Agreement concerning the boundary line dividing the continental shelf between Iran and Qatar, 20 September 1969).

Iran and Qatar did not know the existence of the world's most supergiant gas reserve in the time when they signed their delimitation agreement and the provision in the article 2 states that no well must be drilled in the limits of 125+2 in both side of border. After the discovery of this huge field, this provision and limit of 125+2 actually is not logical and effective to such reserve extended hundreds of kilometers across the Persian Gulf, approximately, 60 percent of Persian Gulf's width between Iran and Qatar. The provision in Article 2-b has no influence in cooperation between two states, due to the abundance of condensate gas, widespread stretch of the reservoir and high temptation of the sharer. Preservation of the unity of deposit and correlative right has been disregarded and exploitation method is free and self-administered; called "go it alone" (Kashani, 2011). This practice of the parties can also

be “rule of capture” (Anderson C., 1993). The significance of section b in Article 2 Which the term “shall endeavor to reach agreement has an advisory-like role and recommendation effect to encourage the interested states.

There is the potentiality of two scenarios in case of the knowledge of Iran and Qatar about the existence of such a supergiant reserve prior to signing the delimitation agreement; first, this knowledge might have been caused political and economic oversensitivity and consequently the delimitation remained unsettled. For instance, Iran might have claimed the consideration of its Kish Island, Lavan and Hendorabi that were ignored in the delimitation agreement on 1969. If such claim were imposed on Qatar by any means, it would have receded the marine border kilometers away towards Qatar and Iran would have owned vaster extent of this reserve. Undoubtedly Qatar resisted and emphasized firmly on the median line. The other scenario is that delay to reach delimitation agreement would have led to more precision longer exploration drilling process and reserve appraisal from both side of border and on this account the parties would have gained precise and comprehensive knowledge and data of the reservoir. This would have resulted in negotiating committee between Iran and Qatar equipped with comprehensive data, therefore; this would have led them to an auspicious event, the coincidence of delimitation agreement, memorandum of understanding and Joint development agreement altogether.

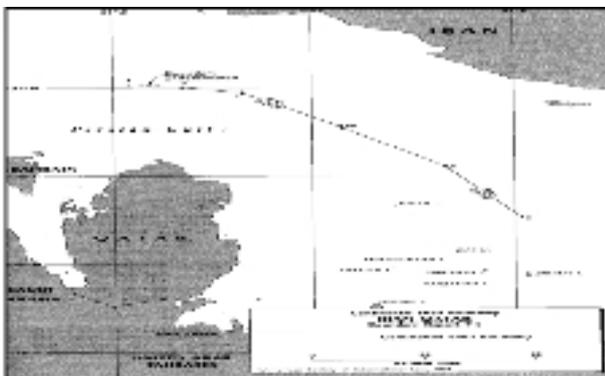


Fig. 3: Iran – Qatar Delimitation Agreement (Charney, et al., 1997)



Fig. 4: Iran – Qatar delimitation agreement (The portal of Iranian north drilling company)

5. Applicability of Joint Development Agreement between Iran and Qatar

Qatar has commenced the drilling and exploited the reservoir a decade before Iran did (Bordnave, 2008). Assuming the ownership of Iran and Qatar in the context of common property, prior exploitation of Qatar without Iran's consent can be considered as violation of the territorial integrity.

Unilateral exploitation of Qatar and Iran respectively from the world giant shared petroleum deposit is an opposite practice in conflict with what is flourishing in international law sources and jurists advisory opinions considering international shared petroleum resource. In this research we strive to lead Iran and Qatar reverse practice to the direction of cooperative exploitation or joint development agreement.

The significant issue for to achieve the agreement is the degree of enthusiasm and motivation of the parties that is scaled by transparent benefits and privileges. Iran and Qatar are friendly in their relation in all international aspects; therefore this is optimism for us considering cooperation and agreement. Memorandum understanding and agreement between Iran and Qatar to share revenue and production from the reservoir in an equal way would be unlikely, nevertheless by proper application of international diplomacy, special strategy and influential scientific justification that considers all sovereign rights of the parties in a good faith and mutual consent will bring about an achievable fair agreement.

