

Acceso del Daesh al Mercado del Petróleo

Daesh Access to the Crude Oil Markets

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RESUMEN. El presente artículo analiza una de las fuentes de financiación que han permitido a la organización terrorista al-Dawla al-Islamiya al-Iraq al-Sham (Daesh) su rápida expansión y capacidad operativa, en concreto su acceso al mercado del petróleo. El Daesh ha sido capaz de utilizar una extensa red de intermediarios que le ha permitido colocar sus activos petrolíferos en los mercados domésticos e internacionales. Se analiza la evolución histórica y el funcionamiento del mercado del petróleo, para estudiar como la situación del mismo afecta a los ingresos de la organización. Para estimar los ingresos obtenidos del contrabando de crudo se delimitan las zonas de extracción de petróleo y activos petrolíferos que geográficamente se ubican en territorios controlados por dicha organización, y qué canales de distribución han sido usados. Se ofrecen distintas perspectivas sobre el acceso del petróleo ilegal a los mercados internacionales y el desplazamiento de su oferta hacia los mercados domésticos.

ABSTRACT. The present article analyzes one of the financing sources that have allowed the terrorist organization al-Dawla al-Islamiya al-Iraq al-Sham (Daesh) its rapid development and operating capacity, particularly its access to the oil market. The terrorist organization has been able to use a wide network of middle men who enabled them to place their oil assets in domestic and international markets. The historic evolution and functioning of the oil market is analyzed, with the aim of studying how its current situation affects the incomes of the organization. In order to estimate the profits obtained by smuggling petroleum, it will be determined the zones where oil is drilled and the oil assets which are geographically located in the territories controlled by this organization and which channels of distribution were used. Different perspectives are offered about the access of the illegal crude to the international markets and the offer shift to the domestic ones.

PALABRAS CLAVE: Financiación del terrorismo, Petróleo, Daesh, Contrabando, Mercado negro, Mercados cautivos, Acción internacional.

KEYWORDS: Terrorist financing, Crude oil, Daesh, Smuggling, Black market economy, Domestic markets, International action.

1. Introduction

The United Nations announced in 2016 that the main financing source of *al-Dawla al-Islamiya* (Daesh) is the trade and illegal sale of crude oil. During an intervention at the United Nations Security Council, the undersecretary general for political affairs, argued that despite the fact this technical body has already adopted a resolution about how to fight the financing sources of terrorism, Daesh has continued profiting in a rapid and efficient way from the sale of oil.

The strategy of Daesh related to the oil has always been clear from its origins. From the moment this terrorist group appeared in the international scenery, the jihadists realized oil was a decisive means in their vision of the development of a state. Oil was identified as a fundamental element for surviving and for financing their intentions of creating a caliphate (Brisard y Martines, 2014). Although the foreign donations are part of financial resources of the group, Daesh tries to be autonomous and not to depend on foreign agents, which leads them to a perpetual search of inner financing in the territories that they invade. This need of funding obliges them to make regular incursions and obtain resources to be able to afford the costs, functioning like a pyramidal looting scheme (Wortz, 2014). This is the most important difference and success in comparison with other jihadist groups, whose financing is based fundamentally on external donation (Johnson, 2014). No other terrorist group has been able to manage so effectively and in such an extent this type of operations.

Daesh intends to project an image of a state, imitating management methods carried out by the big oil corporations, following a policy of keeping the qualified staff of the public and private sector of the regions they invade. Their economic policy, curiously, has followed the rules and recommendations that the financial institutions, more inclined to the free market economy, usually do, such as the minimal interference in the private industry by the state, never beyond its role as regulator and tax collector. This has made them the richest organization in the world, according to Forbes magazine. About two billion dollars is the estimated amount this organization obtains annually.

His territorial expansion has been always orientated to the domination of crude oil areas. When they began to spread through Syria they abandoned the northwest, an area strategically important but without energetic resources, so that they could dedicate more means to conquering the east territory which is richer in oil assets. In the regions where they have settled, they have acquired a status of monopolistic producer of crude, commodity highly consumed in the areas they control. This has led to a situation in which even though they weren't able to export oil, they could still prosper thanks to their captive markets in Iraq and Syria.

The main problem is that Daesh has managed to integrate themselves in the black market economy of the denominated Sunni triangle (west and north Iraq) and established close links with the local population and criminal international gangs. This situation makes the international action face the dilemma of ending up with Daesh without undermining the way of life of the population under their domination.

The following epigraph analyses the oil market and its evolution from a historical perspective. Consequently the regions that at this moment are under the control of Daesh will be determined, marking the oil fields which are in their zone of influence. Then, it is going to be studied the markets to which they have access and what distribution channels they use. Later an estimation of the revenues Daesh makes from the illegal trade of oil will be done and some conclusions with respect to it will be offered.

2. Crude Oil Market

The oil market had a great volatility at the beginning of the twentieth century, production grew whenever new oil fields were discovered and fell down again due to the lack of control and the lack of certain technological means (Luciani, 2011). From 1920 to the beginning of 1970, the oil industry lived a period of stability in its prices. This stability was possible owing to the discovery of the fields in the Middle East and consequently because of the control exercised by the *Seven Sisters* or *majors*, the seven international biggest oil companies of the time that had a nearly total control on the production, refining and distribution of crude

