

Maghreb As Critical Area For The Oil And Gas Facilities In Security Context: Algeria Case Study

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Abstract

The political and economic situation in the Maghreb region after the 2011 revolts highlighted a widespread sense of insecurity and social unrest, which soon was sided and boosted by civil conflicts and the presence of several terrorist groups linked to international Islamic jihadism. Some of the favorite targets of these well trained and armed militias were the industrial oil facilities. The targeting of industrial facilities in rentier states countries such as Libya and Algeria reshaped the concept of “security” and shed a somber light on the future of oil refineries and extracting industries in the area. The Algerian case is particularly interesting, because the attack to the gas plant of In Amenas (2013) showed the serious effects of a terrorist attack from several points of view, highlighting the absence of a ‘fail-safe’ system within a real risk assessment management that takes into account not only domestic situation, but also a regional approach. The present study offers a reflection on the geopolitical context of the Maghreb area and provides indications to support interdisciplinary security risk assessment studies dedicated to process facilities.

Keywords: Maghreb, Algeria, terrorism, political security risk, process security

1. Introduction

Chemical and process facilities, as well as industrial facilities in general, may be targets of malicious acts of interference (Baybutt and Reddy, 2003). Damages induced by external attack may cause the release of hazardous materials, triggering cascading events, such as fires, explosions, and toxic releases (Iaiani et al., 2021) as well as escalation to multiple neighboring equipment with domino effects escalation (Marroni et al., 2024a). This situation is exacerbated among critical contexts, such as the Maghreb. In this area, the intense chemical and petrochemical industrial activity coexists alongside a high sociopolitical instability and the presence of a high number of terroristic cells (Martinez and Boserup, 2017), leading to a strong impact on the risk profile of such industrial installations and asking for systematic tools for the assessment of risks induced by security-related threats.

In the last two decades, several studies were devoted to the quantitative assessment of security aspects of chemical and process facilities (Landucci et al., 2020). A crucial step in the framework of security risk assessment of process facilities is the attractiveness assessment (Marroni et al., 2024b). Determining the attractiveness of a process plant is aimed at supporting a preliminary screening to prioritize resources (CCPS, 2003) and to determine further assessment needs in relation on the credibility of attacks to a given process facility in a particular context. Identifying possible security criticalities for a given facility and addressing specific security preventive measures is crucial for the security management of industrial facilities (Casson Moreno et al., 2022). However, the estimation of the threat and motives related to a potential attack asks for the systematic situational analysis of the context in which the facility is located.

Previous studies dealing with Maghreb area assessed technical aspects and identified potential accident scenarios induced by terrorist attacks on process facilities (Landucci et al., 2022; Marroni et al., 2022). Nevertheless, a systematic geopolitical analysis and a deep investigation of this area supporting advanced process security studies is lacking.

The present work is aimed at providing a sound evaluation of the Maghreb context based on a geopolitical and social analysis in order to support detailed quantitative risk assessment studies. Literature documents, newspapers, and reports are analyzed in order to picture the geopolitical context of the Maghreb area (Section 2). Particular attention is devoted to the accident occurred at the In Amenas (Algeria) gas plant in 2013 (Section 3). The case is analyzed to demonstrate the features of security-related events when affecting process safety aspects and to show the impact of terrorist actions triggering accidental scenarios. The interconnections between national, regional and global threats to security are therefore discussed with particular reference to the Maghreb context (Section 4), supporting future actions (Section 5) devoted to the systematic assessment of integrated safety-security aspects in critical contexts.

2. The Geopolitical context of the Maghreb area

The broader area of North Africa has undergone significant geopolitical changes throughout the last decade. The developments taking place in the region have become increasingly interconnected and their impact has extended far beyond their borders, especially to Europe. It could be argued North Africa was ushered in a new era with the Arab Uprisings that spread throughout the Arab World. The security environment in North Africa today is defined by at least four interconnected dynamics: 1) energy sources (gas and crude oil), 2) geopolitical antagonisms and new (im)balances of power, 3) new (human) security imperatives, and 4) increased interest in the area from external powers. It is beyond any doubts that oil fields and the recent and continuing discoveries of hydrocarbons in North Africa have been among the main drivers of the changing geopolitical and security dynamics in the region. These gas reserves have resulted in new interests, costs and benefits for the region, shaping its geopolitical and geo-economical aspects in terms of security. Energy has therefore become another point of contention among both traditional and more contemporary geopolitical rivals in north Africa: Algeria vs Morocco or Turkey's involvement in the Libyan quagmire. As a matter of fact, Turkey is not the only external power interested in the region. Individual European states such as Britain, Germany, France and Italy have also been trying to get more involved in the region's affairs. China, too, has recently developed a keen interest in the area, as well as Bahrein and United Arab Emirates.