Unlike this feasibility, the intricacy of coming to an agreement between the interested parties surrounding the issue involving this super-giant shared reserve can be deduced from the following interpretations:

a) It is more than two decades that Qatar had executed the priority infrastructure plan and development without any delay. Thus this speed makes the progress of Qatar incomparable to what Iran has achieved in the South Pars.

b) Superiority of Qatar in international marketing, production especially LNG export due to very low domestic demands and exporting 10 times more than Iran's total exports (BP Statistical Review of World Energy 2013) has made them very slightly motivated to unify the development area.

c) Undoubtedly, Qatar has gained widespread technical, geological, reservoir engineering and geophysical information compared to Iran, owing to their decades of priority in development. This truth makes Qatar very reluctant to share and exchange such precious information with Iran.

d) Two-third of this single super-giant reservoir is situated in Qatar's sovereign territory.

e) The quality of being the most super-giant reserve in the world has made the parties reluctant and negligent to jointly develop the field and greedy to compete to extract more and faster. During the last two decades, the extraction to this level has not caused any influential adversity to be felt by parties,

since the field bears abundant precious and high quality hydrocarbon so called "Gas Condensate" which is nearly as precious as light crude oil.

The initial pressure in the South Pars gas reservoir was 36.5 MPa, which will dropped to 6.2 MPa at the end of the production period (Taherynia, 2013). Faster pressure drop of the reservoir than usual is coming from irregular excessive unilateral exploitation and development of this single shared deposit (Tavakoli et al., 2010). It would be a source of motivation for both sides to think of the cooperative exploitation in the frame of joint development agreement by the preservation of the unity of deposit. The ICJ has noted that the preservation of the unity of a trans boundary deposit is essential for the economic and efficient exploitation of petroleum resources (North Sea Cases, 1969, ICJ Report, 97 Para. 52-53).

6. Negotiation and agreement between Iran and Qatar

The common values and amity of Iran and Qatar and their numerous political, economic, Security and environmental agreements have facilitated the vast profitable joint development agreement between them (Fulton W., et al, 2011). From 2008 Pars Oil and Gas Company (POGC) as the main Iranian company that has been managing the development of South Pars, and Qatar Petroleum (QP) representatives have been holding regular meetings every year. They have been exchanging information and reporting development progress. This committee that is consisted of experts from both sides gathers twice a year in Tehran or Doha to smooth the progress of the development plan. Qatar Petroleum minister has stated that we would encourage with open arms the accomplishment of this committee's goals (Kashfi, 2011). These meetings are still being held and Iran and Qatar's development is considered unilateral, since this committee is still at the stage of mere data exchange.

The best way for the initiation and commencement of negotiation is to recommend a scheme of joint development in GECF (Gas Exporting Countries Forum, based in Doha) or OPEC. This would be very significant that these two influential organizations in the world petroleum industry can hold up negotiations and polling by general assembly or managing board for the impressive suggestions put forth by the states' delegates. This might lead to codify articles, reservations and enclosures relevant to the cooperative correlative development of shared oil and gas resources in order to be added the GECF or OPEC Statute. These organizations can be a great reliable source to focus on for a great initialization and achievement to the primitive legalization of correlative and joint development of shared petroleum resources. The members of the mentioned organizations are supreme authorities of oil and gas in their countries that owe the majority of shared oil and gas deposits all around the world. In these organizations, members sharing oil and gas

deposits with one another can talk and negotiate and pave the way for exchanging opinions and ideas, with the aim of joint development or unitization (Kashfi, 2011). Such procedures and strategies are theoretical and subjective and would not have immediate effective impression and achievement.

7. The scheme of joint development agreement for north field-south pars

National Iranian Oil Company (NIOC) and Qatar Petroleum (QP) ministers would be the top personality responsible for dealing with all national petroleum affairs; after the evaluation and appraisal of the joint development of the field and its undeniable precious benefits; they would sign the agreement. The best scheme would be forming a commission comprising equal members from both parties.

The focal points of our strategies to achieve joint development agreement in North Field-South Pars are enumerated within the following steps ;

a) Serious commencement of negotiation with Qatar by the Iranian authority. Negotiation will be executed in the following procedures;

1) Iran president and petroleum minister have to engage in this significance to establish the commission of shared petroleum resources in the petroleum ministry and South Pars committee under the subsidiary of the main commission to negotiate with the Qatari counterpart.