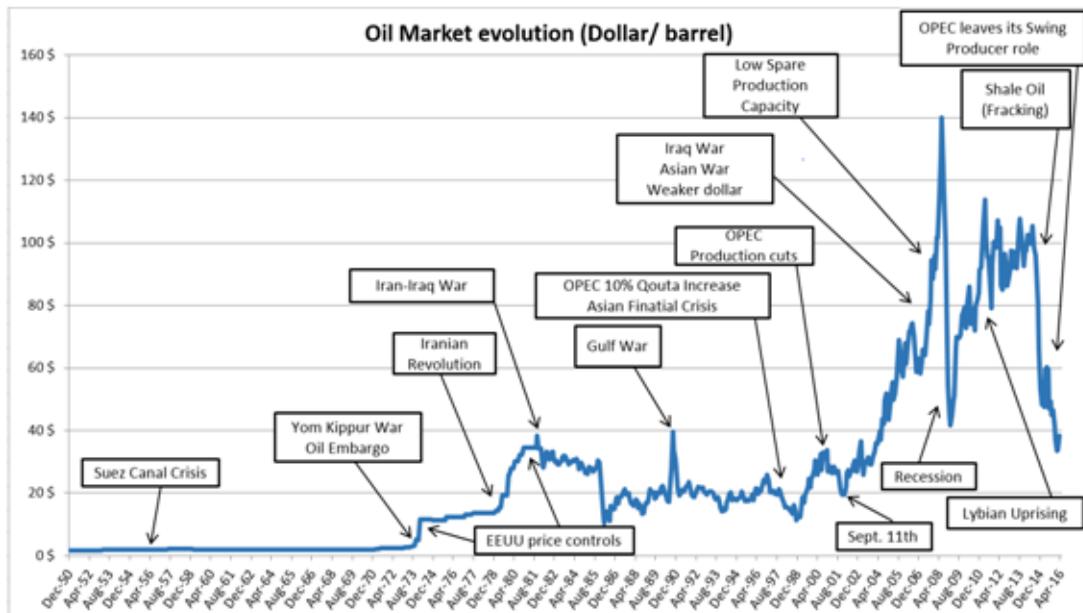
oil. Working together to avoid any competency, as a cartel, they had a complete control of the oil industry and an enormous influence on the governments of the oil producing countries. One of the characteristics of this market is that throughout its history there are catalysts that explain the movements of the price.

In the sixties decade, the successive reductions in the price made by the *Seven Sisters*, provoked a fall in the revenues of the oil producer countries, without being previously negotiated with them. The multinational companies controlled through their subsidiary companies in the producer countries the main oil fields, as well as the production levels and prices. The Venezuelan government took the decision of searching a consensus with the rest of the producer countries. The existing indignation against the majors made them to constitute, in September 1960 the Organization of the Petroleum Exporting Countries (OPEC), an intergovernmental organization whose founder members were: Iraq, Iran; Saudi Arabia, Kuwait and Venezuela. During this first decade the OPEC dedicated itself to reaffirming, politically, the rights of the producer countries in the international oil market, however with very little relevance. The low profile of the OPEC in its beginnings was due to the aligning of Saudi Arabia with the politics of the United States.

In the seventies decade, the discomfort among the producer countries, together with the general perception that the creation of state owned oil enterprises was indispensable to make the OPEC function, urged the creation of national oil enterprises. The private enterprises have always searched the maximum production in order to recover the high cost of the investment on their on their holdings. When the producer countries took possession of their resources, and established state enterprises, they reduced the production, because they realized the importance of preserving the holding of that resource, extending its use as long as possible. The influence of *Seven Sisters* began to decline. In this decade there were two crisis in the oil market stemming from Arab oil embargo in 1973 (Yom Kippur war) and the outbreak of the Iranian revolution in 1979. Both of them meant a drastic reduction in the offer that, with the basic market imbalance, led them to a pronounced increase the price of oil (Mabro, 1993).

In the eighties decade, the prices began reaching maximum levels, but the surplus in the inventory levels of crude provoked their collapse in 1986. At the end of the decade, the prices rose again, but in a stable and sustained way.

In the nineties decade, the hostilities in the Middle East (Gulf War) showed an upturn in prices with the *market in panic*. A new crisis was avoided when the members of the OPEC decided to increase the production. Since then, the prices remained relatively stable until 1998, when the economic crisis occurred in the Asian southeast. The collective efforts of the OPEC together with some oil producers, which did not belong to the organization, brought a recovery of the price levels.



Source: Own research with Bloomberg data.

The new century brought a rocket price hike caused by an unexpected increase in the demand. The low prices of the two previous decades did not generate the incentives for investment in production capacity, which became necessary in the following years. The OPEC had influences on the high prices in the years 2004 and 2008, not only for its market organization policy, but for the uncertainty about its real capacity in producing oil. In 2008, the so-called third crisis of the oil market occurred. The global financial crisis, which started in the USA, spread almost simultaneously to all the industrialized countries, generating a recessive process in the economy all over the world, which ended affecting the emerging and developing countries. The reduction of the real demand of commodities, oil included, was reflected in the drop of the prices. At that moment, oil acquired certain features of the financial assets. Since then, an increase in the correlation has been produced in levels, return and volatility of the oil markets and the rest of the financial indexes (Fattouh, 2011). This means that oil prices became affected and suffered bubbles with speculative movements, which at length affect the demand. Although the OPEC announced a historical cut of 2.2 million barrels a day, with the support of the non-members, it did not get to stop the downfall of the prices.

The economic recovery when the countries got out of the economic recession, the continuous increase of the demand by the developing countries, the Arab spring and the diplomatic crisis owing to Iranian nuclear program made the market lift again, experimenting a possible speculative bubble. It was then, when new techniques of extraction (fracking) began to be profitable. By using pyrolysis they were able to produce oil shale. The new method, fracking, spread and the American crude imports fell, America had always been an excellent customer for the exporting countries. The slowdown of Europe's economic recovery, the less expected growth in China and in the emerging countries, besides the efficiency improvements of the new vehicles and machines working with oil or its derivatives led the demand to slow the growth rate.

In the present situation, factors such as the competence, fracking, internal fights, OPEC decisions and the efficiency improvement have concurred in time and led to an intense fall of the oil price, with the oil offer growing above the demand.

Saudi Arabia has abandoned its traditional role as a *swing producer*, and its leadership as non-official guarantor of the prices. In November 2015, in the OPEC meeting, the Saudi oil minister announced that he

would let the market forces fix the prices. He argued that the rapid, growing production outside the OPEC made the situation unfeasible and that lower prices in the short run, would increase prices in the long term with a reduced investment, which would be profitable to all the members of the OPEC finally.

This decision has helped also to damage political and economic enemies. In the economic part, the victims included renewable resources, Canadian tar and the shale oil industry in United States. In the geopolitical part, the victims were Iran, Syria, Russia and the United States. The Saudi companies have been bombing oil to force production cuts in the competence. They insist they are doing it to maintain their market share, which has been very hard to recover after losing it the past years. In public appearance, the oil minister affirmed that it was not an interest of the OPEC to cut off the production independently of the price level. In this way, they broke with the traditional strategy of keeping the prices high by restricting the production and they substituted it for a new policy of defending the share of the market no matter how. He stated they were searching the efficiency in the market, advocating that the most efficient producers were the ones who have the highest share in the market. Besides, they can resist as long as needed with low prices because their cost of the production is also very low, 4-5 dollars per barrel. This is a clear example of fixing prices in a predatory competence, these prices are fixed as long as it's necessary to damage the competitors and reduce their market share in the medium or long term.

