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The OSCE's Contribution to Energy Governance in the Mediterranean Region

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Edited by
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The study does not represent the position of the OSCE nor of its participating States and exclusively reflects the research and opinions of its authors.

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PREFACE

This report was written in the framework of New-Med and was generously funded by the Italian Ministry of Foreign Affairs and International Cooperation through a dedicated extra-budgetary OSCE project. Established in June 2014, New-Med is a research network of Mediterranean experts and policy analysts with a special interest in the complex social, political, cultural and security-related dynamics that are unfolding in the Mediterranean region. The network is developed by the Istituto Affari Internazionali (IAI) of Rome, in cooperation with the OSCE Secretariat in Vienna, the Italian Ministry of Foreign Affairs and International Cooperation, the Compagnia di San Paolo of Turin and the German Marshall Fund (GMF).

At the core of the New-Med activities stands the need to rethink the role of multilateral, regional and sub-regional organisations to make them better equipped to respond to fast-changing local and global conditions and to address the pressing demands coming from Mediterranean societies all around the basin. A priority of the network is to promote a non-Eurocentric vision of the region, featuring as much as possible views from the South and from other regions. The network also seeks to provide a platform by which emerging researchers can put forward new perspectives about regional cooperation. By undertaking research and outreach activities, this "track II" initiative aims to foster scholarly reflection on the changing scenarios in and around the Mediterranean and provide key inputs to the political dialogue taking place in policy fora, including in the context of the Organisation for Security and Co-operation (OSCE) Mediterranean Partnership.

One of the key topics addressed by the network during its first year was energy governance and the role of the OSCE. Consistently with the ever growing attention devoted by IAI to energy issues in the Mediterranean region and beyond, particularly in their relevant connections to broader environmental and climate change-related problems, the report dwells on the manifold challenges and opportunities linked to the use of energy resources as a tool for peace, prosperity and stability in the region. In light of the strong interdependences between Europe and the Mediterranean, there is the need for shared platforms for addressing energy governance. Against this backdrop, the Organisation could offer the largest regional security platform in the world for a political and technical dialogue on these issues. This can only derive from a thorough assessment of these phenomena and a sound reflection about where the OSCE's role and added value lies in

crowded international policy fields in which other actors, from national governments to multilateral and regional organisations operate.

This is the gap this report aims to fill by shedding light on the potential role of the Organisation on hammering out policies and initiatives targeting energy governance in the Mediterranean beyond the purely economic dimension. So far, the OSCE has mainly dealt with energy as part of the economic and environmental dimension of its mandate. However, the scope of the issues pertaining to the governance of energy security in the Mediterranean region, and in which the OSCE could play a role, is of a much more comprehensive nature.

First, in keeping with its mandate as a political broker and a regional organisation promoting a cooperative type of security, the OSCE could work towards establishing a political dialogue to facilitate the development of energy resources, in particular those located in contested areas (i.e., offshore) by ensuring an appropriate and effective multilateral forum where joint initiatives to exploit oil and gas resources can be discussed. This topic is addressed by the first contribution in this report that explores the OSCE's role in fostering political dialogue between the different conflict parties in the East Mediterranean with a view to reducing the decades-old mistrust between various neighbouring actors. Second, the report offers a contribution on the Organisation's potential role in the area of preventing disruptions to critical energy infrastructure, which may endanger intra- and inter-regional security of supply. These may include attacks of a deliberate nature (i.e., terrorist attacks), breakdowns of a technical nature or those caused by accidental human activity or natural causes, such as debilitation. Against this backdrop, the OSCE should develop tools and mechanisms to guarantee the physical security of infrastructure for both the development and the transportation of energy resources, i.e. offshore platforms, terminals, oil and gas fields. The third chapter of the report discusses the OSCE's role in providing assistance and transferring best practice with a view to strengthening the efforts of Mediterranean countries in their transition towards a more sustainable and efficient energy sector. The report concludes with a policy section highlighting the potentialities and limits of international cooperation in addressing the complex web of issues that make energy governance one of the key ingredients of sustainable, effective and peaceful cooperation in the Mediterranean region.

This report would not have seen the light without the precious support of Lorenzo Colantoni, Junior Researcher in the IAI's Energy Programme, who has been involved since the beginning of this project providing his valuable feedback and comments on the content of the different chapters.

Silvia Colombo and Nicolò Sartori
Senior Fellows, IAI

ABBREVIATIONS

AGP	Arab Gas Pipeline
BAU	Business-as-Usual
Bcm	Billion Cubic Metres
CO_2	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalent
COP21	2015 United Nations Climate Change Conference
CBM	Confidence Building Measure
CSP	Concentrated Solar Power
Dii	Desertec Industrial Initiative
EIB	European Investment Bank
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
EEZ	Exclusive Economic Zone
EMP	European Mediterranean Partnership
EU	European Union
FEMIP	Facility for Euro-Mediterranean Investment and Partnership
GECF	Gas Exporting Countries Forum
GHG	Greenhouse gas
IEA	International Energy Agency
IEF	International Energy Forum
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
IRENA	International Renewable Energy Agency
ISIL	Islamic State of Iraq and the Levant
LNG	Liquefied Natural Gas
MEDREG	Association of the Mediterranean Energy Regulators
MedTSO	Association of the Mediterranean Transmission System Operators
MENA	Middle East and North Africa
MoU	Memorandum of Understanding
MSP	Mediterranean Solar Plan
MSP-PPI	Mediterranean Solar Plan Project Preparation Initiative
Mt	Million Tonnes
Mtoe	Million Tonnes of Oil Equivalent
MW	Megawatt
NGO	Non-governmental organisation
OCEEA	Office of the Co-ordinator of OSCE Economic and Environmental Activities
OECD	Organisation for Economic Co-operation and Development

OPEC	Organisation of Petroleum Exporting Countries
OSCE	Organisation for Security and Co-operation
PBM	Partnership Building Measure
PV	Photovoltaics
RE	Renewable Energy
SDG	Sustainable Development Goals
SEMCs	Southern and Eastern Mediterranean Countries
Tcm	Trillion Cubic Metres
tCO_{2e}	Tonnes of Carbon Dioxide Equivalent
TPAO	Türkiye Petrolleri Anonim Ortaklığı
TREC	Trans-Mediterranean Renewable Energy Cooperation
TRNC	Turkish Republic of Northern Cyprus
UfM	Union for the Mediterranean
UN	United Nations
UNDESA	United Nations Department of Economic and Social Affairs
UNECA	United Nations Economic Commission for Africa
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change

1.
POLITICAL DIALOGUE TO FACILITATE THE DEVELOPMENT OF ENERGY RESOURCES IN THE EAST MEDITERRANEAN

Laura El-Katiri*

The substantial natural gas discoveries offshore Israel, Cyprus and, most recently in August 2015, Egypt present the East Mediterranean with a very potent new set of dynamics. The Levant basin alone has been estimated to hold up to 3.45 trillion cubic metres (tcm) of recoverable natural gas, in addition to other hydrocarbon deposits which include some 1.7 billion barrels of recoverable oil.[1] The majority of thus far discovered resources are concentrated in the offshore territories of Israel, Cyprus, and Egypt, but with additional potential offshore of Lebanon, Syria, and Palestine. The economic opportunities of monetising natural gas resources of the Levant make these resources a very valuable, albeit conflict-prone asset to the East Mediterranean region as a whole. Natural gas is an asset, because it opens avenues for more economic growth; is an urgently needed new source of cleaner energy in a region still dominated by imported oil as the main source of energy; and it could form the basis for more fruitful regional cooperation tied to the very obvious need to provide a stable political and legal environment for the development, and further exploration for East Mediterranean hydrocarbon resources.

But the East Mediterranean's complex political make-up, in addition to the fragile economic climate of Cyprus, the Levant and North Africa, has the potential to affect development of the region's natural gas resources detrimentally. The inter-state conflicts and rivalries that have for so long formed part of the region's geopolitical landscape have been revived and in some cases intensified by these recent

* The author thanks Charles Ellinas, Androulla Kaminara, Lorenzo Colantoni, Silvia Colombo and Nicolò Sartori for their very helpful comments on an earlier version of this paper. Special thanks go to the Oxford Institute for Energy Studies for its support and for the kind permission to reproduce its map in this paper. All remaining errors remain the author's own. Conversion factors used for this chapter: 1 bcm = 1 bcf * 0.028 (BP, 2015).

[1] The Levant basin excludes Egypt's offshore territory. See Christopher J. Schenk et al., "Assessment of Undiscovered Oil and Gas Resources of the Levant Basin Province, Eastern Mediterranean", in *U.S. Geological Survey Fact Sheets*, No. 2010-3014 (March 2010), http://pubs.usgs.gov/fs/2010/3014.

exploration developments, serving as impediments to the realisation of synergies and the optimisation of resource development in the region. This is of particular relevance for two main conflict axes; the Arab-Israeli conflict on the one hand, and the unresolved Cyprus question on the other. The OSCE, alongside the wider international community, could play a relevant role in helping the East Mediterranean to make use of the economic and political opportunities the region's offshore hydrocarbon resources provide, averting the alternative scenario of natural gas and oil resources becoming yet another factor complicating regional peace and stability.

This chapter provides an overview of the two key aspects in which OSCE political and diplomatic dialogue could prove of particular value for the East Mediterranean: (i) the de-escalation of smouldering maritime delimitation conflicts, most importantly between Israel and Lebanon on the one hand, and between Cyprus and Turkey on the other; (ii) the reduction of political barriers to mutually beneficial trade relations across the East Mediterranean region as a whole. The chapter proceeds by discussing the various conflict points, ending with policy recommendations for the OSCE, in addition to efforts made by the international community, intergovernmental bodies such as the UN and NATO, and national/transnational actors, particularly the European Union and the US.

1.1 Maritime delimitation conflicts in the East Mediterranean

The international relations of the Levant region have been shaped by decades of political conflict over land and borders, including the unresolved Northern Cyprus question between the Greek-Cypriot government of the Republic of Cyprus and Turkey; west of Cyprus it becomes even more complicated, with delimitation issues involving Cyprus, Turkey, Egypt, and Greece; the ongoing border dispute between Israel and Lebanon; as well as the longstanding conflict between Israel and the Palestinians on the one hand, and Israel and its wider Arab neighbours on the other; and between Egypt and Palestine.[2] Furthermore, the political uprisings that have engulfed many parts of the Arab world since early 2011 have not spared the Levantine countries, and have turned Syria in particular into a battleground between different political factions, with no apparent end in sight at the time of writing. Thus, in this context, the newly-discovered hydrocarbon resources in the region have a distinctly geo-political dimension.