2) The profound follow-up of this plan in Gas Exporting Countries Forum in Doha.

b) Exchange of updated technical data by the parties to assess the feasibility of the joint development agreement on North Field-South Pars.

c) Drafting, ratifying and signing the joint development agreement along with the joint authority.

1) Determination of the area: Considering the fact that the parties have accomplished portions of the field in separate blocks and phases (Fig. 1), they can agree to leave these blocks intact and commence joint development accordingly. The other option is to modify and change the blocks to be adjusted to the new status of the reservoir discovered through the reappraisal of the whole reserve and exchange of updated data.

The depth of the drilling and exploitation must be determined in the agreement between Iran and Qatar according to the background of the field to encourage the parties to modify the depth of the agreement in case of new reservoir emergence. In the joint development agreement and international unitization agreement in the primitive articles there is usually a precise determination of what product or material is the goal of exploitation (Article 1.5 of East Timor and Australia agreement).

Rainer Lagoni proposes 4 fundamental arrangements to plan the joint development agreement;

- Determination of specific area
- Reserve Appraisal

-Determination of governing law and criminal jurisdiction for the designated area

-Regulations and conditions of exploration and exploitation (Lagoni, 1988).

2) Establishment of Iran and Qatar Joint commission or joint authority under the main agreement.

The members of the commission are selected by NIOC and QP ministers among those senior high rank experts from their own organizations or the subsidiary who have achieved adequate competencies in the management of oil and gas affairs especially North Field-South Pars. These members are appointed in an appropriate position in the manner that their expertise and influence serve the best management of the joint development area. An article is dedicated in the main agreement for the establishment of joint authority. Afterwards, for the implementation of this commission; another special agreement for the joint authority would be drafted, agreed and signed between Iran and Qatar delegates; or as the other alternative the detailed nature of the duties and policies of the commission would be dictated in a statute for proper management of joint authority. Joint authority members consist of Iranian and Qatari's highly competent senior statesmen that would undertake creating the main policies and decisions for the development and exploitation of the North Field-South Pars.

Joint development agreement is binding for parties and would be executed under Article 26 of the Vienna Convention 1969 in good faith and *pacta sunt servanda* (Article 26). This organization as explained before will codify its own independent law or called "joint authority statute" in which all aspects of development are foreseen and regulated. Iran and Qatar would grant all options of legal personality to the joint authority to enable this transnational commission to sign any agreement and to be the owner of movable and immovable properties in the area, excluding the holding of the title of land. Joint authority would grant the exclusive rights, power and privileges of exploring and exploiting the fluids in the agreed joint development area. The right of exploration, exploitation and production does not mean that joint authority has the right of ownership of resources. Issues such as the determination or redetermination of the area or blocks of development, signing and managing all contracts between operators, concessionaries or contractors, implementation of protection of correlative rights of the parties, production and marketing regulations, issuing permission for drilling, well spacing regulations are all in the aims of the conservation and principled preservation of the unity of deposit (Lowe, 2009). These regulations are managed and implicated by sections; department or committees established within joint authority for relevant issues of joint development, such as, exploration, production and drilling standards, health safety and environment principles, commercial or financial procedures and so on. The location of the joint authority office would be agreed in the main

agreement; it can be in Asslauyeh, the small city on which Iranian installations and refineries is situated, or Doha. Doha would be the best place reasonably.

Joint development commission or joint authority would be set up in two main segments; the principal policy-making body or management board that is the chief minstrel council with equalized members from each state and the other section is the executive affairs management body comprising of experts from the interested parties and designated by joint authorities of Iran and Qatar. The second section as executive department comprising staff from both countries will raise the quality of cooperation and mutual amity especially by controlling governmental interference to protect sovereign rights (Fulton W., et al, 2011) .

3) Establishment of subsidiary committees on economic, political, security and military, legal, environmental, legal, financial issues subordinate to joint authority.

Economic, political, military and security, legal, environmental, financial affairs are the most crucial bases of joint development area and Iranian and Qatari authorities have to arrange the organizational structure, members from either countries in management board or joint authority in the way that smoothens the progress and enhances these vital and significant domains in the management of the JDA (Taking into consideration Malaysia-Thailand Joint Development authority organization structure or charter, we can recognize that these arrangement and organizational partition has been set up base on the most vital affairs of JDA).