The sharp rise of the dollar means that to lower the price of oil, denominated in dollars, does not involve an income downturn for Saudi Arab. Whereas it damages the energetic development of the United States (fracking) and the majors, which get few revenues comparing with their high cost of the exploitation. Countries, whose oil is mostly heavy crude like Iran o Venezuela, have difficulties to produce it when the barrel is under 100 dollars. The damage will be greater for other regions such as the marine oil fields in Brazil, the west of Africa and the Arctic whose costs of drilling are much higher.

On the other hand, this strategy is increasing the adoption in most of the economies in the world, policies against deflation, under the confirmation of a minor growth, a negative aspect that no producer can overcome. Europe has already embraced these measures and China has devalued its currency to improve its growth ratio, which equivalent to export deflation. Deflation is especially hard for the commodity producing countries. The fear to a deflationary economy, especially in moments of major national indebtedness, has led the Federal Reserve, the European Central Bank and other National Central Banks to apply unconventional monetary policies. The decision of Saudi Arabia is raising this deflationary pressure. In the past, Saudi Arab has imposed costs with absolutely no regard to other countries to maximize the value of their oil resources in the long term.

The low prices will persist until Saudi Arabia reestablishes the power of the monopoly of the OPEC, whenever it gets its true geopolitics or economic objectives which force it to increase its production, or the global crude market moves towards a competitive market situation, where the price is fixed according to marginal cost of production, instead of Saudi Arabia's decision or the monopoly power of the OPEC.

The technological and environmental pressure is reducing the demand of oil in the long term and it threatens to turn the high cost crude outside the Middle East into a disuse raw material, similar to coal. It should be taken in consideration the possibility of raising Iran's and Russia's sanctions, as well as the end of the civil wars in Iraq and Libya which will liberate into the market additional oil reserves bigger than those of Saudi Arabia.

Oil has been used in the past like a pressure weapon over other countries. The conflicts in Syria, Iraq or Libya may be the reason why Saudi Arabia adopts an attrition strategy towards Iraq and Iran. The existing rivalry between those countries relays on their religious differences and opposed positions in international conflicts. Saudi Arabia, whose population is Sunni, is supporting the Sunni rebels in Syria. On the other hand, Iran and Iraq, with a mainly Shia government and population, is supporting the president Assad, who is Shia, in this civil war. The last one involved is Russia, one of the biggest producers of oil in the world, has always been a faithful allied of the Syrian president. The Russian economy is suffering a critical moment, above all

since the war of oil prices intensified. These opposed positions may explain the decision of Saudi Arabia of not cutting the production of oil in the last meeting of the OPEC. This is the punishment meted out by Saudi Arabia to the countries which have laid on Assad's side in Syria.

Saudi Arab does not feel satisfied with the policy of no intervention of the USA in Iran and the unsuccessful attempt to overthrow the government of Assad, who is being indirectly supported at present by the bombing over Daesh made by Russia and an the international coalition. Lowering the prices makes more difficult for the Shia of Iran to invest in the war against the terrorist organization and at the same time they destabilize Iraq impeding their help in the war at Syria. It is curious that the Brent and WTI reference trembled when Daesh made its appearance. The low prices also destabilized Iran's allied in Venezuela and Ecuador. This strategy may be an attempt to weaken the government of Iran while Daesh threatens to reorganize de map of the Middle East.

However, Saudi Arabia, following this strategy, may increase its needs of incomes. It has too many fronts open, directly with Iran (in Yemen) and indirectly in Syria, Lebanon and Iraq. It must be taken into account that its refusal to act as guarantor of the prices may affect the confidence of foreign investors. Furthermore, its influence and capacity to manage the production and prices of the OPEC are depleted. Its determination to achieve market share, even at the expense of other members of the OPEC, damages its credibility within the organization, whose aim is to ensure the protection of all its members. If their main competitors maintain or increase their production, and they have incentives to do so, the prices could remain low for a much longer time than they have anticipated. The GDP and the budget of the non-western oil producers depend significantly, on the revenues of their exports of oil. As a result, the reduction of the revenues boosts an increasing in the production to mitigate the fall of the prices.

In April 2016 Russia and Saudi Arab have, at last, reached an agreement to freeze the production. Iran has decided not to join. In fact, it's not only against freezing the production, but its intention is to increase it, before considering the possibility of restoring the market balance. It should be taken into account that Iran has just come back to the markets after the rise of the embargo imposed in 2012.

3. Controlled territories

The terrorist group Daesh controls a vast amount of resources and a large extension of territories never seen in the history of the terrorist organizations. Besides, they have the means to threaten the rival factions and adjacent areas, and to influence and destabilize the regions they have occupied.

The position of the western countries and the Middle East against the Syrian government of the president Assad, which led to the breakout of the civil war, provided them a popular cause in the Sunni population, which is the overthrow of the president Assad. The rich Sunni states, Saudi Arabia, Qatar and Kuwait sided with this cause and so did Turkey owing to their geopolitics interests in the fall of the Syrian regimen.

Like a star-up enterprise, they had a rapid expansion after splitting up with al-Qaeda during the years 2013-2014. Their fast and aggressive advance let them capture in a very short time a territory similar to half of Spain, with a population of 8 million of involuntary citizens. Following their ideological program of breaking the limits and borders, Daesh has founded a kind of Euphrates province, which extends from the east of the province of Deir ez-Zor and Raqqa and the west of the province of Anbar, including the districts of Albukamal in Syria and al-Qaím, Rawá and Anah in Iraq. It should be pointed out the control of the governorships of Raqqah and Deir ez-Zor and the Iraqis provinces of Salahuddin, Al-ambar, Ninebeh and Viyala. They managed to occupy 60% of the Syrian territory and 30% of Iraqi territory during the zenith of their expansion at the beginning of 2015. Nevertheless their controlled territory seems to change daily. Their philosophy is not to present too much resistance when an area under their control is attacked, but to counterattack in another area or to open a new front line. It is estimated that during 2015 they have a net loss of 15% of the invaded territory. The estimated lost territories reach a 40% of the territory in Iraq and 11% in Syria. They have lost some areas due to the air

attack show ever; they have gained new ones following a vital strategic expansion in Syria. The most significant losses have taken place in the north of Syria. The Kurds forces, air supported by the coalition, have recovered part of the territory near the Turkish border. In November 2015 Kurds and Yazidis recovered the control of Sinjar in Iraq and areas of the strategic road between the two countries, which have impeded their movements and smuggling. Nevertheless, they still have under their control minor roads.