[2] International Crisis Group, "No Exit? Gaza and Israel Between Wars", in *ICG Middle East Reports*, No. 162 (26 August 2015), http://www.crisisgroup.org/en/regions/middle-east-north-africa/israel-palestine/162-no-exit-gaza-and-israel-between-wars.aspx.

Within this jigsaw of overlapping claims over borders, two flashpoints have particular potential to turn the East Mediterranean gas riches into the source of intensified conflict: the Israeli-Lebanese maritime delimitation dispute, and the unresolved conflict over access to resources and maritime territory between the Cypriot communities, and on an extended basis Turkey. In this sub-section, we first examine the nature of the respective conflict, before suggesting potential inroads to the exploration and development of hydrocarbon resources in this politically highly volatile region.

Israel-Lebanon

Both Israel and Lebanon have considerable strategic interest in developing their offshore hydrocarbon resources. Israel, along with Egypt, is the East Mediterranean's currently most active developer of natural gas, looking back at a history of small-scale but continuous production of gas from its offshore territories. Producing at a rate of 6.36 billion cubic metres (bcm) in 2013, Israel has since 2009 announced potential discoveries of around 1.08 trillion cubic metres (tcm), which could increase its current rate of proven gas reserves in 2015 fivefold.[3] Lebanon, by contrast, is the East Mediterranean's most recent country to begin to explore its offshore territories for hydrocarbon deposits, in what has since seemed to be a half-hearted economic catch-up game with neighbouring countries. Despite the various delays in Lebanon's offshore development – with no apparent progress on a number of unresolved internal political questions at the time of writing[4] – Lebanon's waters are believed to hold significant hydrocarbon potential, with an initial – albeit somewhat controversial – estimate of possibly up to 849 bcm of natural gas and around 660 million barrels of oil.[5]

The conflict potential over maritime delimitations between Israel and Lebanon in the case of a resource discovery straddling or close to the two neighbours' borders is substantial, and illustrates a near-universal problem in the East Mediterranean: maritime boundaries in the region are provisional, mostly based on approximations of exclusive economic zones that extend beyond immediate territorial waters. Claims over borders extend both to land and the sea, with no

[3] Israel's proven reserve rate according to EIA data is 196 bcm in 2015. It is likely that current discoveries will not translate into an equal size of proven reserves, but it is evident that the potential of currently discovered resources is undoubtedly large. Data from EIA, International Energy Statistics database, http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm.
[4] Bassam Fattouh and Laura El-Katiri, "Lebanon: The Next East Mediterranean Gas Producer?", in *Mediterranean Paper Series*, February 2015, https://shar.es/1jF2Jq; Bassam Fattouh and Laura El-Katiri, "Lebanon: The Next Eastern Mediterranean Gas Province?", in *Oxford Energy Forum*, No. 93 (August 2013), p. 24-26, https://www.oxfordenergy.org/publications/issue-93-august-2013.
[5] These reserve estimates were made on pre-existing data and without test-drilling, raising questions as to the accuracy of the estimate. Laila Bassam, "Lebanon says gas, oil reserves may be higher than thought", in *Reuters*, 27 October 2013, http://reut.rs/1g50e2p.

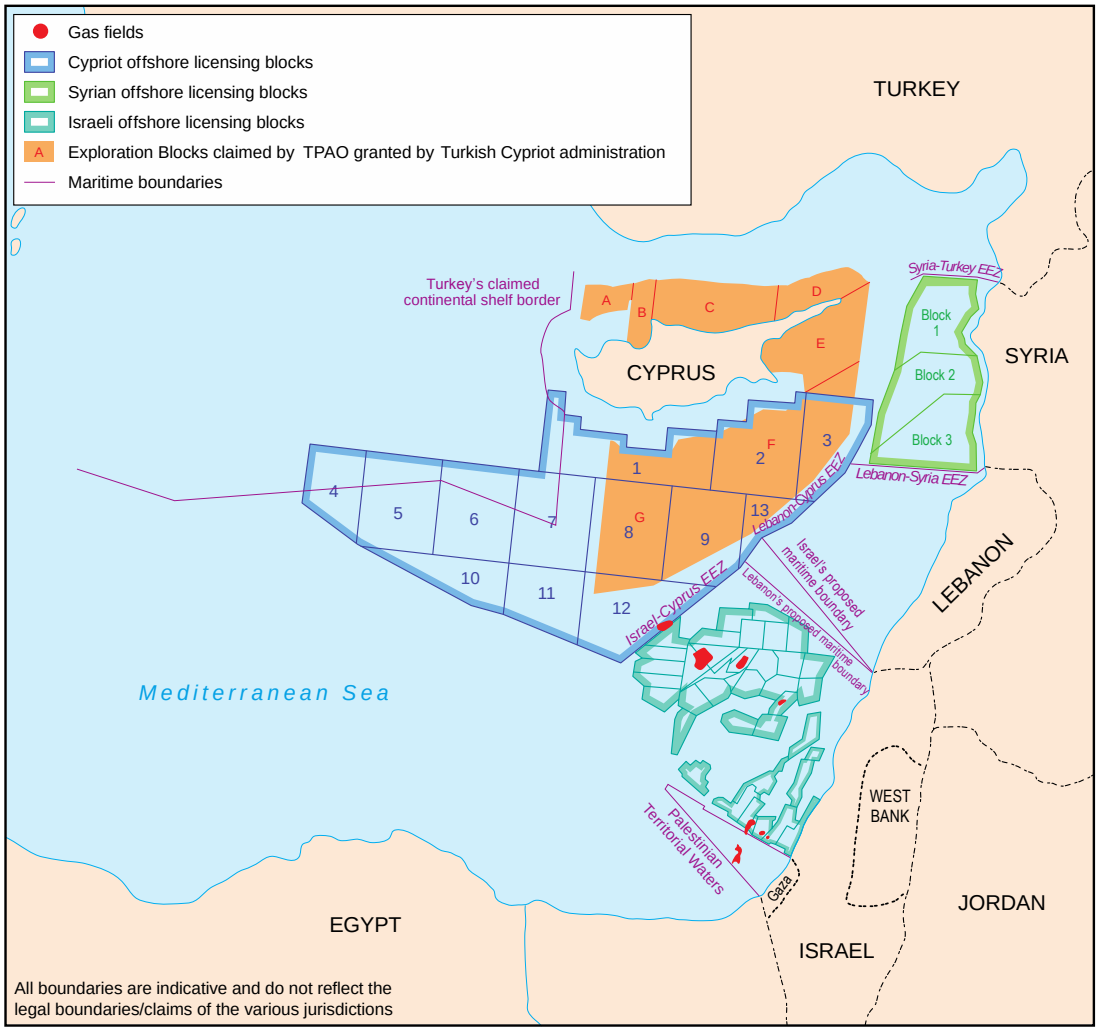
diplomatic progress in decades. Of most immediate concern are the overlapping Lebanese and Israeli maritime claims over a territory of some 854 square kilometres along the working line that has, since the 1980s, become the *de facto* border between the two countries (see Map 1).[6] Negotiations over the territory are unlikely to occur any time soon, given the continued *de facto* state of war between the two countries. Neither of the two parties has yet announced any suggestion of a resource discovery that straddles the territory in question – a factor that has likely contributed to both sides' apparent lack of interest (apart from some occasional rhetorical attacks on both sides) in an escalation of conflict over the issue.

However, Lebanon's decision to include offshore blocks that straddle the disputed territory for exploration in its 2014 bidding round – the results of which have not yet announced due to continued political deadlock inside Lebanon – holds potential for major complications for the development of Lebanon's offshore reserves in the event that hydrocarbon resources are eventually discovered in the disputed territory. It has been primarily US diplomatic efforts that have so far centred on preventing both parties from exploring the disputed area altogether, until a solution is reached.[7]

[6] Bassam Fattouh and Laura El-Katiri, "Lebanon: The Next Eastern Mediterranean Gas Province?", cit., p. 25; Michael Leigh and Charlotte Brandsma, "Energy Resources in the Eastern Mediterranean: Source for Cooperation or Fuel for Tension", in *Brussels Forum Paper Series*, March 2012, https://shar.es/1jFcDg; Simon Henderson, "Energy Discoveries in the Eastern Mediterranean: Source for Cooperation or Fuel for Tension? The Case of Israel", in *Eastern Mediterranean Energy Project Policy Briefs*, June 2012, https://shar.es/1jFGsk; Tullio Scovazzi, "Maritime Boundaries in the Eastern Mediterranean Sea", in *Eastern Mediterranean Energy Project Policy Briefs*, June 2012, https://shar.es/1jF6qR.

[7] "Beirut to Delay Bids", in *Middle East Economic Survey*, Vol. 57, No. 14 (4 April 2014).

Map 1 | East Mediterranean's maritime boundaries, exclusive economic zones (EEZs) and exploration blocks as at end-2012



Source: Oxford Institute for Energy Studies.[8]

There is rich historical and legal precedent for trans-boundary natural resource sharing, including in the area of oil and natural gas.[9] The particular difficulty

[8] Hakim Darbouche, Laura El-Katiri and Bassam Fattouh, "East Mediterranean Gas – what kind of a game-changer?", in *OIES Papers*, No. NG71 (December 2012), p. 7, https://www.oxfordenergy.org/tag/ng71.

[9] E.g. Rainer Lagoni, "Oil and Gas Deposits across National Frontiers", in *The American Journal of International Law*, Vol. 73, No. 2 (April 1979), p. 215-243; David M. Ong, "Joint Development of Common Offshore Oil and Gas Deposits: 'Mere' State Practice or Customary International Law?", in *The American Journal of International Law*, Vol. 93, No. 4 (October 1999), p. 771-804. For regional conflict studies, see e.g. Leszek Buszynski and Iskandar Sazlan, "Maritime Claims and Energy

involved in dealing with the Israeli-Lebanese territorial dispute rests in the legal consequences of Lebanon's continued refusal to recognise Israel as a state – this is notably a unilateral problem since Israel, by contrast, recognises Lebanon, providing the necessary preconditions for intergovernmental organisations such as the UN to offer mediated solutions as further detailed below. Lebanon's current political stance on the issue leaves indeed little scope for a negotiated solution, pointing towards only two options of either no resource development within the disputed zone and its maritime surroundings, or an armed conflict over these resources if and when they are discovered.