Petrochemical facilities have been targeted by numerous terrorist groups and organized militias, with the aim of destabilizing governments after the Arab Springs. In Libya and Algeria, the state receives its form of income mainly from the sale and concessions of oil, taking on the contours of a mono-economy centered precisely on hydrocarbons (Selby,1988). All the northern Africa states have been influenced by Libyan instability and the complex regional issues have made the internal macro-area a real powder keg (Cordano, 2014). The attacks to pipelines, process plants, storage and oil-gas facilities in North Africa boosted in the years from 2011 to 2019 (see Fig. 1).

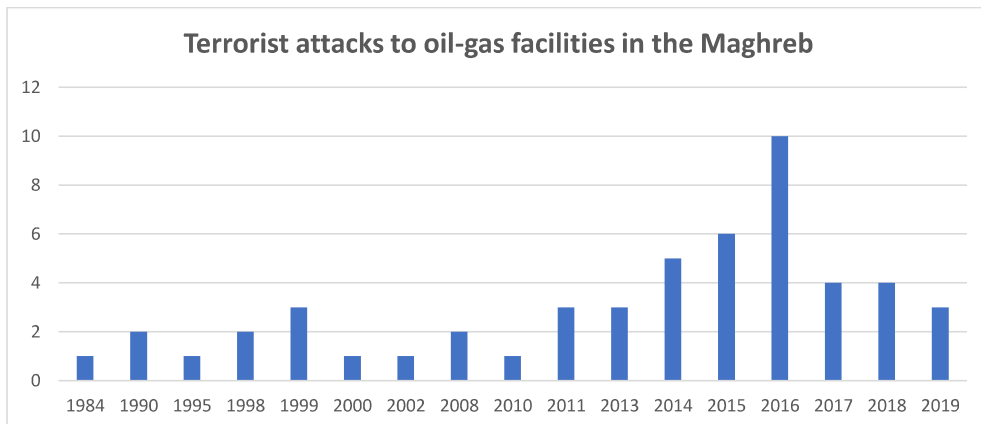


Fig. 1. Terrorist attacks to oil-gas facilities in the Maghreb area in the period 1984-2019. Adapted from (Casson Moreno et al., 2018).

The Arab Uprisings and the devastation caused by the rise of IS have led to massive economic, social, security and humanitarian problems in many North African countries, especially Libya, but the social unrest also hit Tunisia, Algeria, and Morocco. The social insecurity boosted the phenomenon of terrorism, which still rages the

region, taking advantage of the porous and uncontrolled borders and the presence of several “failed states” such as Libya, Niger or Mali (Curtis, 2005; Perry, 2019). Nevertheless, terrorism linked to radical Islam has plagued the Maghreb for decades, long before the Arab Springs and even the attacks of September, 11. Before 2001, however, North African terrorism was largely contained and almost localized. Today Maghreb extremists have developed into complex transnational organizations that combine religious ideology with criminal networks (such as drug dealers, human trafficking, and guns smuggling) operating both locally and globally. For example, Al Qaeda in the Lands of the Islamic Maghreb (AQIM) is an Algerian rooted organization, but, at the same time, it has pushed southward into the sub-Saharan states such as Mauritania, Niger, and Mali. In 2011 some militants broke with this movement forming the “Movement for Oneness and Jihad in West Africa” (*Jamā'at at-tawhīd wal-jihād fi gharb 'afriqqiyā*) with the alleged goal of spreading *jihad* further into areas of West Africa that were not within the scope of AQIM. One of its factions seceded joining another group: *Katibat al-Mulathamīn* ('The Masked Brigade'), also called *al-Muwaqqi'ūn bi-d-Dimā'* ('Those who Sign with Blood'), led by Mokhtar Belmokhtar, which perpetrated the attack to the Tigantourine gas facility near In Amenas (Algeria) on January 16th, 2013.