The extremist group was able to take in the centre of Syria, Palmira, a city of historical and strategic importance and in Iraq, Ramadi, the capital city of the Sunni province of Anbar, which were previous under the control of the governments of both countries. The Syrian army, supported by Russian forces has recently regain Palmira, and on the other part, Iraqi forces have recovered the control of the city of Ramadi, 90 km away from Baghdad, nevertheless the nearby Fallujah is still under the control of Daesh. For them, it is easier to move across the Sunni areas, where they normally don't find hostile population. Recovering the cities of Mosul and Raqqa will be more complicated. The international coalition is waiting for the reformation of the Iraqi army to begin the retrieve of those cities.

At present, Daesh controls seven oil fields in Syria. In Iraq, after the offensive of the Kurds and the regular army, their possessions have been basically reduced to three minor wells. Despite this fact, they maintain the control of large swathes in the north and northeast of Syria. Above all, they are mostly present in the border between Syria and Iraq. As their freedom of movements has been restricted in some areas, they have consolidated their positions in others such as Deir ez-Zor and the stretch between Mosul and Hawija, positions that seem to be well settled for the time being (Institute for the study of war, 2016).

Operating in such a vast territory has allowed them to control numerous oil fields, which has become one the most important sources of revenues for the terrorist organization. To be able to make an estimated calculus of the finance that Daesh obtains from the sale of oil and its derivatives, first of all, it will be determined the oil fields that are in the territory under their control, and the capacity of crude production those oil field have. It is difficult to determine an exact cipher of the extraction of crude in the areas controlled by Daesh. The International Energy Agency agreed that the levels of production fell when they were occupied by the militants of the terrorist group and that they only produce a fifth of their whole productive capacity. Most oil wells are old and inefficient and Daesh lacks the technology and suitable equipment for their maintenance and repairmen.

In June 2014 Daesh launched a vast offensive in the rich areas in oil and gas, in the province of Deir ez-Zor, and was able to take possession of the major oil fields of the country. This area contains the biggest oil reserves that Daesh exploits. Together with the oil fields of the province of Raqqa, where their general headquarters is located, make up more of half of the oil resources in Syria. The oil fields in the province of Deir ez-Zor have a potential capacity of production of 75.000 daily barrels. In October 2015, the production was estimated, according to local sources, between 34,000 and 40,000 barrels each day. The main and most important wells in the area and in the country are located in al-Omar and al-Tanak, though they also control in that area the wells of al-Tabqa, al-Kharata, al-Shoula, Deiro, al-Taim and al-Rashid., being these last ones of less relative importance.

Their expansion in Iraq reached the highest peak when they took hold of Mosul in June 2015, which is the second largest city in Iraq surrounded by an area rich of oil fields. They did not find any resistance in the capture of the city mainly because most of the population was Sunni, hostile to Shia military forces that rule the rest of the country.

Daesh controls several small oil deposits in Iraq, however informs published in the different media differ whereas if the largest part of the wells are sealed or if they are producing and sending relevant quantities of stolen oil across the border. The two most important oil fields they hold, because of their potential capacity and activity, are those located in Qayara and Najma near the city of Mosul.

Qayara has reserves estimated in 800 million barrels and has been producing 7,000 daily barrels of heavy crude before Daesh took hold of the oil field. This is of low quality crude, mainly used locally to produce asphalt. Official Iraqi sources confirmed that Daesh transports crude from Qayara to Syria to be processed in mobile processing plants to transform it into petrol and gasoil of low quality, then is brought back to Mosul to be sold to a population of two million (Levitt, 2014). In November 2015 the Kurd army took back Sinjar, and they cut off the main route of supplies between Mosul and the Syrian territories occupied by Daesh, which is a strategic strike because the cut off supplies involves a rise in the price of oil.

In June 2015, Daesh led their expansion to the south, taking hold the province of Salahaddin and the east of the province of Diyala, where they control other two oil fields near Tikrit, Saddam Hussein's home town. One of these, is Ajeel oil well, which was producing 20,000 barrels per day and 5 cubic meters of gas being sent by oleo duct to the electrical station in Kirkuk under control of the Iraqi government. The other oil field also of smaller size is Himreen, with a capacity of 5,000 to 60,000 barrels per day due to its five operating wells. The crude is transported to small rudimentary refineries along Kirkuk-Erbil road, an area named QushTapa.

Daesh has followed a similar strategy in all the invaded territories. They have tried not to damage the installations to maintain their activity with the cooperation of the local population who previously worked in the refineries. The Daesh militants urge the refinery employees to keep on working in their post, offering them their protection, providing the production is not interrupted.

The gross of their refineries lies on the territories captured in the east of Syria, whereas in the other wells the production has a low quality reputation. The refineries produce petrol and "mazout", a type of heavy diesel used in electricity generators.

The refinement is also being carried out by the local population, who have built rudimentary refineries after the air attacks of the coalition destroyed the modular refineries of Daesh (Simpson, 2015). Daesh provides the crude and receives the "mazout" and divides the benefit of the production with the owner.

The third country where Daesh continues its expansion is Libya, always with the aim of capturing new oil fields. Libya possesses one of the most important oil reserves in Africa, estimated in 48,000 million barrels and its production was estimated in 1,6 million barrels per day in 2011.

The terrorist group has taken advantage of the chaos reigning in Libya after the fall of Gadhafi's regimen in 2011, to settle in the country and since June 2015 they have controlled the city of Sirte. They are carrying out an aggressive campaign of attacks on the oil installations. Libya is a secure shelter which will let them survive even if they are defeated in Iraq or Syria. Besides, Libya is useful to deteriorate the situation in the zone or even to attack Europe.