Lebanon's decision to unilaterally include one block that straddles the disputed territory under its ongoing (and endemically delayed) licensing round in this context raises little hope for a more constructive Lebanese stance on the issue. Indeed, conceding acreage over disputed territory to international companies – if any of them was willing acquire this acreage – would further complicate any cooperative legal solution to the conflict. Should Lebanon at some stage change its position on the issue and recognise Israel as a state, however, a number of workable legal solutions could be contemplated.[10] These options are discussed below, however it is important to realise that it is very unlikely that these are realistic options for the future given the Lebanese government's unchanged stance towards Israel. Their application would certainly also depend on the size of resources in question, where unexpectedly large oil or gas resources within the relatively narrow strip of disputed maritime territory could add incentives for the two states to engage constructively in their joint development. These options include

- A *joint-venture model*, possibly using international companies to develop jointly claimed resources as a proxy for each state, thereby limiting direct interaction between Israel and Lebanon, while allowing both to share any ensuing export

Cooperation in the South China Sea", in *Contemporary Southeast Asia*, Vol. 29, No. 1 (April 2007), p. 143-171; Ying-jeou Ma, "Legal Problems of Seabed Boundary Delimitation in the East China Sea", in *Maryland Series in Contemporary Asian Studies*, No. 3-1984, http://digitalcommons.law.umaryland.edu/mscas/vol1984/iss3/1; Mark J. Valencia, "The East China Sea Disputes: Context, Claims, Issues, and Possible Solutions", in *Asian Perspective*, Vol. 31, No. 1 (Spring 2007), p. 127-167; Alberto Székely, "The International Law of Submarine Transboundary Hydrocarbon Resources: Legal Limits to Behavior and Experiences in the Gulf of Mexico", in *Natural Resources Journal*, Vol 26, No. 4 (Fall 1986), p. 733-768, http://lawschool.unm.edu/nrj/volumes/26/4/07_szekely_international.pdf; Curry L. Hagerty and James C. Uzel, "Proposed U.S.-Mexico Transboundary Hydrocarbons Agreement: Background and Issues for Congress", in *CRS Reports for Congress*, No. R43204 (29 August 2013), https://www.fas.org/sgp/crs/row/R43204.pdf.

[10] Based on Rainer Lagoni, "Oil and Gas Deposits across National Frontiers", cit.; David M. Ong, "Joint Development of Common Offshore Oil and Gas Deposits", cit.; Guo Rongxing, "Territorial Disputes and Seabed Petroleum Exploitation: Some Option for the East China Sea", in *CNAPS Visiting Fellow Working Papers*, September 2010, http://brook.gs/1Se6CHd.

revenue or feed gas or oil (this is the model used, for instance, in the Saudi-Kuwaiti neutral zone). From historical experience this is a most unlikely scenario for the two countries.

- A *joint authority model*, which creates a shared institution to oversee the sector and act on behalf of both states – in view of the two countries' decades of poor relations and limited trust is probably a similarly unlikely option.
- A *trustee development model*, possibly most practical in the Israeli-Lebanese case, in which both countries would surrender their rights for resource exploration and exploitation to an independent third party. This third party could be an international organisation such as the UN, which would administer the area, and administer its development in the joint interest of the two parties.

Other models, such as parallel development along a median line across the disputed territory, appear complicated to negotiate and are unlikely to be agreed to by either party. Similarly, a solution which leaves one of the two states to develop commonly-claimed resources on behalf of the two states appears highly unrealistic in the Israeli-Lebanese context. The mutual recognition of each others' statehood is a critical element in any solution of this conflict, for it would underlie various legal concepts that would need to be guaranteed under any of the available models for the disputed zone, chiefly (i) the prohibition of management practices likely to cause substantial injury to other states, for instance by part-developing in an uncoordinated manner a joint reservoir, thus reducing reservoir output on the other side of the border; (ii) the duty of prior consultation and coordination in good faith; and (iii) the principle of equitable utilisation of shared resources.

Cyprus-Turkey

Another smouldering conflict exists around the unresolved Cypriot question and the related issue of national sovereignty over Cyprus' offshore hydrocarbon reserves. Under UN and international law, the whole island of Cyprus is internationally represented by the Republic of Cyprus, with Cyprus being a full EU member state. Cypriot and EU law remains suspended in the north of Cyprus however, which has declared itself a separate state called the Turkish Republic of Northern Cyprus (TRNC). Turkey, a NATO member and with a relationship with the EU whose nature is still pending, remains the only country recognising TRNC as an independent state. As a self-designated advocate of Turkish-Cypriot interests, Turkish troops have occupied the north of the island since 1974. Three UN-sponsored peace talks between the Greek and the Turkish Cypriot sides, including the most recent one in early 2012, have concluded without progress.[11] Only the

[11] For more details, see International Crisis Group, "Aphrodite's Gift: Can Cypriot Gas Power a New Dialogue?", in *ICG Europe Reports*, No. 216 (2 April 2012),

present round of negotiations appears to be more promising, with the two sides openly talking about positive results by early 2016. It should also be noted that both Turkey and the Republic of Cyprus are participating states of the OSCE.

A second, major East Mediterranean gas discovery – after the 2009 gas discovery in Israel – was made in December 2011 offshore Cyprus, following the island's first licensing round in 2007. The Aphrodite field is located some 180 km off the south-eastern Cypriot coast 65 km west of Israel's Leviathan field. Despite an intermediate down rating of its estimated reserves with a modest but commercial 128 bcm of natural gas,[12] Aphrodite stands symbolically for the long-held Cypriot aspiration to join international markets as a global LNG exporter; a second licensing round for 14 new licensing areas out of a total of twelve blocks was launched in mid-February 2012, with first contracts awarded in October 2012,[13] raising hopes for further discoveries that could help stabilise Cyprus' difficult finances in the medium-term.

But Cyprus remains divided between its two communities, with rivalling claims by the internationally recognised government of the Republic of Cyprus in Nicosia, and the TRNC recognised only by Turkey. Territorial water delimitations claimed by the TRNC overlap with the Republic of Cyprus' offshore blocks, including in the south-east of the island where most potential for further gas resources is expected. Natural gas has already provided fuel for the ongoing conflict.[14] Northern Cyprus claims large sections of the East Mediterranean offshore on the northern side of the island as international interest in the hydrocarbon resources of Cyprus has grown. Both the governments of Northern Cyprus, and of Turkey, have called for a halt to current hydrocarbon exploration and development efforts offshore Cyprus until a comprehensive political settlement has been found for the island. Turkey has repeatedly issued statements that the Turkish-Cypriots "have equal and inherent rights over the natural resources located on the whole continental shelf of the island."[15] The Turkish government responded to Noble's first drillings in Block 12, and more recently to Eni' drilling in Block 9, by sending warships to the island's

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http://www.crisisgroup.org/en/regions/europe/turkey-cyprus/cyprus/216-aphrodites-gift-can-cypriot-gas-power-a-new-dialogue.aspx.

[12] Latest reserve estimates from"Firms developing Cyprus gas field raise reserve estimate 12 pct", in *Reuters*, 18 November 2014, http://reut.rs/11gnMMJ.

[13] *Middle East Economic Survey*, 2 November 2012.

[14] Hakim Darbouche, Laura El-Katiri and Bassam Fattouh, "East Mediterranean Gas – what kind of a game-changer?", in *OIES Papers*, No. NG 71 (December 2012), p. 8, https://www.oxfordenergy.org/tag/ng71.

[15] Turkish Ministry of Foreign Affairs, *Press Release Regarding the International Tender for Off-shore Hydrocarbon Exploration and Exploitation Opened by the Greek Cypriot Administration*, 18 May 2012, http://www.mfa.gov.tr/no_-140_-18-may-2012_-press-release-regarding-the-international-tender-for-off_shore-hydrocarbon-exploration-and-exploitation-opened-by-the-greek-cypriot-administration.en.mfa.

exclusive economic zone (EEZ) in the first case and to the surrounding area in the second one.[16]

The conflict has since gone further as the Republic of Cyprus government moved ahead with a second offshore licensing round in February 2012. While Greek-Cypriot political leaders have emphasized that all earnings from exploration and development activities of Cyprus' hydrocarbon resources would be shared by the entire population once a settlement was agreed, Turkey called the new licensing round an "irresponsible and provocative" act, and threatened "measures to protect the Turkish Cypriots' rights and interests."[17] Calling for the companies that applied for Republic of Cyprus licenses to withdraw their bids, the Turkish Foreign Ministry intends to bar all participating companies from future energy projects in Turkey. In response to the Greek-Cypriot bidding round, the TRNC awarded in the same month a concession to Turkish state oil company Türkiye Petrolleri Anonim Ortaklığı (TPAO) for the exploration of hydrocarbon resources in the Turkish-occupied part of Cyprus, including its offshore territory, with some overlaps with Nicosia's ongoing EEZ licensing round.[18]

The government of the Republic of Cyprus has taken precautions to avoid maritime border conflicts with other neighbours. It ratified the delimitation of Cyprus' southern EEZ with Egypt back in March 2003, and signed a framework agreement on the development of cross-median line hydrocarbon resources with Cairo in 2006. Nicosia also signed an agreement defining the EEZ with Lebanon in 2007, although this has not yet been ratified by the Lebanese parliament for reasons, amongst others, that exemplify the exceptional concentration of border conflicts within a maritime zone of merely a few hundred kilometres: by agreeing its maritime delimitations with Cyprus, Lebanon would itself be drawn into the smouldering conflict between the two Cypriot communities and, potentially, Turkey; while in turn, any decision by Cyprus to delimit its maritime boundaries with either Lebanon or Israel would involve a *de facto* position on the continuingly disputed maritime boundaries between Israel and Lebanon.