Vast open spaces and undefended national frontiers allow armed groups to operate at its own will. However, in terms of security, frontiers constitute a problem of security not only because of terrorism. The Sahara-Sahel frontier is inhabited by nomad people living in the area who do not recognize territorial boundaries. They belong to specific tribes linked to the tribal solidarity and above all they consider themselves part of the Islamic Umma (the Muslim community) that transcend regional, linguistic, and other human frontiers. There is a sort of deterritorialization that leads to the weakening of ties between culture and place (Appadurai, 1990).

North Africa and the Maghreb, i.e., the western Arab world, attracted in general less interest in comparison to the eastern Arab world, namely, the Middle East or Mashreq. The impact and the magnitude of the conflicts in Israel, Syria, Iraq and the Gulf always focused the attention of the Media. Only the dramatic unfolding of the events in Libya after the fall of Muḥammad Qaddafi in 2011 received for a limited time coverage in the global media. The descent of Libya into civil war, and the social unrest in the neighbouring countries, such as Algeria, received even limited attention. More surprisingly and worrying is the academic lack of interest for the region. Attention has always been scant in comparison to other regions of the World. Therefore, it is a small wonder that an extremely limited number of works exists on the safety and security of industrial facilities issue in the Maghreb region.

In Algeria, nearly all the key decisions are taken by the senior hierarchy of the country's military of the Armée Nationale Populaire (ANP), who share and influence the governance together with the political elite. Therefore, major political debates and decisions occur behind closed doors and are carried out by a very limited number of people: the conclave of senior political and military leaders, who are linked in the triad “party-state-army”. ANP is the dominant institution and its officers often occupy also civilian positions, especially after the “black decade” of the civil war in the 90s caused by Islamic terrorism. The stability of the country is preserved through the form control of public opinion by the government, the armed forces and the secret services, the *Département du Renseignement et de la Sécurité* (DRS), which were reformed in 2015 and became the *Direction des Services de Sécurité* (DSS). The latter, controlled by the president of the republic, is a powerful organization, so powerful that can be considered a state within the Algerian state. It can be argued that is correct to place Algeria in the row of the Mukhabarat states, i.e. Secret services/Police state (Benchikh, 2003). Notwithstanding, the question of security is a very debated issue because of the extreme difficulty in obtaining information from authorities, who are always very suspicious about releasing reliable data and discussing about sensitive details. There are no available “White papers” or “Security plan” publications. There are scarce sources about how security decisions are taken and sometimes it is even difficult to understand who is in charge of security matters in industrial facilities, i.e., either the DSS or the ANP.

The ANP and the DSS are in charge of the security of all industrial plants, considered strategic resources of the state. Algeria relies on hydrocarbon resources for roughly 97% of its currency export earnings, and 60 % of total government revenue. Therefore, the Algerian state is a “rentier state” a state in which most revenues originate from a national resource. In other words, an “allocative state” opposed to a productive state, in which prosperity basically comes from taxation. In the rentier state the well-known scheme “work-domestic production-taxation” is reversed. It is the state revenues that cause the Gross Domestic Product. Moreover, the state subsidizes the economy and allocates revenues to feed clientelism and social peace. It can be understood why industrial facilities are considered strategic and defended not only from terrorism but also from eventual popular riots. Algeria has a large and young domestic population that faces poverty and inequality, and consequently political unrest that often burst in violent demonstrations (Willis, 2012). Only revenues from oil and gas allowed the elite in power to calm the quest for democracy and the better standard of living through small concessions such as subsidies or lowering prices of basic goods.