Daesh dominates a stretch of 200 km of territory, captured throughout 2015 (Institute for the Study of War, 2016), which extends along the coast from the city of Sirte, which has become the third capital of Daesh, after Raqqa and Mosul. The terrorist group is present in Benghazi, the second largest city in Libya, although the territory they control is not significant.

Since the beginning of 2016 the jihadist organization has tried to advance from Sirte towards the east, to reach the zone of the *oil crescent* where the main crude terminals are located, such as Al Sedra and Ras Lanuf as well as the oil port of Sidra. In this way, they threaten one of the economic lines Libya depends on.

Most of the Libyan militias avoid the confrontation fearing a tribal surge of violence and a weakening of their defenses against traditional enemies. They are only concerned for the safety of their territory, so a joint response is inexistent. The implementation of the agreement between the two rival governments in Libya, as well as the civil society, has not been countersigned by the government in the east. Taking advantage of the



existing fracture between the participants in the civil war, Daesh has settled down in the battle front seizing territories when there are no local troops to defend them. Libya does not have a national unified army and its armed groups are divided and engulfed in a civil war. The transitional government has not achieved to build bridges among the tribal factions. The UN is trying to bring together the parliaments created by each faction in a unity government, but up today, the negotiations are stuck.

This expansion and creation of safe places follows the same steps of the strategy used in Syria and Iraq. The importance of the oil as a fundamental financing source for the organization is manifested again in this strategy. The group is carrying out a campaign against the Libyan crude resources and its security with the purpose of prolonging the instability in the country and to establish the appropriate conditions to seize the oil wealth. From sites close to Sirte the terrorists are sending attacks to the export terminals of crude of Ras Lanuf and Sidra and the installations next to Zuetina. At the moment, Daesh has not managed to grab any of operative oil infrastructures yet. Even so, their 2016 campaign is being successful, because they have ensured supporting zones for future attacks to oil fields.

To avoid that Daesh builds a shelter in Libya requires a local ally on the ground who is willing and has the capacity to expel them from the areas they control now, or they will go on growing and becoming stronger due to the lack of an overwhelming response by Libya and the international community. They will use their position to preserve and destabilize the north of Africa, and potentially, Europe which is situated only 300 km away.

4. Channels of distribution and markets

Daesh has financed its rapid expansion in Syria and Iraq with a complex net of oil smuggling that starts in the oil fields seized, goes through improvised and rudimentary local refineries and ends by different means of transport in domestic markets, or crossing the borders of neighboring countries. The lack of control and transparency in the border has been an advantage for Daesh and increased their options.

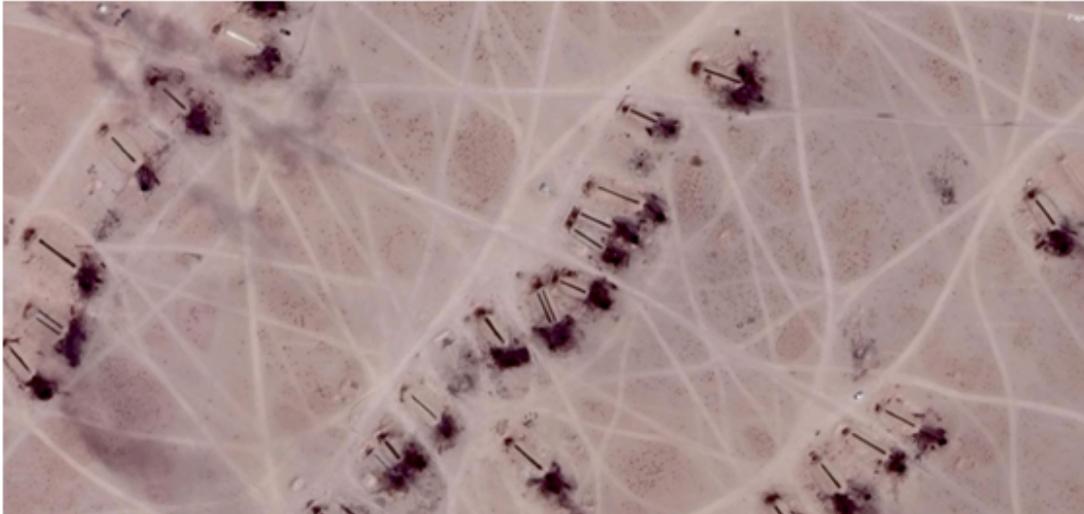
Daesh has taken advantage of the preexisting routes for black market oil since the beginning of the nineties. Because of the embargo of UN to Iraq, Saddam Hussein recovered the legendary route of the silk, to build up smuggling networks which allowed him to continue generating revenues. In 1996, the UN allowed Iraq to sell but only under restrictive rules within the program *Oil for Food*. Nevertheless, the routes remained active to avoid the embargo. The nature of these old and traditional smuggling networks makes them difficult to eliminate. In 2008, the Iraq Study Group estimated that 150,000 to 200,000 barrels per day were stolen, which clearly affected the local population, because the control of the prices of the refined products provoked a fuel shortage, which led them to the black market. This mixture of insurgent, terrorists, professional smugglers and corrupted officials of the government have presented, and it is still doing it, enormous opportunities of profits for everybody involved. It is this organized smuggling the one that generates important loss in the sector of the Syrian and Iraqi crude, not Daesh. The criminal networks that took hold of the smuggling routes were not related to Daesh in most of the cases. The Official body at the Pentagon has also admitted that for more than a year they avoid attacking tanker trucks to prevent civil victims because most of the drivers were not affiliated to Daesh.