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[16] E.g. Tullio Scovazzi, "Maritime Boundariesin the Eastern Mediterranean Sea", cit.; Toula Onoufriou, "Cyprus - a Future Energy Hub?", in *Eastern Mediterranean Energy Project Policy Briefs*, October 2012, https://shar.es/1jFyjx; Mehmet Öğütçü, "Rivalry in the Eastern Mediterranean: The Turkish Dimension", in *Eastern Mediterranean Energy Project Policy Briefs*, June 2012, https://shar.es/1jFyO8; Michael Leigh and Charlotte Brandsma, "Energy Resources in the Eastern Mediterranean…", cit.; George Psyllides, "Turkish warship shadowing drillship", in *Cyprus Mail*, 24 September 2014, http://cyprus-mail.com/?p=33476; Elias Hazou, "ENI-KOGAS says will continue operations as normal in Block 9", in *Cyprus Mail*, 8 October 2014, http://cyprus-mail.com/?p=34445; Jean Christou, "ENI-KOGAS continues exploration, despite Turkish taunts", in *Cyprus Mail*, 23 October 2014, http://cyprus-mail.com/?p=35393.

[17] Turkish Ministry of Foreign Affairs, *Press Release Regarding the International Tender…*, cit.

[18] Six licensing blocks awarded to TPAO overlap with Cyprus blocks 1, 4, 5, 6 and 7, and one lies in the vicinity of Greek island of Rhodes.

Cyprus has been negotiating similar agreements with Syria and Israel.[19] That this exercise has not been devoid of own complications was evident in March 2012 after the failure of Greece, Cyprus and Israel to sign a previously agreed-on Memorandum of Understanding (MoU) on joint cooperation in energy matters. The MoU aimed to establish a supposed "energy bridge," a "third route" for the future supply of gas to South East and Central Europe, where Cyprus could have functioned as an export hub for both Cypriot and Israeli gas to international markets. The eventual decision not to sign what many observers at the time believed to be common agreement between all sides came as a surprise, for the MoU had been drafted deliberately vaguely, contained no roadmap, no deadlines, no specified preferred method of exports, leaving open virtually all options.[20] With Cyprus' Block 12 being expected to extend slightly into the Israeli EEZ, agreement has in principle been reached between the two parties, but has been held as a result of the Israeli-Lebanese maritime boundary conflict. On the other hand, Cyprus, Greece and Egypt have signed cooperation agreements, and relations between Cyprus and its wider Arab neighbours appear to have been warming as Saudi Arabia has opened an embassy in Cyprus recently and Palestine has held hopes for Cyprus to help with the Israeli embargo.

The situation is further complicated by parallel overlapping claims between the Republic of Turkey in Ankara in the North and West, and Nicosia's claimed south-western exclusive economic zone – a factor which has been blamed for the continued negotiations over Cypriot Blocks 5 and 6 for which bids have been received – but not approved because they did not satisfy technical criteria. While no overlapping claims have so far been made between Turkey and TRNC, it should be noted that the maritime boundaries between the two sides have not been agreed under an internationally recognised framework, as TRNC has no legal personality within international law. More recently, a number of sub-regional dialogue initiatives has been launched, with some initial positive progress. Separate dialogues have been conducted between Cyprus, Israel and Egypt on the one hand; and the Cypriot-Greek dialogue with Israeli support.[21] It is clear that active international – including OSCE – diplomatic involvement in such dialogue

[19] Walid Khadduri, "The East Mediterranean Offshore Petroleum Frontier", in *Middle East Economic Survey*, Vol. 53, No. 44 (1 November 2010).
[20] *Middle East Economic Survey*, Vol. 55, No. 14 (2 April 2012); Hakim Darbouche, Laura El-Katiri and Bassam Fattouh, "East Mediterranean Gas…", cit., p. 8.
[21] E.g. Karen Ayat, "Cyprus, Egypt, Israel and Greece look to improve regional security", in *Natural Gas Europe*, 16 February 2015, http://www.naturalgaseurope.com/cyprus-egypt-israel-greece-regional-security-22104; Karen Ayat, "Cyprus and Israel pledge long term energy cooperation", in *Natural Gas Europe*, 23 June 2015, http://www.naturalgaseurope.com/cyprus-and-israel-pledge-long-term-energy-cooperation-24311.

could prove to be a constructive way to support closer cooperation and conflict mitigation in the East Mediterranean.

In the absence of a comprehensive settlement, Turkey and the Turkish-Cypriot community signed an agreement delineating their continental shelf in September 2011, assigning exploration licenses for seven offshore blocks, six of them including Greek Cypriot areas (Blocks 1, 2, 3, 8, 9 and 13) (see Map 1).[22] TPAO has since reportedly begun to explore for hydrocarbon resources inside the Turkish-Cypriot claimed territories,[23] despite (at the time of writing) no apparent confrontation with exploration efforts with consortia operating in Nicosia's tendered-out license blocks. Potential for future conflict over offshore territories also results from direct Turkish maritime claims, which overlap with some of Nicosia's demarcated offshore blocks in the south-west. The four blocks in question formed part of the package of blocks on offer for licensing in the country's last licensing round in 2012, but despite bids reportedly having been made, they were not licensed out.[24] It is more likely, however, that Cyprus will end up tendering out the respective blocks in question at a future bidding round, raising a parallel question to the Israeli-Lebanese water dispute as to how the different parties involved would react to a substantial hydrocarbon discovery in the disputed blocks.[25]

1.2 Intra-regional gas trade

The East Mediterranean's complex political setting also has the potential to considerably complicate potential trade routes and scope for intra-regional cooperation – and in fact it can be argued that it has already done so. The unresolved Cyprus question on the one hand limits the perhaps commercially most sensible trading route for its gas, should Cypriot gas ever be exported, via subsea pipeline from offshore Cypriot waters to Turkey. Israel's political isolation within its immediate neighbourhood makes Israeli gas export to or via its Northern neighbours Syria and Lebanon politically impossible, and mutually beneficial gas trade with neighbouring Jordan and Egypt politically difficult. Turkish-Israeli

[22] Laura El-Katiri and Mohammed El-Katiri, *Regionalizing East Mediterranean Gas: Energy Security, Stability, and the U.S. Role*, Carlisle, Strategic Studies Institute, December 2014, p. 15-16, http://www.strategicstudiesinstitute.army.mil/pdffiles/PUB1243.pdf.
[23] International Crisis Group, "Aphrodite's Gift", cit., p. 6.
[24] Anastasios Giamouridis, "The Offshore Discovery in the Republic of Cyprus. Monetisation Prospects and Challenges", in *OIES Papers*, No. NG65 (July 2012), p. 7, https://www.oxfordenergy.org/tag/ng65.
[25] Laura El-Katiri, "The East Mediterranean: The Middle East's Final Gas Frontier", in *Oxford Energy Forum*, No. 93 (August 2013), p. 5-7, https://www.oxfordenergy.org/publications/issue-93-august-2013.

relations are highly problematic in their own right, and it will thus require considerable additional political work, in addition to the yet unclear economics of the route, to facilitate the potential export of Israeli gas to Turkey, and from there perhaps one day into Europe.

Israel-Jordan-Egypt

Israel has relatively early on made clear that it aimed to export part of its gas resources, all options being considered.[26] In a milestone decision of June 2013, Israel cleared all remaining legal hurdles to export up to 40 percent of its natural gas reserves;[27] indeed, the cabinet decision included provisions for up to 20 bcm to be made available immediately for "regional export."[28] For both Israel and its Arab neighbours, the commercial arguments in favour of trading gas regionally are strong.[29] Direct neighbours Egypt and Jordan are geographically close markets whose gas demand has been growing at a rapid pace, to the extent that Egypt is now importing LNG via floating liquefaction plants to relieve the pressure of otherwise frequent electricity blackouts;[30] while Jordan has faced an escalating import bill with fluctuating gas supplies from Egypt since 2011 and a *de facto* stop to deliveries since April 2014 when Egypt was no longer able to supply the Jordanian market primarily with oil imports for the majority of its domestic energy needs.[31]

Compared with all other available options, Israeli gas would offer a cost-competitive option for both countries. The Tamar-Damietta and Leviathan-Idku negotiations have been based on the construction of new subsea pipelines between Israeli and Egyptian waters, still considerably more cost-effective than more expensive LNG imports into Egypt. In the absence of current security problems, the two sides could even have considered the use of existing pipeline infrastructure. A gas pipeline between Israel, Jordan and Egypt, is already largely in place owing to past gas trade between Egypt and Jordan through the Arab Gas Pipeline (AGP). The

[26] John Reed, "Israel natural gas exports worth $60bn over next 20 years", in *Financial Times*, 19 June 2013.
[27] Ibid.
[28] "Noble Energy Outlines Its Levant Gas Export Options", in *Middle East Economic Survey*, Vol. 56, No. 51/52 (20 December 2013).
[29] For an overview, see Simon Henderson, "Natural Gas Export Options for Israel and Cyprus", in *Mediterranean Paper Series*, September 2013, https://shar.es/1jFVkX; Natan Sachs and Tim Boersma, "The Energy Island: Israel Deals with its Natural Gas Discoveries", in *Foreign Policy Paper Series*, No. 35 (February 2015), http://brook.gs/1SeqfyI.
[30] E.g. "Egyptian electricity demand reaches record high", in *Argus*, 11 August 2015.
[31] Andrea Gamba, "New Energy Source for Jordan: Macroeconomic Impact and Policy Considerations", in *IMF Working Papers*, No. 15/115 (May 2015), https://www.imf.org/external/pubs/cat/longres.aspx?sk=42965.0; Laura El-Katiri, "Egypt's Energy Trap", in *Egypt Oil & Gas*, August 2013, http://www.egyptoil-gas.com/?p=14833.

relatively low cost of expanding this infrastructure by a direct Israeli-Jordanian link would also be small compared to the high cost of LNG bought on the international market and the associated infrastructure. Israeli gas could furthermore be used to supply Egypt's existing LNG export contracts which are highly lucrative, but which Egypt, due to its multi-year domestic gas shortage, has not been able to supply in recent years. Both trade options would therefore be mutually beneficial in commercial terms, while they could also help contribute to mutual trust-building and the normalisation of economic relations between Israel and its Arab neighbours.

Indeed, some initial supply agreements appear to have been concluded between the different sides, for trading volumes of 1.85 bcm over 15 years between Israel and Jordan in February 2014;[32] and of some 70 bcm over 15 years between Israel and Egypt,[33] plus a possible LNG deal with BG in July 2014 for 7 bcm over 15 years.[34] Whether the agreements will eventually turn into reality will depend to a large extent on the state of diplomatic relations[35] between Israel and its Arab neighbours in the coming years – a prospect further complicated by the way Egypt after years of internal political instability has recently been drawn into another conflict with armed extremist groups in the Sinai Peninsula with a potential of regional spill-over – and on their commercial viability. There are strong cost-vs-price challenges to these projects. In addition, the most recent discoveries of sizeable new gas resources off the costs of Egypt mean that the Egypt-Israel link is not as certain any more as it seemed to be just a year ago, when Egypt was still facing the prospect of a considerable gas crisis in the absence of substantial additional supplies. The coming months will thus decide whether or not the Zohr gas field exploitation by Eni in Egypt will prove to be yet another regional game-changer.