The failure of the socioeconomic development it is not the only problem that threaten the security and the stability of the regime and the state. Transnational Islamist terrorism is another big issue. The outbreak of terrorism in the early 90s was crushed only after almost ten years of civil war, but reinforced as we pointed out the authoritarian nature of the regime (Martinez, 1998). Algeria was forced to reshape its security policy focusing on terrorism as the main threat to national security, because domestic terrorism evolved in another dangerous form: transnational and borderless terrorism embodied by the al-Qaeda branch in the Sahel-Sahara region, better known as al-Qaeda in the Islamic Maghreb (AQIM) (Gray and Stockham, 2008). This group is the evolution of the Salafist Group for Preaching and Combat (GSPC) that declared allegiance to al-Qaeda, restructuring his organization in accordance with the requirements of the global jihadism. AQIM generally spares civilians and tends to target security forces, government officials, centers of command and economic structures, such as industrial plants that are life-blood for the regime (Martin, 2019). However, AQIM not only brings about terrorist activities, but it is also into drugs and arms smuggling and human beings trafficking (Steimberg and Warenfels, 2007). The geological structure of the Saharan/Sahelian territory, which crosses Algeria, and tribalism, together with the social structure of the country, influence negatively the task of security forces to curb the phenomenon of terrorism (Harmon, 2010). The latter can exploit the absence of physical and legal border, which are extremely porous, to infiltrate within the vast territory that cannot be effectively controlled.

Terrorists are aware that even a small incident may cause disruption in the oil and gas supply chain, leading to increased global political and economic tension. Therefore, terrorist groups have taken advantage of this situation increasing attack on oil and gas facilities as a mean to pressure domestic policy and as a tool of propaganda to gain visibility abroad (Steinhäuser et al., 2008)

3. Description of the In Amenas case

In the morning of January 16th, 2013, some 32 al-Qaeda-linked terrorists led by Abu al-Baraa (a man of Mokhtar Belmokhtar) belonging to the group *Katibat al-Mulathamini* ('The Masked Brigade') stormed the Tiguentourine gas plant in Algeria's Sahara Desert. Tiguentourine is located in the Algerian province of Illizi, about 50 km far from the town of In Amenas, and 78 km from the Libya border. The gas plant, which was producing the 12% of Algeria national gas (approximately 5 M\$ per day), was operated by Algeria's national oil company, Sonatrach (51%), BP (24.5%) and Norwegian Statoil (24.5%), and run by 800 employees, who were taken hostages by the Islamist militias led by Mokhtar Belmokhtar. The attempt to free the industrial facility by the Algerian army, under the command of Algeria's secret intelligence service, the DRS, after three days of siege, led to the death of 40 people, many of whom were Western foreign workers. It was the largest and deadliest terrorist attack against an oil facility in industry's history (Ard, 2023).

The terrorist organization, after the attack, published a forty-page document entitled "Tigantourine: A War against French Agents in Algeria". This document, which had a widespread diffusion, stated that the attack was the result of the presence of Western companies active in Algeria (considered part of the Muslim community) who were engaged in an ongoing theft and looting of natural resources, such as gas and oil - from the Muslim territory. In the terrorists' vision multinationals were "new colonizers", supporting global Zionism, the "slaughterer of the Palestinian people". The document added that all Muslim regimes that cooperate with the multinational had to be condemned and destroyed, as traitors of the Muslim people.

The terrorist operation started with the attack of two buses transporting foreign: the first one was heading to the airport, and the second one to the site of a gas platform co-exploited by the multinational and Sonatrach in Amenas. The attack against the first vehicle caused two deaths on the side of the security members. In the meantime, the passengers of the second bus were kidnapped. After this first action, the terrorist group headed towards the facility, stormed the main installation and the Central Processing Facility (CPF). They also rigged the plant with explosives, and threatened to destroy it in case there was an attempt to free the hostages, who were gathered at the center of the plant (Algerian and Muslims were separated from non-Muslim foreigners, forcing them to wear exploding necklaces) (CAERT, 2013). Terrorists demanded the liberation of a couple of terrorists imprisoned in the US. However, the Algerian government did not want to negotiate with the Amenas attackers. Nor would the United States be willing to release two convicted terrorists (Omar Abdel-Rahman and Aafia Siddiqui), as the attackers demanded. The terrorists might have been persuaded to accept a large cash ransom in lieu of their initial demands, but that could have involved lengthy negotiations, during which more hostages might die or the huge Amenas facility might have been sabotaged, threatening even more casualties. Algeria saw the hostage crisis as an opportunity to demonstrate its strength against terrorism and therefore decided to attack the plant.