The organization sells most of the no refined crude to independent merchants at the oil fields. Syrian and Iraqi buyers went directly to the wells with their tank trucks and traffic jams, with weeks of waiting extended several kilometers along the oil fields. Ever since the attacks to the caravans of trucks by the coalition and Russia started, Daesh has reformed its distribution system. At present and according to local sources, when the truck drivers register at the oil field, they are given a number and told when they have to come back to fill in the tank, avoiding, in this way, the long queues of vehicles, which made them a clear target. Daesh has learned to overcome these difficulties, but they have problems to maintain the benefits. Due to the need of cash and to regain the loss suffered during the air raids, they are selling licenses that permit the merchants not to have to wait in the queue if they can pay in advance. The air raids to these agglomerations of trucks have slowed down the trade and increased the risk for the drivers, who demand high salaries and it affects the margins of the

organization. It should not be forgotten that this is not a permanent situation and they will be on full business if they are allowed. It is also quite common the use of modular refineries that are prefabricated and then assembled in Syria directly at the wells. These refineries are comparatively smaller but equally sophisticated. They can easily be substituted and repaired by importing spare parts and machinery. Fortunately, they are easily spotted from the air, so the coalition has not had difficulties in detecting and destroying them. For these reasons, it seems that Daesh has left the refining process and has started to import these refineries to be sold to local entrepreneurs.

Last year air raids on the refineries and storage deposits have forced Daesh out of the refining business. For this reason they can't move a lot of fuel across the Syrian border, only not refined crude. It is a strategic must to hold refined fuel to continue the war and to expand the territory. However, they sell it to the local population who has improvised refineries close to the oil fields especially near Deir ez-Zor. The middlemen get more profits if they sell the crude in nearby places to avoid taxes, bribes payment and fuel expenses. In the Syrian landscape they have built simple ovens that separate the crude into light and heavy hydrocarbons. The light ones are used to produce diesel. Clusters of thousands of these rudimentary refineries are operated by local families, for which is the only way of earn a living. They refine the crude and sell it along the road. Their refining capacity is estimated in 10,000 barrels per day. The disadvantages of this system are that the oil they produce is of a very low quality, a lot of crude is wasted and it pollutes the water. Nevertheless, the proliferation of these refineries has permitted them to regain part of the capacity lost during the air raids. The coalition has avoided attacking the oil fields, choosing, carefully, their targets to prevent a humanitarian or environmental disaster. They want to avoid a situation similar to what happened when Saddam Hussein ordered to set fire the oil fields in 1991 in Kuwait. They have attacked the oil deposits but not the wells, which might be burning for years.





Images published by Google in 2016 where the refineries can be observed.

The lack of access to the formal markets to sell the processed crude, obliges them to sell a part of the production smuggling with Turkey, Kurdistan and Jordan at great discounts. A big proportion of the benefits of these sales goes to middlemen who are not part of the group. The domestic markets are the principal destiny for Daesh's crude, and it is used as a cheap way to obtain energy for vehicles and the local population (Levitt, 2015).

The exports from the smuggling, so profitable in the past, have become less lucrative, not for the better controls on the border or the international pressure but for the fall in the international prices of crude. The costs of smuggling, measured in fuel, time, and bribe payments have eroded the benefits. Although they sell to foreign customers, they have redirected the sale to the inner demand, providing fuel to their vehicles and establishing a relation of dependence between the civil population and their capacity to provide them oil. They behave as a monopoly in the captive domestic markets. These revenues come not only from the local population, but the government forces of Assad and the several rebel groups they fight. Several middlemen working for Assad have been sanctioned for trading with the terrorist group. On the other hand, they continue delivering gas to Assad regime due to the commitment of not destroying the structures and because there is no other means of transporting the gas.

According to the *Iraq Oil Report*, the group is having difficulties to attend the inner demand in their territory, which is evident in the volatility of the prices. The local population consumes the whole domestic fuel, being Raqqa and Mosul the cities where most fuel is consumed. In Mosul the fuel is sold in small petrol stations, usually labeled with the name of the zone where it has been extracted, which helps to know the quality of the oil. Since the air raids, the price of "mazout" and diesel has doubled, according to the report, as well as the price of food due to the increasing cost of transport. This increase of the inflation follows the economic standards of any country that is based on autarky when the problems of supply shortage appear.

The surplus of crude that has not been absorbed by the inner demand is capitalized by the smuggling networks in the regions that border with Syria. Hereafter it will be analyzed the routes that might have been used to export crude.

-) Iraqi Kurdistan route

One of the mentioned smuggling routes has been the Iraqi Kurdistan route. They have been selling Syria and Iraqi crude oil at low prices to Kurd and Turkish smuggling networks, who labeled it and sold it like barrels

of the regional government of Kurdistan. Several media have pointed out that the determination of the government of Kurdistan to stop this trade has been not very strong. This would imply that they might be helping to finance Daesh, whom at the same time the peshmerga forces are fighting. The area, marked by most sources, is the region of Tuz Khurmatu, which is the first entrance to the Kurd territory. The group has created close links with the local population and the smuggling networks, who has not change their way of life. This relationship with the underground economy and the black market of the zone, makes hard to end with Daesh without affecting the subsistence of the local population. Most tribes benefit from this illegal trade. The Iraqi Kurdistan exports 560,000 barrels per day through an oil pipeline which reaches the port of Ceyhan in Turkey. But according to some observers on the ground and recordings, hundreds of trucks loaded with crude cross the border every day. The crude bought originally to Daesh in the oil fields would be delivered camouflaged in these trucks, taking advantage of the loosening controls on the Turkish border over the not so legal Kurd oil. The Regional Government of Kurdistan has denied it.

Daesh keeps its hands off the smuggling as soon as the crude is sold to middlemen and smugglers at the oil fields. Despite the arrest made by GRK, there are evidences that controlling the corruption at high levels is still a failure. It might be possible that GKR saw the invasion of Iraq by Daesh like an opportunity to consolidate the Kurdish power, especially over the oil area of Kirkuk, but they did not foresee or underestimated how powerful the presence of Daesh in the region might become.

The air raids of the coalition have allowed the peshmergas forces to take hold some territories, narrowing the movements of Daesh in the region. Smuggling in the north of Kurdistan if not blocked yet, has been impeded at it most, however they might be smuggling crude crossing the province of Anbar towards Jordan.

-) Turkish route

One of the main routes used so far, has been the route that joins the oil fields of Syria with the smugglings enclaves in Turkey. They have been carrying crude along the country by oil pipelines or by trucks to modular refineries that transform it in diesel. Later, this diesel is carried by tank trucks to the Turkish border. Other means to carry the oil to the border is by underground pipelines, hidden in agriculture equipment, on boats across the river Orontes, or even on mules (Solomon, 2015). Once in Turkey, the oil is sold at a low price, till 30% lower than the legal oil.