Palestine

A separate logical line of gas trade between Israel and its neighbouring region is with the Palestinians. An initial break-through gas supply agreement was concluded in January 2014 for around 4.75 bcm of Israeli gas over a twenty-year period, an agreement later cancelled by the Palestinian side following delays and

[32] Steven Scheer, "Israel's Tamar gas field in $500 mln Jordanian export deal", in *Reuters*, 19 February 2014, http://reut.rs/1m9vE8u.
[33] "Noble: Egypt to export Israeli gas from late 2017", in *Argus*, 28 October 2014.
[34] "Leviathan signs initial deal to supply Egypt LNG", in *Argus*, 13 June 2014.
[35] In addition to legal issues, Jordan halted talks with Israel in early 2015 due to ongoing legal battles fought inside Israel over the monopoly ownership of US drilling company Nobel of Israel's gas fields. Mohammad Tayseer, "Jordan Halts Talks on $15 Billion Deal for Israeli Gas", in *Bloomberg*, 4 January 2015, http://bloom.bg/1PoVHH8.

the anti-trust process in Israel still ongoing at the time of writing.[36] Irrespective of Israel's separate internal legal quarrels, which have also threatened its preliminary export agreements with companies based in Jordan and Egypt, a future Israeli-Palestinian gas deal also entails additional legal complications. In addition to the stability of future Israeli gas deliveries to the Palestinian Territories under what have been extremely volatile political relations for the past few decades, there remains a lack of clarity over the legal status of Palestine as a destination for Israeli gas. According to international law, the Palestinian Territories of the West Bank and Gaza are not recognised states; it thus remains unclear whether for the purpose of Israeli law, Israeli gas deliveries to Palestine could be considered exports, or whether these need to be accounted for as domestic Israeli supplies.[37] On the Israeli side, this makes an important difference, both in fiscal terms and in terms of overall gas supply accounting.

International diplomatic dialogue could also help in resolving a parallel issue, the separate development of, and further exploration for Palestinian offshore hydrocarbon deposits. Palestinian interests in the offshore Mediterranean have perhaps been most overlooked in recent years. A small discovery of around 28 bcm was made offshore Gaza in 2000 by a consortium including British gas company BG, and has since been estimated to be worth more than 1 billion dollars,[38] termed by one analyst "the single largest Palestinian economic asset."[39] A 35-year exploration license had previously been awarded by Israel to the Palestinian Authority, thus in principle clearing the way for further exploration and development work.[40] Proponents of the development of these resources have argued that subsequent revenues could help grow the Palestinian economy, thereby contributing to a potentially more durable peace in the Middle East.[41]

However, under the pretext of national security concerns, Israel's government has since refused to sanction the development of the field under terms that see the

[36] Stuart Winer, "Palestinians cancel natural gas deal with Israel", in *Times of Israel*, 11 March 2015, http://toi.sr/1xcv9Pd.
[37] Lior Gutman, "Israel reviews gas 'exports' to Palestine", in *Al Monitor*, 5 February 2014, http://almon.co/1z8f.
[38] Avi Bar-Eli, "Ya'alon: British Gas natural gas deal in Gaza will finance terror", in *Haaretz*, 21 October 2007, http://www.haaretz.com/news/ya-alon-british-gas-natural-gas-deal-in-gaza-will-finance-terror-1.231576; "No Advance Towards Development For Offshore Gaza Marine", in *Middle East Economic Survey*, Vol. 55, No. 40 (28 September 2012).
[39] Simon Henderson, "Palestinian Natural Gas Ambitions", in *Middle East Economic Survey*, Vol. 57, No. 22 (30 May 2014), p. 17, http://www.washingtoninstitute.org/policy-analysis/view/palestinian-natural-gas-ambitions.
[40] Simon Henderson, "Natural Gas in the Palestinian Authority: The Potential of the Gaza Marine Offshore Field", in *Eastern Mediterranean Energy Project Policy Briefs*, March 2014, https://shar.es/1jRmbo.
[41] Avi Bar-Eli, "Ya'alon: British Gas natural gas deal in Gaza will finance terror", cit.

field becoming a bargaining chip to achieve political ends.[42] After years of negotiations, failure to agree on a compromise on how to address these concerns, on the marketing of the gas and other issues, led to the withdrawal of BG from the negotiations in 2008, with the possible end result being the selling of its stake altogether.[43] A long-term deal for the region's stability could nevertheless benefit from a revival of talks and the suggestion of development options that could satisfy both Israeli concerns and Palestinian aspirations to develop its own source of resource-linked revenue. This opens up a potential role for OSCE to support its partners and members who are already part of or engaged in supporting a settlement to this conflict.

Cyprus-Turkey

Opposite the coastline that remains very much battled over by Syrians, Lebanese, Israelis and Palestinians, Cyprus remains similarly irreconcilably divided between the southern, Greek-dominated, and northern, Turkish dominated communities. Cyprus' offshore Block 12 in which all of the country's resources to date are located, falls to the island's south, yet controversy over the use and distribution of proceeds from the field's development spans the two Cypriot republics. Territorial water delimitations claimed by the northern Turkish-led community furthermore overlap with the Republic of Cyprus' offshore blocks, including the exploration blocks 2, 3 and 9 assigned by Nicosia. Turkish water claims, too, overlap with Cyprus' exclusive economic zone in the south west of the island, a factor which has been blamed for the continued negotiations over Cypriot Blocks 5 and 6 for which bids have been received.[44]

In spite of these political barriers, Turkey could yet offer a geographically close and economically logical export market for Cypriot gas; which would diminish Turkey's need for higher-cost Russian gas imports and the political controversy associated with Turkish alternatives to Russian gas, including Iranian and Kurdish gas from northern Iraq; and could potentially contribute to Turkey's intended role as an energy hub for gas deliveries to Europe. The absence of a settlement of the Cyprus problem renders this option highly unlikely in the near future, at the cost also of

[42] The first test drillings in 2000 were subsequently overshadowed by the second Palestinian Intifada, and then-leader of the Palestinian Authority Yasser Arafat's remarks that Gaza Marine was "a gift from God to us, to our people, to our children. This will provide a solid foundation for our economy, for establishing an independent state with holy Jerusalem as its capital." Simon Henderson, "Palestinian Natural Gas Ambitions" cit., p. 1. See also Gary Lakes, "No Advance Towards Development for Offshore Gaza Marine", in *Middle East Economic Survey*, Vol. 55, No. 40 (28 September 2012).
[43] Eduard Gismatullin, "BG Said to Sell Gas Field Off Gaza After Israel Blocks Project", in *Bloomberg*, 9 March 2012, http://www.bloomberg.com/news/articles/2012-03-09/bg-said-to-sell-gas-field-off-gaza-after-israel-blocks-project.
[44] Laura El-Katiri, "The East Mediterranean: The Middle East's Final Gas Frontier", cit., p. 7.

the northern Cypriot community, which would significantly benefit from a reconciliation with the Greek Cypriots in the south.

It is clear that the continuation of a peaceful exploitation of Cypriot offshore resources, if and when they materialise, remains of interest to all concerned parties. Continued deadlock over the Cypriot question, exacerbated by disputes over offshore hydrocarbon reserves, continues to bind the ability of NATO partners to cooperate more closely with Cyprus, given NATO member Turkey's continued resistance to strategic NATO cooperation with Cyprus.[45] Escalating conflict between Cyprus and Turkey may also further feed into existing political instabilities across the East and North Eastern Mediterranean, including Turkey itself, which has not been immune from the geopolitical and security complexities in the region. Bordering already unstable Syria, a scenario of a disintegrating crescent along the East Mediterranean is indeed a worst-case scenario both for the region itself, and for its OSCE partners.[46]

Turkey-Israel

Turkey is also a potentially significant export partner for Israel. From the Israeli perspective, it represents a rapidly growing demand market, in fact the largest in the wider region, including some of the highest domestic gas prices in the wider Levant, which render the Turkish market attractive also for supply projects involving an initially higher capital cost, such as for long-distance and subsea pipelines. For Cyprus itself, a direct subsea pipeline to Turkey has been argued by some to entail the lowest capital costs of any export option, although political relations are unlikely to render this option palatable at the time of writing. Even from Israel, a subsea pipeline link to Turkey has been assessed as logistically and commercially feasible, and would be for Israel the only option to reach Turkey, given that the land route via Lebanon and Syria remains closed. Turkey also offers additional attractions, particularly Turkish interest in promoting itself as a new gas transit hub for European gas from Eastern gas suppliers.[47] Israeli gas sold to Turkey via the Cypriot EEZ – albeit currently unpalatable due to the ongoing political deadlock between Nicosia and Ankara and the siege of Gaza by Israel –

[45] Laura El-Katiri and Mohammed El-Katiri, *Regionalizing East Mediterranean Gas*, cit.
[46] For a background to Turkey's own political turmoil in 2013, see Jim Zanotti, "Turkey: Background and U.S. Relations", in *CRS Reports for Congress*, No. R41368 (5 October 2015), p. 4-7, http://www.fas.org/sgp/crs/mideast/R41368.pdf.
[47] Michael Ratner et al., "Europe's Energy Security: Options and Challenges to Natural Gas Supply Diversification", in *CRS Reports for Congress*, No. R42405 (20 August 2013), https://www.fas.org/sgp/crs/row/R42405.pdf; Kristin Linke and Marcel Viëtor (eds.), "Beyond Turkey. The EU's Energy Policy and the Southern Corridor", in *International Policy Analysis*, November 2010, http://library.fes.de/pdf-files/id/07553.pdf. Turkey's energy strategy can also be followed on the Turkish Ministry of Foreign Affairs' website: *Turkey's Energy Strategy*, http://www.mfa.gov.tr/turkeys-energy-strategy.en.mfa.

could also benefit Cyprus, by way of transit fees. Of course, commercial feasibility for the Southern Corridor must yet be demonstrated.[48]

Conclusion: Priority actions

The East Mediterranean has proven more than once that exploration work offshore the coasts of Israel, Cyprus, Egypt, Syria and Lebanon has the potential to turn natural gas into a regional economic game-changer. The value of natural resources found in the East Mediterranean could prove an important factor contributing to the economic wellbeing of individual countries, but also the region as a whole; or, it could turn into the opposite, turning into an East Mediterranean resource curse, a Caspian knot in which natural gas riches become the subject of yet more intra-regional tension and conflict. This is also in view of prospects for future offshore discoveries in the Levant basin, for estimates by the USGS suggest that as much as two-thirds of the basin's hydrocarbon resource potential is yet to be discovered.