In different above-mentioned subject matters, it would be influential to create a committee in each affair, for instance Joint Authority legal committee or financial committee, owing to the fact that North Field-South Pars development area is located in a very strategic area, Persian Gulf, and as a super-giant field, its management cannot be easily ruled. These sub-committee helps resolve any potential impasses in critical affairs and lessen any governmental and sovereign intervention. In this way Iran and Qatar joint commission (Joint Authority) members who are co-managers in each domain, are also managers of their own relevant committee having enough power to appoint the members for their committee in equal number from Iran and Qatar .

4) Drafting and signing subsidiary or complementary agreement to the main agreement by the committee in joint authority relevant to the subject of these agreements. Legal committee and other relevant committees will consult and cooperate in the drafting and implementation of these subsidiary agreements.

5) Merging some of the existing operators and international companies in the blocks especially those connected to the marine border of the parties .

The other vital duties and functions of the commission have been striving to achieve a solution for those suddenly and newly appeared aspects or potential issues that are unforeseen in the joint

development agreement after entry into force (Fox et al., 1989).

6) Determining Governing Law and Criminal Jurisdiction

Codification a specific set of laws based on the main agreement totally free from Iran and Qatar petroleum law to cover all legal issue of the area, and designating an international dispute resolution court or center, international arbitration institute or third party as reference for any potential dispute on some aspects and issues of the JDA (GAO Z., 1998). Drafting and codification of this law would be carried out by the legal committee as a subset to joint authority and legal delegates of the parties and co-chairman of joint authority after any consultation, interpretation and proposal of modification to the drafted regulations, finally this legal statute is approved as the governing law for the JDA (Fox et al., 1989).

This law in the context of legal committee statue can be modified when the occasion arises, for instance in case of any upcoming legal problems occurrence, they can add an article to be annexed to this law .

Determination of criminal jurisdiction limits in the area would be as follows;

The area within the Iranian territory, South Pars, would be under the criminal jurisdiction of Iran, and the North field would be under Qatar's criminal jurisdiction. If a crime is committed in South Pars, Iran is eligible for proceeding in compliance with Iran law and the same chance is considered for Qatar. This will spur them to cooperate at higher level between the parties if they agree that in any drilling and exploration installations unit in South Pars installed and owned by Qatar or North Field area installed and owned by Iran, the criminal jurisdiction would be under the law of the owner country. In this regard, the interested state would be more willing to invest in the area of the partner (Kashfi, 2011).

In case of any legal dispute or conflict, the issue would be discussed within the legal committee in the joint authority and if it reaches a deadlock, the dispute would be continued in the international court, arbitration or third party designated in the agreement.

8. Conclusion

The scheme for joint development of North Field-South Pars is a plan in which is driven from the previous States practice and experience and also international law. Iran and Qatar are expected to negotiate in good faith, equity and international comity in order to reach cooperative agreement. The two States have friendly relations and great international amity; nevertheless the agreement between them is feasible by proper application of the international diplomacy, special strategy and influential scientific justification in which all sovereign rights of the parties are considered in a good faith and mutual consent. One of the most

significant aspects of the joint development scheme is to prevent interference by either party or jeopardizing autonomy of each state would be the sovereign rights. During the negotiation and agreement drafting, both sides have the options to set out a reservation, so called, "Respect the sovereign rights of the parties" in order to ensure that both parties abide by this rule.

By successful application of the scheme of Iran and Qatar joint development agreement as above-illustrated between the parties in the world's most gigantic gas reserve, it will have global widespread impacts, such as the consolidation of the joint development agreement scheme and rejection of unilateral exploitation. It would be a great progress to the formation of customary international law by strengthening its two main elements; states practice and *Opinio juris*. Since Persian Gulf is known as the world's energy basin and states practices are easily perceived and modeled by other countries. This scheme of joint development would be an approval to the previous state practice in widespread utilization of joint development agreement and international unitization .

Undoubtedly, profits achieved in the light of understanding and cooperation as demonstrated by Iran and Qatar in the exploitation of such supergiant reserve would be more constant, true and long-lasting than the benefit achieved in the shadow of solitary in a competitive unilateral undisciplined exploitation.

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