The most frequent route used for smuggling is the border passage of Ibrahim Khalil, near the city of Zakho. Once in Turkey, it is carried to Silopi or Cirze, and from there to the Turkish ports of Mesin, Dortyol and Ceyhan. Different sources confirm that this route has also been used to transport the crude stolen in Iraq, which previously had crossed Kurdistan. It can be assumed that the tank trucks that reach the ports can't be related to the Turkish government in a direct way. But the view of long queues of tank trucks in the refinery of Batman, can't be ignored either, especially bearing in mind that they could carry the crude to the refinery by using the oil pipeline built in the seventies. This is other of the well-known routes, which goes from the surroundings of Deir ez Zor to the refinery of Batman in Turkey, through the old route of silk, down the road of Nusaybin to the border point of Habur. The passage through Aleppo and Azaz to the border city of Kobane has become more difficult after the advance of the Kurds in the Turkish and Iraq border. On the other hand, there are well established smugglers who compete with them. Kobane was of vital importance for Daesh and they made their best efforts to get its control. Due to its proximity to the Turkish border, much of the clandestine trade took place in this zone.

A study of Greenwich University (Kiourktsoglou and Coutroubis, 2015) found possible links between Ceyhan and Daesh. Their study shows evidence that whenever Daesh fought for the territories where there were oil fields, the Ceyhan exports rose, which might be due to an extra impulse in the oil smuggling, trying to obtain immediate funds for ammunition and military equipment supply. The possibilities that a great volume of crude of Daesh reaches the international markets are very few; however it may reach it mixed with other crude in storage deposits.

Observers in and out of Turkey claim that the Turkish government has allowed smuggling on their borders because of their determination to oust the regimen of Assad. Furthermore, the coalition did not consider the tank trucks as a military target, arguing their purpose of no damaging the local economy that is why the transport of oil is being done at day light efficiently. Most people living near the border earn a living on smuggling in some way or another. Although since March 2016 the control on the borders is stricter, the terrorist keep on moving freely.

The security areas, created by the United States to support the movement of the moderate rebels that fight against Assad, have been used by Daesh to carry out their smuggling activities. For the time being, Russia and the countries of the antiterrorist coalition have been unable of to conclude a common list of the terrorist and no terrorist organizations.

5. Estimated Revenues

Factors like the different qualities of the crude in each oil field, the state of the technology used for the extraction of oil, the air raids of the coalition or the fluctuation in the number of tank trucks that go to the oil fields, make it very difficult to make calculus about the revenues of Daesh for the sale of illegal crude.

The Iraq Energy Institute made a first estimation of the production in 50,000 barrels per day in Syria and 30,000 in Iraq. They presumed a price of 40 dollars per barrel (when the market price was 90 dollars per barrel, what means a daily revenue of 3.2 million dollars, about 100 million each month, during the years 2014 and 2015. Nevertheless, these first estimations may be too high. They are based on prewar levels and although Daesh makes efforts to maintain the direction of the infrastructures and the needed staff to produce and process the crude, the conditions are not the same. The total production of crude in Syria reached the highest peak in 2002 with 667,000 barrels per day and lowered the production to 327,000 barrels per day in 2011, having the last normal production that year before the USA and European Union banned their imports. It is estimated that Daesh only produces a fifth of their capacity, and their productivity perspectives in the long term are very low.

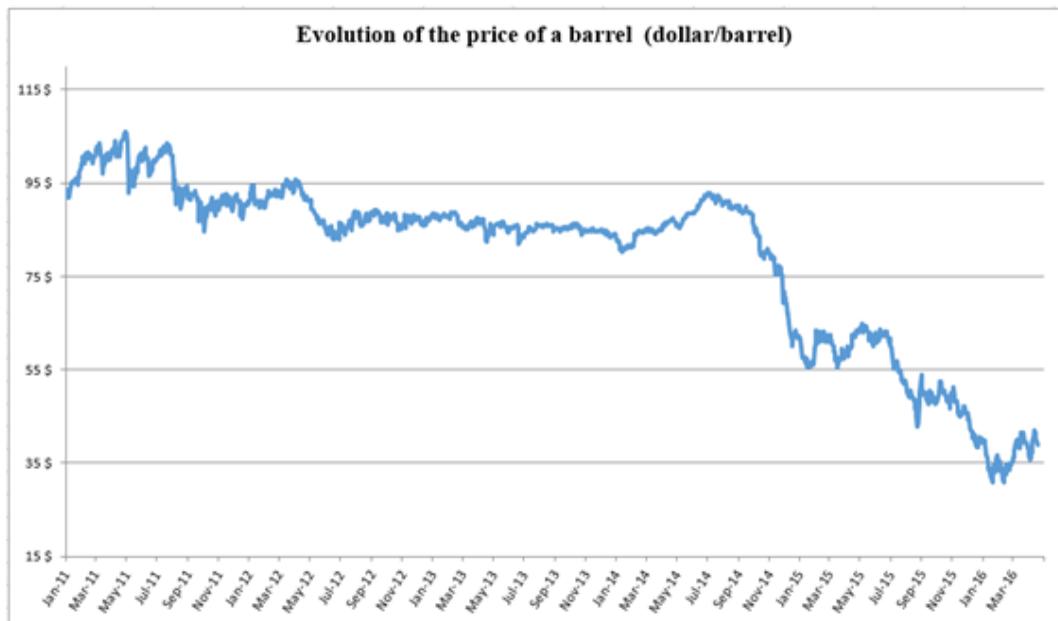
The figures of production that the media and analysts managed ranged between 3 and 4 million dollars a day. The maximum of 4 million means a production of 100,000 barrels a day, at a price of 40 dollars a barrel. That is the figure that the United States government managed. This constitutes a relatively large figure, which could be reached in the summer of 2015 when Daesh was at their zenith of their production.