Looking at the enormous political complexity of the region with its multiple, decades-old border conflicts, it becomes clear that unilateral action will be unlikely to resolve any of the potential sources of conflict that may yet arise; such as further hydrocarbon resource discoveries across the disputed Israeli-Lebanese border; further Cypriot discoveries; Turkish exploration activities and discoveries inside the country's own claimed economic zone; or indeed, progress in the exploitation of Cypriot natural gas resources with the attached question of how the receipts from future gas exports, if and when they materialise, would be distributed between the two separated Cypriot communities.

The role potentially played by the OSCE in this context may be relevant in helping the different sides at the very least de-escalate future resource discoveries. The following action points could be of particular value:

- Qualified, third-party legal advice and support for joint solutions, such as resource development across disputed maritime borders, including intermediary options such as joint or third-party administration of disputed maritime territories.
- Support of all parties in dealing with other, international organisations and potential financial institutions which may further help broker stable deals that address all parties' concerns, rights and responsibilities within the East Mediterranean.

[48] The author thanks Charles Ellinas for his very insightful comments on this section.

- In particular, OSCE members could prove to be constructive in supporting currently ongoing negotiations between Israel and its Arab neighbours on the one hand, and in the subject of the Cypriot question on the other. The OSCE could share its knowledge and experience in conflict prevention and peace building to support efforts related to border conflicts such as compensation of displaced persons and property exchange.
- Assisting the East Mediterranean's players in building transparent and ethical ways of governing their emerging hydrocarbon sectors while ensuring revenues from any potential exports are invested to the benefit of the people is one of the areas in which the OSCE could engage. Help could be provided particularly in channelling qualified advice over the appropriate use of resource revenues in savings, debt repayment and current spending as well as the setting up of potential resource funds, where appropriate.
- Diplomatic support may also move into some non-political territory, for instance by helping broker an effective environmental regime that protects shared maritime resources across the Mediterranean countries, a factor commonly overlooked in already conflict-ridden situations.

It remains unclear whether the East Mediterranean sea's gas discoveries will provide enough material to help resolve decades-old conflicts in their own right; but it should be enough ambition for OSCE participating states to help ensure the East Mediterranean's hydrocarbon resources do not turn into a regional curse, nor become the cause of yet more escalating violence. If practical efforts focused on these broad objectives, a lot might be gained in the long-term.

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2.
CRITICAL INFRASTRUCTURES: SECURITY AND ENERGY POLITICS IN THE EASTERN MEDITERRANEAN REGION AND THE ROLE OF THE OSCE

Mesut Hakkı Caşın

The Mediterranean region is expected to face several challenges to energy exploration and trade, which will prove essential for the development, economic welfare and stability of the region in the long-term. The challenges that lie ahead are multiple: securing energy supply, meeting growing energy needs in most efficient ways, fostering rational use of resources, optimising synergies between producers, consumers and transit countries, and ensuring a sustainable and environmental future. Since 1990, demand has increased to around 1000 Mtoe today and is expected to continue to increase. Oil is the dominant fuel, with 41 percent share, in the energy mix of the Mediterranean region. Oil is followed by natural gas, nuclear, coal, and renewable energy sources respectively. The Mediterranean region holds nearly 5 percent of the world's proven oil and gas reserves. The majority of these reserves are located in Algeria, Libya and Egypt. The three largest oil producers – Algeria, Libya and Egypt – account for 87 percent of the Mediterranean output.[49]

The Mediterranean energy landscape is in constant change due to the emergence of new actors and new international dynamics. In recent years, the Eastern Mediterranean has seen a jump in gas exploration opportunities. In 2010, major natural gas fields were found off Israel, Cyprus and Egypt. These discoveries are expected to have a major impact on the region's economy and potentially offer

[49] Demographic trends and economic growth are the two main determinants of energy demand. The south Mediterranean countries are facing rapid demographic growth combined with relatively low incomes, a rapid urbanisation rate, and important socioeconomic development needs. As a result, their energy demand is increasing rapidly. By contrast, the north Mediterranean countries are characterised by more mature economies, illustrated by the movement of their economies toward the services sector and the saturation of energy demand for certain energy services. The share of south Mediterranean in the total Mediterranean energy demand is expected to reach around 45 percent in 2030 regardless of the scenario, compared to 31 percent in 2007. See the Institute for Environmental Security background paper for the "OSCE Participatory Workshop on Environment and Security Issues in the Southern Mediterranean Region" held in Amman on 18-22 June 2012, http://www.envirosecurity.org/essmed/ESSMED_June2012_Background_Paper.pdf.

Europe new supply options, allowing it to reduce its dependence on Russian gas imports.[50] Recent growth of offshore exploration and production energy infrastructure in the Eastern Mediterranean also creates a new set of security risks.[51] In light of its energy endowment, the Mediterranean region is at risk of organised attacks against critical energy infrastructure such as oil-gas drills, production stations, power terminals, pipelines or maritime transportation supply chains.[52] This chapter aims to describe the main framework of critical infrastructure protection (CIP) for energy security in the Eastern Mediterranean, its developments and challenges as well as the potential role of the OSCE. It explores the extent to which the OSCE can contribute to safeguarding against these potential risks in light of the shared interest of its Mediterranean partners.[53]

2.1 Essentials of the critical infrastructure protection (CIP) security framework

From a general perspective, in spite of industrialised countries trying to enhance renewable energy sources production, today and in a mid-term future perspective fossil fuels are still the leaders in the global energy mix. By making use of new advanced technologies such as hydraulic fracking and horizontal drilling, energy resources like shale oil and gas and deep-water hydrocarbons, have become important and cheaper sources to meet the demand for industrial development. Thanks to globalisation and increasing computer systems in our daily life, "critical infrastructure" has emerged as an increasingly important factor in the political,

[50] "Eni Discovers Largest Known Gas Field in Mediterranean'', in *The Guardian*, 30 August 2015, at http://www.theguardian.com/business/2015/aug/30/eni-discovers-largest-known-mediterranean-gas-field.

[51] The US Geological Survey first assessed an Eastern Mediterranean area known as the Levant Basin, extending from Egypt in the south to Turkey in the north, in 2010, estimating its mean undiscovered, technically recoverable resources at 3.66 tcm of gas and 1.7 billion barrels of oil. However, there was upside potential for as much as 6.81 tcm of gas and 3.8 billion barrels of oil. That theory is coming up trumps following a series of massive sub-salt gas strikes since 2007 offshore Israel, Cyprus and Egypt. They culminated late August when Eni discovered the Zohr gas field, offshore Egypt's Nile Delta, which had such a thick pay zone that the company had no qualms about issuing an initial resource estimate of 849 bcm of gas, equivalent to about 5.5 billion barrels of oil. Tamsin Carlisle, "The Eastern Mediterranean Basin Showing Promise for Oil, Gas: Fuel for Thought'', in The Barrel, 16 November 2015, http://blogs.platts.com/2015/11/16/eastern-mediterranean-basin-oil-gas.

[52] Mesut Hakkı Caşın, "Maritime Terrorism Attacks to Libya Ra's Lanuf and Al-Sidra Oil Terminals Pose a Threat to Critical Energy Infrastructures", in *Caspian Strategy Institute Analysis*, 5 January 2015, http://www.hazar.org/en/analysis/maritime-terrorism-attacks-to-libya-ras-lanuf-and-al-sidra-oil-terminals-pose-a-threat-to-critical-energy-infrastructures.

[53] OSCE, *Consolidated Summary of the 2012 OSCE Mediterranean Conference* (SEC.GAL/240/12), 10 January 2013, http://www.osce.org/node/102334.

economic and social security equation. How did critical infrastructure protection in the energy sector come to be regarded as a national and international security problem?

Since the start of the twenty-first century, a periodically tight oil market and volatile prices have raised new concerns on energy security.[54] Other factors can be added to this picture: the instability in some oil-exporting nations, jihadist terrorism, the re-emergence of resource nationalism, fears of a scramble for supplies, the costs of imported energy, and geopolitical rivalries. Underscoring everything else is the central requirement of countries – and the world – for secure energy with which to support economic growth. This situation, previously related almost exclusively to oil, is progressively involving natural gas, until recently considered as a national or regional commodity. Indeed, the advancement of long-distance pipelines and the growth of LNG have led natural gas to be increasingly considered as a global commodity. When one discusses accession to energy resources, significant challenges that the world encounters are determined by geopolitics.[55] Almost 80 percent of the world's hydrocarbon reserves are located in the Middle East, North Africa, the Caucasus and the Commonwealth of Independent States. Specifically, half of the world's oil is produced by six countries and half of the world's gas is produced by three countries. Much more diversity and fragmentation can be seen with regard to the consumer countries. Since OECD countries in the European and East Asian regions substantially depend on energy imports, any regional or bilateral conflict has an impact on the supply of energy. Due to the expansion and globalisation of energy trade, energy volumes increasingly transit through critical land and sea routes. Any accidents, terrorist attacks or military confrontation in the vicinity of key transit points may result in problems for the transport of oil and natural gas. Considering the increasing energy interdependence, complex geopolitical conditions require higher levels of cooperation between producers and consumers.