On the evening of January 17th, 2013, the Algerian special forces declared to have regained control of the base-life of the site, but not yet of the factory, where several terrorists entrenched themselves. At the end of the day, some jihadists try to blow up a pipeline, but they find themselves under the fire of a commando of the army who

pinned them down; 18 terrorists were eliminated by the security forces and 12 hostages executed by the terrorists while more than 100 foreign hostages among 132 in addition to 573 Algerian were liberated (Barack, 2013).

On January, 19th at midday takes place the second and last assault of the Algerian army, this time against the factory where there were still entrenched a dozen of them. This offensive ended tragically, because at least seven foreign hostages were executed by their captors, who are then shot by the army.

The attack by the Algerian army special forces against Islamist terrorists who had taken control of the Tiguentourine gas extraction plant in eastern Algeria cannot be defined as a blitz. The incursions aimed at freeing the hostages are planned to last just a few minutes and the synchronization between the different components used (assault teams, vehicles and helicopters) is exacerbated to reduce the possibility that the kidnapers can carry out reprisals on the hostages. Instead, the military units of Algiers launched an assault like the one unleashed on the battlefield, first using helicopters armed with rockets for bombing tasks and then advancing the infantry and armored vehicles when the surprise effect was now compromised. With this methodology and with a battle lasting more than 48 hours it was impossible to avoid the death of hostages and civilians and it was likely that some terrorists could escape. At least two factors favored the Islamist militiamen: the area was too large, and the hostages were held in different areas with the aim of preventing multiple and simultaneous raids. The Algerian troops who had surrounded the area on Wednesday evening were not even able to seal off the area controlled by the terrorists, some of whom perhaps managed to escape after mixing with the hundreds of fleeing local workers. Analyzing what went wrong in the attack can, however, be misleading because it does not appear to have been an action aimed at freeing the hostages in which something went wrong but rather a real battle, which lasted many hours also because it was chaotically managed by the Algerians (Equinor, 2013).

The assault was carried out in these ways, certainly not new in Algeria, as a precise political choice of a country that has never come to terms with the Islamic terrorists against whom it has been fighting for 20 years and has always responded with brute force to attacks carried out by jihadists. The priority in the attack, which according to some counter-terrorism experts was carried out without even knowing the detailed map of the Tiguentourine plant, was attributed to speed. Algiers wanted to act quickly to limit the window of international media visibility that the terrorists had obtained with their gesture and to close the game before the pressure in favor of negotiation exerted by Western countries, having their own citizens among the hostages, became too strong. Unfortunately, this meant the failure of the hostages' liberation as well as a massive escalation of the accident, demonstrating the criticality of security scenarios affecting process facilities.

4. Analysis: The mirror of the interconnections between national, regional and global threats to security

The apparent goal of the attack described in Section 3 was to kill as many westerners as possible, but in reality, there were more far-reaching reasons. Terrorists chose its target according to four main motives:

- 1) *The economic factor*: damaging an important infrastructure in the country, would have weakened the country's economic power, and thereby destabilized the country as a whole;
- 2) *The deterrence factor*: attacking strategic targets and penetrating compounds that are well guarded by the country's authorities is liable to create a state of anxiety among civilians and the country's leaders, since their environment is no longer safe, and is susceptible to attack. The goal was to undermine the faith of the civilian populace in the government and create a political instability;
- 3) *The ideological factor*: Attacking a gas facility in Algeria, in which many foreign workers were employed, was a clear attack to the West too, and refuse to accept that Westerners could exploit natural resources in a Muslim territory;
- 4) *Competition with other terrorists groups*: Such an important target served as a propaganda tool and to boost the organization's reputation within the terrorist web, and transforms the attack into an attraction for other would-be terrorists (Barack, 2016).