However, the estimated price of the barrel is more questionable. They have to sell the oil with high discounts, not only for doing it in the black market, but because the quality is not good, far away from the standard international references of the Brent and WTI. Different sources argue that they sell the barrel between a half and a quarter of its price in the market. In the oilfields of al-Tanak and al-Omar, which have the best quality and biggest production in the territory of Daesh, the barrel could reach a price of 40-45 dollars in 2014, but the poor quality of the rest will lower the price considerably. The Financial Action Task Force (FATF) informed in February 2015 that the price of a barrel at the oil field was estimated to vary between 20-35 dollars per barrel and later it was sold by the middlemen like petrol or its derivatives at a price of 60-100 dollars per barrel.

Taking into account that since April 2013 the oil price has fallen from 80 dollars to 38 dollars a barrel in April 2016, with a cumulative loss of 55%, their exporting capacity and therefore its revenues have been seriously affected. Due to the present low prices, it is probably that the exports related to smuggling have fallen, because they don't get the same revenue than in 2014-2015.

Despite the doubtful damage that the fall of prices makes in economy of Daesh, the main consequence is that they redirect their trade towards the domestic market, because they have the monopoly position over the occupied territories. The group sell crude to an isolated *captive market*, so they do not need to fix their prices

according to any market reference. The price will be determined by the number of tank trucks that are waiting at the entrance of the oil fields, and in their controlled territories they are starting to have shortages. If the international price of crude means a ceiling to the value of their oil assets, in a way that they could never sell it above it, the needs of the local population constitutes a floor to the value of those assets, because they don't have other way of supplying their energetic necessities.



Source: own elaboration based on Bloomberg data.

In August 2015 the campaign of the coalition against Daesh's objectives started, with the purpose of damaging its capacity to extract, refine and sell oil. Their main objectives, related to the oil industry were modular refineries, storage deposits and transport convoys. This brought an important change, the sale of crude to middlemen not affiliated to Daesh rose and Daesh stopped refining it. However it should be pointed out that targets related to oil, have not been a priority for the United States. According to US Central Command, the attacks to oil infrastructures have been 949 above a total of 18,388 according to data from 2015. However the air raids have caused Daesh a reduction of revenues estimated in a 30%.

In mid-2014, when Daesh took hold of Deir ez-Zor the production of crude is estimated to reach 40,000-50,000 barrels (Crane, 2015), it increased in 20,000-30,000 barrels in June 2015, when they capture the oil deposit of Mosul, reaching the peak of their production. The price might have been 30-40 dollars per barrel, when in the summer of 2015 the price in the market was around 66 dollars per barrel. Then, they could have earned 2.5 million dollars a day, but sometime later the coalition's attacks would have reduced their production capacity to a third, about 40,000 barrels. When the oil market plummeted, falling to 40 dollars per barrel at the end of 2015, what meant a ceiling to the price they can sell of 20-30 dollars per barrel, implies an estimated revenue on the sale of illegal crude of 1.3 million dollars a day, about 40 million a month. This figure will be reduced during the months of March and April of 2016 if we take as reference the international price of the crude and leave apart the existence of a captive domestic market.

The official figures converge in March 2016 to that estimation. United Nations estimated the daily revenues in 1.6 million and similar figures were given by the United States government and the investigation carried out by the Financial Time. On the other hand, Associated Press recently cited in an article an internal memory of Daesh which was mentioning this figure.

Although this figure is considerably lower to the ones originally proposed, it is still very alarming, because it suppose a level of revenues similar to the revenues of some countries, and of course very high for any terrorist group. In a warlike conflict context, the public services are not a priority, besides, Assad continues to pay most of the civil servants even if they are in territory of Daesh, so the biggest part of the revenues are used to finance the war. It should be taken into account also that Daesh has other revenues related to the oil industry, higher than those obtained at the oil field. There are many control post where Daesh charges a toll, besides the taxes and fees the local refineries and tank truck drivers have to pay, that enlarge the revenues from the activity related with the crude.

6. Conclusion

Despite the fact that situation of Syria and Iraq seems to be changing rapidly, the sources of financing of Daesh mentioned by the Financial Action Task Force (FATF) in their February 2015 report, are still working. The terrorist group obtains an important part of their revenues from the territories they control, from the oil fields, gas and other natural resources and the taxes charged for any activity related to them.

The air raids of the coalition to the oil infrastructures of Daesh are not sufficient. The campaign must be combined with efforts to break the links between Daesh and its territorial partners, individuals, organizations or states. Persecuting the corrupted government officials, with more effective controls on the borders and the illegal oil that the international corporations buy, Daesh would have been deprived or at least impeded to buy arms and to recruit soldiers.

The recent collapse of international prices together with the air raids on the old oil installations and transport system, seem to have eroded one of the main sources of revenues. Nevertheless, the capacity to generate revenues for the sale of illegal crude it is still real, and the fall of the prices has made Daesh to redirect to the domestic captive markets, because smuggling has become less profitable. Daesh behaves in their territory like a monopoly, the prices in its territories have decoupled in some way from the global reality and they don't need to fix them following external references. If the international prices are the ceiling for their sales prices, the energy needs of the territories controlled by Daesh, have set a floor for them. The air raids of the coalition have not impacted as it had been wished on the sales of oil. Daesh is conscious that the only restriction in the domestic market is what the local population can pay for the oil. A local population, completely dependable on electric generators, need oil to provide electricity, so the rise in the price of oil has devastating effects on them.

Daesh is prosperous criminal enterprise that has a system based on a pyramidal looting scheme, which makes them to be constantly in need of expansion to gain revenues to finance the war. This nature of being may be their weak point, the need of a continuous territorial expansion is impossible in the long term.

However, the western countries have not achieved to stop them having economic profits from their diversified portfolio of financing sources. Blocking and stopping their finance flows has to be in the center of the strategy against Daesh. It is very difficult to isolate them from the exterior to make their economy collapse. The financial sanctions are beyond the scope, because Daesh works with cash and their individuals and illegal networks are out of the official economy. But at one point of the smuggling chain, the access to the financial system is required to move the money and to pay for the supplies. At this point the oil and cash are managed by someone with access to the legal economy and uses the payment channels of the financial system. It is there where the prevention mechanisms must work, making the sanctions effective and hinder that this money or assets are transferred to the international banking system.

The financial tools of counterterrorism are showing a magnificent efficiency as a mean to stop the flow of funds to terrorist organizations and as a source of a financing intelligence that can be used to achieve greater success in the fight against it.

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