Energy security tops the agenda of many nations and it is crucial for economic activities.[56] There exist many definitions of energy security as a concept, the most common of which is certainly the availability and reliability of adequate energy supplies, at reasonable costs. However, other specific factors can be highlighted when defining the concept of energy security. The first is physical security, namely the need to protect the assets, infrastructures, supply chains, and trade routes,

[54] Daniel Yergin, "Ensuring Energy Security", in *Foreign Affairs*, Vol. 85, No. 2 (March/April 2006), p. 69-71, http://www.un.org/ga/61/second/daniel_yergin_energysecurity.pdf.
[55] Ahmet Öztürk, "Bir Çatışma Alanı Olarak Enerji ve Küresel Enerji Politikaları", in Kemal İnat, Burhanettin Duran, Muhittin Ataman (eds.), *Dünya Çatışmaları. Çatışma Bölgeleri ve Konuları*, Vol. 2, Ankara, Nobel, 2010, p. 674-676.
[56] Daniel Yergin, *The Quest. Energy Security and the Remaking of the Modern World*, London, Penguin Books, 2012, p. 268-269.

providing quick replacements and substitution when needed. The second is the vitality of access to energy, meaning the capacity to advance and get energy supplies – physically, contractually and commercially. Another definition addresses energy security as a system comprised of the national policies and international institutions that are formed to respond in a coordinated way to disruptions, dislocations and emergencies as well as assisting to sustain the steady flow of supplies. Finally, in a longer-term perspective energy security is strictly related to investments: in fact, energy security necessitates policies and a business climate supporting investment and development and innovation to guarantee that ample supplies and infrastructure will be present, in a timely way, in the future.

While energy importers desire the security of supply and low prices, energy exporters search for security of demand – the assurance that their production will be bought at a fair price over a long term, so that national budgets can anticipate a steady and predictable revenue flow. In other words, energy-exporting countries seek "security of demand" for their hydrocarbon exports, on which they rely for generating economic growth and a very large share of government revenues – and to sustain social stability.[57] Exporters need markets and energy customers, which allow governments to plan their budgets based on stable international revenues and vindicate future levels of investment. It is also worth keeping in mind that many of the energy-exporting countries also encounter domestic supply problems driven either by economic expansion, high population growth, and extremely large subsidies for electricity and transportation fuels or by internal political and security instability. In this context, energy security must be considered not just in terms of energy supply security itself, but also in terms of the protection of the entire chain through which supplies move, from initial production down to the final consumer. This is a huge duty, because in the past energy infrastructure and supply chains were assembled without the same emphasis on security as would be the case today.

The energy system is complex, including electric power plants, refineries, offshore platforms, terminals, ports, pipelines, high-voltage transmission lines, distribution wires, gas storage fields, storage tanks, substations, and many others physical assets. The vulnerabilities of such huge infrastructure happen to be in many forms, from hostile assaults to the kind of small events that can prompt a massive blackout. As the energy trade becomes increasingly global, crossing borders and developing on a huge scale on both land and water, the security of the supply chains is increasingly pressing. Central choke points along the sea routes

[57] Gal Luft and Anne Korin, "Energy Security: In the Eyes of the Beholder", in Gal Luft and Anne Korin (eds.), *Energy Security Challenges for the 21st Century. A Reference Handbook*, Santa Barbara, Praeger Security International, 2009, p. 6.

transporting oil and LNG are particularly sensitive to disruptions whether from accidents, terrorist attacks or military confrontation.

2.2 Understanding the nature of energy security and CIP in the Mediterranean

Improving the resilience of critical infrastructures has become a priority for the authorities around the globe. Emerging threats, as well as unconventional attacks to critical infrastructure, have exposed the limits of traditional risk assessment and risk mitigation efforts. Some threats cannot be foreseen, while reducing all possible risks at the minimum possible level is not always cost effective. This has shifted the attention towards resilience in order to assure service continuity in the aftermath of destructive events, especially in cases when these cannot be predicted. [58] Today, considering the complicated modern energy security challenges, decision makers of every state should first introduce scientific approaches to the new field of protection in energy policies in order to be able to deeply understand the national-level cooperation on economic, political, infrastructure and military aspects. Modern international politics increasingly needs comprehensive studies examining critical energy infrastructures, as emerging cross border international threats by terrorist attacks (included cyber-related activities) and other types of potential armed threats have increased the awareness about early warning prevention and response. As terrorism is considered one of the main threats to energy transportation, flows and – generally speaking – diversification, the proliferation of potential energy targets for terrorists can generate significant security, economic and social drawbacks.[59]

Terrorist organisations have planned and motivated sabotage and armed attacks, which aimed at weakening or damaging energy infrastructure (i.e. pipeline networks, oil and gas fields, refineries) through the use of explosives or/and guns and other military weapons, through cyber-techniques on control systems, and through employee kidnapping. Of course, for terrorist organisations, oil infrastructure and pipelines are the most attractive objects in this respect. Protecting a state's assets from external damage is not an easy task, as modern societies are sustained by tightly coupled and increasingly complex

[58] See the European Commission Joint Research Centre website, *Critical Infrastructure Protection*, http://europa.eu/!YM68Wx.
[59] Mesut Hakkı Caşın, "Understanding Critical Energy Infrastructure Protection-CIP Policies in Modern States: A Complicated and Tough Mission", in *Caspian Strategy Institute Analysis*, 30 April 2014, http://www.hazar.org/en/analysis/understanding-critical-energy-infrastructure-protection-cip-policies-in-modern-states-a-complicated-and-tough-mission.

interdependent systems of infrastructure.[60] For this reason, the probability that terrorists will gravitate towards sensitive energy infrastructure is becoming increasingly high, requiring greater attention to be given to the vital vulnerability and to the protection of energy infrastructure. Examples from the past show that attacks against critical energy infrastructure are an existing threat to our global world and it can be expected that they will increase with the proliferation of conflicts, on the one hand, and the growing interconnectedness of energy systems, on the other.[61]

The growth of terrorist attacks and sabotage of critical energy infrastructure is having an impact on vital assets for the production, transmission and distribution of energy in modern states. Libya, for instance, has faced this challenge in the last four years, as its oil output almost halted in the summer of 2011 when the civil war spread across the country. Consequently, its oil and gas sector has been continuously disrupted by the actions of violent groups – such as those affiliated with the Islamic State of Iraq and the Levant (ISIL) as well as ethnic minorities like Berbers and Toubous – which have carried out a number of attacks on energy facilities, including Ras Lanuf, Es Sider, and Zuetina (oil and gas terminals). Attacks have ranged from minor to major events such as those aimed at oil fields in the Sirte region which caused considerable damage. For some, the goal is to undermine the government, advance political objectives, or demand the recognition of their rights. For others it is simply about using the energy assets as a platform for garnering revenues and funds to sustain military efforts on the field. In any event, for a country that relies on oil for most of its revenues, the targeting of energy infrastructure will only expedite the further deterioration of the country.[62] In this context, armed groups continue to develop new techniques to achieve their objectives, as demonstrated at the beginning of 2015 by the sea-based attacks in which terrorists used a number of speedboats in the failed attempt to seize some of Libya's main oil terminals in the eastern city of Benghazi. Although they could not take control of the infrastructure, the militiamen belonging to the Fajr Libya, or Libya Dawn, launched the attack on Al-Sidra port by firing rockets from speedboats, setting an oil tank on fire.[63] The latest attack waged

[60] Javier Argomaniz, "The European Union Policies on the Protection of Infrastructure from Terrorist Attacks: A Critical Assessment", in *Intelligence and National Security*, Vol. 30, No. 2-3 (2015), p. 259-280.
[61] Thomas Wuchte, *To Protect Critical Energy Infrastructure*, address to the Oil & Gas Critical Infrastructure & Asset Security Forum, Vienna, 19-21 September 2012, http://www.osce.org/node/94182.
[62] Jennifer Giroux, "Energy Infrastructure Targeting in the Mediterranean: a Shifting Threat", in *IEMed Mediterranean Yearbook 2015*, p. 289-292, http://www.iemed.org/observatori/arees-danalisi/arxius-adjunts/anuari/med.2015/IEMed%20Yearbook%202015_Panorama_EnergyInfrastructure_JenniferGiroux.pdf.
[63] Mesut Hakkı Caşın, "Maritime Terrorism Attacks to Libya Ra's Lanuf …", cit.

by Islamic State militants against critical infrastructure in Libya concerned an oil port along the coast and led to the death of at least seven people.[64]

Besides Libya, Syria and Egypt are two other important cases in point in relation to the impact of conflicts and terrorism on energy security. Within Egypt, the Sinai Peninsula has been home to a number of attacks targeting its energy infrastructure. For instance, the gas pipeline connecting Egypt to Israel and Jordan was attacked at least once a month from mid-2011 to July 2012. Since then there have been at least another 15 reported attacks. The repeated nature of these attacks results in repeated disruptions and, at times, lengthy repairs. More recently, in January 2015, Egyptian jihadists claimed responsibility for bombing the pipeline yet again, noting that it was due to Amman's role in targeting the Islamic State group.[65]

In Syria, oil and gas fields have been an important asset for various rebel factions and government forces to fight over since the beginning of the civil unrest.[66] Specifically, most of the foreign belligerents in the war in Syria are gas-exporting countries with interests in one of the two competing pipeline projects that seek to cross Syrian territory to deliver either Qatari or Iranian gas to Europe. The Russian intervention adds a new layer. Russia would rather see the Iran-Iraq-Syria pipeline built or no pipeline at all, so that it can best control gas supplies to Europe, its main market. Indeed, the dual pipelines would be a disaster for the Kremlin, as they would allow natural gas from the Gulf to reach the Mediterranean (and the European markets) bypassing choke points such as the Strait of Hormuz, the Bab el-Mandeb Strait and the Suez Canal reducing costs and maritime navigation security risks.[67]

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[64] Karen Yourish, Derek Watkins and Tom Giratikanon, "Where ISIS Has Directed and Inspired Attacks Around the World", in *The New York Times*, 22 March 2016, http://nyti.ms/1dKoLLp.
[65] Jennifer Giroux, "Energy Infrastructure Targeting in the Mediterranean…", cit.
[66] Yuliya Zabyelina and Irina Kustova, "Energy and Conflict: Security Outsourcing in the Protection of Critical Energy Infrastructures", in *Cooperation and Conflict*, Vol. 50, No. 4 (December 2015), p. 531-549.
[67] For Qatar, Syria represents an opportunity to transport its gas to market cheaply or block Iran from dominating pipeline exports from a jointly-owned field. The United States, meanwhile, supports the Qatari pipeline as a way to balance Iran and diversify Europe's gas supplies away from Russia. And Turkey, likewise, believes that the Qatari pipeline would help it diversify its own gas supplies away from Russian energy and further its ambitions to be a gas transit hub between Asia and Europe. Russian state media has recently given reminders that it is "unlikely to manage without Russian gas" and that Turkey's other major supplier, Iran, is aligned with Russia in Syria ("Turkey unlikely to manage without Russian gas", in *RT.com*, 12 October 2015, http://on.rt.com/6tn6). Russia has a vital interest in controlling gas supplies to Europe, where Gazprom sells 80 percent of its gas. The European Union has succeeded in diversifying supplies in recent years (in part through LNG imports) and seeks to develop additional pipelines from Central Asia and the Middle East to further reduce its reliance on Russian gas. New pipelines from Qatar and Iran could take away market share from Russia, but more importantly reduce prices below what the Russian state

In addition to these grand strategy aspects, the control of energy infrastructure plays a key role in the evolution of the Syrian internal crisis. The Islamic State, indeed, controls most of the country's oil fields and the bulk of the refineries in the eastern Deir Ezzor province. While it is still difficult to determine the exact levels of oil production in the ISIL-controlled areas, it is generally acknowledged that the crude traded and smuggled on the black market represents the group's biggest single source of revenue, which largely contributes to financing the caliphate activities in the region and abroad.