Some independent inquiries revealed the evidence of the possible complicity between the DRS and the terrorists, while the Algerian government resulted totally uncooperative on the matter, implementing the suspects of a 'false flag operation'. DRS had so thoroughly infiltrated AQIM that many local people in the region spoke of AQIM and the DRS as one and the same organization. The nature and scale of the Algerian government's involvement in an array of criminal activities, notably drug trafficking and hostage-taking, led some analysts to talk of Algeria as a 'mafia state'. Even if the Algerian involvement was not proved, the In Amenas events reflected the growing disenchantment with the Algerian state's ability to cope with terrorism and protect its industrial sector. Algeria boasted to stand out among Arab and African states for its hard-won competence in counterterrorism, having defeated various terrorist groups between 1993 and 2003 and undertaking a transition from civil war to peace since then, experimenting a controversial transitional justice experiment that tended to bring peace within the Algerian society. However, the terrorist attack earned worldwide news coverage due to the daring and success

of the terrorists in penetrating the well-fortified compound, which held a position of both strategic and economic importance (Keenan, 2016). The Algerian regime lost its face due to the inability of the Algerian intelligence authorities to discover the plans for the attack, and due to the military blunder of failing to conclude the crises in a swift fashion. In addition, if the oil wells had been ignited, the ramifications could have been even more destructive, and the Algerian economy would have been severely harmed.

Security measures at Tiguentourine were upgraded in 2009 and included double fences around the processing and living area, as well as concrete bars and chicanes to slow down incoming vehicles. However, the plant relied on the defense of the Algerian army stationed at the town of In Amenas, because, according to the Algerian law, foreign companies cannot employ armed security guards. The joint venture had a security management plan that envisaged civil riots, common criminality, natural disasters, and terrorism. However, it overstressed the importance of the Algerian army, which, on the other hand, did not release any information about the quantity of their troops and their deployment. In any case these measures were not conceived to resist or delay an attack of such magnitude and mainly relied on external military protection. All passive protective measures were constructed on the assumption that the Algerian military would prevent and protect the site against an armed assault. The economic importance of the crude oil sector and the belief that Algerian authorities would have made every effort to protect critical oil and gas facilities deepened the thrust on the Algerian army. All security plans and security risk management were based on this inconsistent assumption. The over reliance on Algerian army was based on the trustworthy Algerian experience in defeating Islamic terrorism, but this, as we pointed out was a myth, due to the high level of protection needed at the site and the size of the area involved. The license area covered 2750 km² (the size of Luxembourg) and was situated close to a porous international border.

The In Amenas events shook the corporate security industry. It highlighted the nature and limitations of intelligence warning for private industry. Corporate security intelligence has been adopted by many companies that desire a 'decision advantage', but in this case, it failed to foresee the attack. Since the In Amenas tragedy, big corporations' risk assessments could not ignore any more the severe limitations and weaknesses of their host country security institutions (Ard, 2023). Nobody in the joint venture had any idea of what a terrorist attack was, therefore, nobody had the expertise to ability to detect, delay and stop a potential attack. The lack of an early warning system, the absence of an evacuation plan, security drills and armed guards protecting the living areas, as well as the true nature of dangers in the area which were hidden within the risk assessments, gives the measure of the unpreparedness and it is even unexplainable because the environment at the time should not have made this type of attack unthinkable (Lambrecht and Blomquist, 2017). In other words, the risk assessment did not consider the relevance of regional geopolitical events and the instability of the region. Above all, the events stressed the fact that any risk assessment management cannot be static but must be renewed and updated periodically according to the local/national situation (Mullan, 2023). Moreover, there was no holistic approach to the issue of security. Political risk was basically deemed a public relation issue. The political and security risk was outsourced through external agencies. Only after the attack, the company set up its own political and security risk analysis team.

Nationalizations and expropriations have always been the main sources of political risk for companies operating or investing in foreign countries (Fitzpatrick, 1983; Jakobsen, 2012). The emergence of non-state actors and the possibility of terrorists attack radically changed the concept of political risks, due to the fact that terrorist activities can produce heavy financial damages or loss of personnel (Bremmer and Keats, 2009). In Amenas has been a clear example of risk management failure, despite the fact that in the period before the attack there had been several warning signs of terrorist activities in the region and that the oil sector in south-west Algeria could be a potential target. From 2011, the regional security had deteriorated. The anarchy and civil war in Libya turned this country into an ungoverned space, which provoked freedom of movement for armed militias and criminals. There was an increased access to weaponry and availability of militants across the Sahel and Maghreb. North Mali had turned out a safe haven for jihadists and terrorists. Moreover, Belmokhtar had released a video on the web threatening western interests in December 2012.

After the event oil and gas companies had to expand their knowledge about the political situation of the country in which they were operating, as well as the geopolitical awareness of the whole region. A domestic level of security risk assessment is easier to understand and cope with. The regional threat level is much more complex and uncertain due to the multiplicity of actors involved.

The In Amenas attack was a watershed event because it pointed out how instability in a whole region (the Maghreb) can threaten national stability and economic interests. It also highlighted that resources and industrial facilities in vast and hard-to-control areas are subject to external influences such as drugs, arms, and goods smuggling, which grows in an instable environment with no reliable interlocutors or states. Belmokhtar and his men came from a failed state: Libya. It meant that the threat basically was not a national issue, but a transnational one. Algeria was accustomed to crush internal jeopardies but proved to be less effective in preventing and stop transnational security challenges operating beyond its borders and failed states (Mali or Libya). Therefore, Algeria was forced to rethink its own security general framework, focusing on the Libyan borders: it deployed more troops,

created new military zones and new engagement rule in order to search and destroy any unidentified convoy penetrating its frontiers.

The real problem with Algeria is the lack of information related to its real political situation. Every company operating within its border will face the government's reluctance to disclosure data on security issue, especially about political dissidence, Islamist movements and the activity of terrorist groups. In an economic world system, where the economy is largely oil-driven, oil companies producing this commodity will be the favorite target for terrorist groups. Algeria, as one of the main gas and oil producer in Africa, is investing a huge number of resources in the protection of its own industrial facilities (Martinez and Boserup, 2017). The Algerian government launched a plan to protect the oil and gas facilities against potential terrorist acts. The plan consists of hiring 22,000 guards and spending 400 M\$ on the security systems in the infrastructure of oil and gas. The challenges for Algerian government are multi-levelled: Monitoring and protecting its expansive borders with neighboring Morocco, Mauritania, Mali, Niger, Libya and Tunisia; Protecting thousands of miles of oil and natural gas pipelines and facilities throughout remote desert areas; Protecting government buildings, infrastructure and major points of entry into the country such as airports and seaports. Therefore, it is a small wonder that Algeria can still be hit again by terrorism.

On the other side, international companies will keep on relying on Algerian army to shield their plants but will implement their political–security risk management strategy. The latter task is particularly hard, not only because it requires ongoing situational awareness on individual, national and transnational level, but also because it has to rely forcibly on information ceded by Algiers' elite at power. In an uncertain and high-risk environment intelligence hardly can be easily deployed and can bring about its task, which is even hampered by the opacity of the local government plagued by its obsessive secrecy and authoritarianism.

5. Conclusive remarks

Vulnerability of energy infrastructures and process facilities in violence-prone regions, such as the fragile and unstable Maghreb, is not only a matter of hardening of military defenses, but it also means unpacking and understanding the complexity of actors and their relationship the socio-economic and political environment (Bajpai and Gupta, 2007). A complex interplay exists among physical infrastructures (oil-gas facilities, pipelines), human capital (employees in the energy sector), and geopolitical issues (the Libyan and Malian chaos). In Algeria there is also a complex dynamic of these factors within a mosaic composed of culture, tribalism, ethnicity, criminality, economy, and numerous violent groups. The protection of critical infrastructures, such as process plants, should be very flexible and nuanced, taking into account all these variables. As we pointed out the 2013 attack was not an internal affair, but it was composed of a mixture of multinational and transnational fluid groups, non-state actors with different ideologies and motivations (qaedism, international jihadism, ethnical revindications, banditry). This implies a better understanding of the threats coming from a heterogeneous region such as the Maghreb and the tensions presents in the area. These jeopardies tend to materialize in targeting natural gas and oil installations, which are always a high-value targets (Moore, 2013).

Terrorism is not the only problem in Algeria. Popular unrest and riots cyclically burst in the country, and it is not unlikely that in the future oil-gas plants can be the target of forms of antigovernment protests. In this case a new form of security should be foreseen with even somber scenarios due to the possibility of a new failed state in the Maghreb.

Finally, the outcomes of the present study enable to critically reflect on a geopolitical and economic context and allow to better focus quantitative risk assessment studies, such as advanced attractiveness analyses, based on technical and non-technical factors (Marroni et al., 2024b).

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