Due to the importance of oil for the stability of the Islamic State, in the last few months the international military coalitions operating in the Syrian conflict launched various rounds of attacks against the ISIL oil infrastructure, particularly the fields of al-Omar and al-Tanak. This attempt to block the advancement of the caliphate and reduce its leverage *vis-à-vis* the local population by destroying or damaging key oil assets clearly shows the importance of the control and protection of critical energy infrastructure to guarantee the stability and security in the Mediterranean and Middle Eastern region.

2.3 PKK's terrorism threats on Turkey's energy security

Meanwhile, Ankara is forging an increasingly important energy hub in the Middle East, trading with Europe, Russia, Iran and Iraq, which might simply add more fuel to the fire. Two oil pipelines pass from Iraq to ports in Turkey, and a natural gas pipeline passes through Turkey from Iran. The PKK is aware of this, and accordingly attacked the natural gas pipelines on 27 July 2015.[68] An oil pipeline was also damaged one day later, but no group has yet taken accountability for that attack.[69] In any case, this move illustrates that the PKK closely monitors regional developments and searches for new roles and potential supporters. By aiming at the BTC pipeline, the PKK might have been struggling to find new strategic partners. Turkey does hold two strategically significant trans-border pipelines, apart from the ones used for domestic needs: Kirkuk-Yumurtalik and Baku-Tbilisi-Ceyhan. The BTC route has come into the picture as the most efficient option for the carrying of Azerbaijani hydrocarbons to the West. It was intended to be

budget needs to survive. See Petr Polak, "Europe's Low Energy. The Promise and Perils of the Energy Union", in *Foreign Affairs Snapshots*, 9 September 2015, https://www.foreignaffairs.com/node/1115385; Mitchell A. Orenstein and George Romer, "Putin's Gas Attack. Is Russia Just in Syria for the Pipelines?", in *Foreign Affairs Snapshots*, 14 October 2015, https://www.foreignaffairs.com/node/1115619.

[68] David O'Byrne, "Oil pipeline latest casualty of rising tensions in Turkey", in *Financial Times*, 29 July 2015, http://on.ft.com/1D9beJx.

[69] Hana Levi Julian, "Turkey Accuses Kurdish PKK Terror Group of Teaming with ISIS", in *The Jewish Press*, 30 July 2015, http://wp.me/p1TTob-Zqs.

extended to transport the rest of the Caspian basin resources.[70] This *sui generis* position has strengthened Ankara's prospective role as an energy hub. Similarly, the US Energy Information Administration has underscored in its latest report that Ankara is turning out to be a significant transit hub for hydrocarbon transportation from Central Asia, Russia and the Middle East to Europe and other Atlantic markets.[71] Turkey already has accomplished some of its potential in becoming a critical hub for hydrocarbon transportation via pipelines, as well as performing an ever increasing role for Europe which targets the diversification of suppliers of natural gas. This is a very challenging task. Turkey has begun military operations against Kurdish rebel bases in northern Iraq and air operations against the ISIL group.

According to the International Index of Energy Security Risk 2015 Edition report, published by the US Chamber of Commerce, Turkey's energy security risk score was 1,087.[72] The OECD average risk index is calibrated to a 1980 base year figure of 1,000, with a higher number meaning higher risk. The OECD average score was 912. Italy's was 1,043. Likewise, according to the rankings for 25 large energy-consuming countries, Turkey ranks as 14th while the Netherlands is 16th and Ukraine 25th. These figures illustrate that when compared with other central energy players throughout the world, Ankara's energy security does not represent a great concern and the country still upholds its trustworthy energy partner status for Europe and the rest of the world.[73]

2.4 The OSCE's role in energy critical infrastructure protection in the Mediterranean

> Security in Europe is to be considered in the broader context of world security and is closely linked with security in the Mediterranean area as a whole, and that accordingly the process of improving security should not be confined to Europe but should extend to other parts of the world, and in particular to the Mediterranean area.
>
> The 1975 Helsinki Final Act[74]

[70] Nihat Ali Özcan, "Energy Security and the PKK Threat to the Baku-Tbilisi-Ceyhan Pipeline", in *Terrorism Monitor*, Vol. 6, No. 18 (22 September 2008), http://www.jamestown.org/single/?tx_ttnews[tt_news]=5170.
[71] EIA, *Turkey*, updated 6 August 2015, http://www.eia.gov/beta/international/country.cfm?iso=TUR.
[72] Energy Institute, *International Index of Energy Security Risk. 2015 Edition*, April 2015, https://www.uschamber.com/node/117634.
[73] Ali Ünal, "PKK Scheming to Undermine Turkey's Energy Security", in *Daily Sabah*, 7 August 2015, http://sabahdai.ly/tawAOE.
[74] OSCE, *Helsinki Final Act*, 1 August 1975, p. 36, http://www.osce.org/node/39501.

Even though the OSCE does not seem to be a central actor on critical infrastructure security, it has the duty of increasing the dialogue between energy producers, consumers and transit countries regarding energy security. As a 57-member organisation including energy producers and consumers both from Europe and North America, transit countries carrying energy resources to Europe are also among the members of OSCE.[75] Therefore, the OSCE provides a unique platform among its full member producer, consumer and transit countries. The OSCE has the complementary role of the duties of other international energy organisations. The organisation is responsible for the implementation of the arrangements necessary for energy security as well as the provision of consensus and the putting forward of political will. Within this context, it can be mentioned that in the name of creating a joint language on the protection of 57 members' energy infrastructure, the OSCE will function as a politically effective forum within the context of the steps taken, new initiatives and expected changes. The organisation started to deal with the subject of energy security after the adoption of the 2003 Maastricht Strategic Document at the meeting of the Council of Ministers. In this document, it is stated that in order to provide a high level of energy security, it is compulsory to have an energy supply that is predictable, secure, economically feasible, commercially viable and environmentally friendly. It also underlines the need for the provision of security for energy routes.[76] Given the concretisation of the potential serious effects on economics, human health and environment of damage to energy supplies as well as the targeting of these strategic infrastructures in increasing terrorist attacks, the OSCE has begun to deal with these issues. OSCE 15th Ministerial Council Meeting held in November 2007, Madrid, noted that the fight against terrorist attacks on critical infrastructure had turned out to be one of the priorities of the organisation. By emphasizing the importance of the protection of energy infrastructures in terms of energy security, the organisation approved the Decision 6/07 on Protecting Critical Energy Infrastructure from Terrorist Attacks in the same meeting.[77] The decision:

- Calls upon participating states to consider all necessary measures at the national level to ensure an adequate protection of critical energy infrastructure from terrorist attack;
- Urges participating states to continue co-operation amongst themselves and to better co-ordinate measures to increase protection of critical energy infrastructure from terrorist attack;

[75] Mesut Hakkı Caşın and Sina Kısacık, *Kritik Enerji Altyapı Güvenliği*, Caspian Strategy Institute, 2014, p. 25.
[76] OSCE, *OSCE Strategy Document for the Economic and Environmental Dimension* (MC(11).JOUR/2), paragraph 2.1.12, 2 December 2013, http://www.osce.org/node/20705.
[77] OSCE, *Decision No. 6/07 on Protecting Critical Energy Infrastructure from Terrorist Attacks* (MC.DEC/6/07), 30 November 2007, http://www.osce.org/node/29482.

- Encourages participating states to further promote public-private partnership with business communities with a view to increasing critical energy infrastructure protection against terrorist attack and to effectively address preparedness/consequence management issues in this field;
- Tasks the Secretary General to examine and report to the Permanent Council on opportunities for co-operation with relevant international organisations, including the International Atomic Energy Agency, in the field of protection of critical energy infrastructure from terrorist attack;
- Invites the Secretary General to consider facilitating the exchange of best practices and the timely sharing of information on, and effective responses to, terrorist threats to the security of critical energy infrastructure without duplicating the activities already carried out by the relevant international organisations;
- Invites the Permanent Council to remain seized of this issue and include it for consideration in the framework of relevant meetings and discussions within the OSCE;
- Encourages the Partners for Co-operation to voluntarily implement the provisions of this decision.

OSCE prioritising the protection of critical infrastructure has resulted in continuing initiatives on this issue. The organisation has contributed to the formation of the agenda by organising several general and expert level workshops and meetings and in so doing has become an efficient forum for its participating states. Ambassador Kairat Abdrakhmanov, the then President of OSCE Permanent Council, stated in the 2010 Vienna Summit that energy infrastructure security is a critical subject for the states heavily dependent on external energy supply and a terrorist attack toward the critical infrastructure factors in any country would have bad consequences in the countries that are within the energy supply chain.[78] For this reason, the subject has been widely debated and the necessity to take precautions for the protection of energy infrastructure elements from terrorist attacks at the national level as well as to foster regional cooperation and coordination has been strongly underlined. Within that context, a number of decisions have been taken by OSCE member states entailing the development of public-private sector cooperation, the establishment and spread of early warning and alarm systems and the advancement of methods for being prepared against potential attacks. As can be understood from this point, when the increasing threats and international conjuncture in the current circumstances are taken into account, the OSCE – being aware of the sensitivity of the issue – has begun to take the necessary steps to address the issue of critical infrastructure protection. It can

[78] OSCE, *OSCE workshop promotes international co-operation, public-private partnerships to protect critical energy infrastructure from terrorist attacks*, 11 February 2010, http://www.osce.org/node/51896.

be put forward that the OSCE is the best-placed organisation to do this among the few international organisations that are working on critical infrastructure protection. The diverse and comprehensive membership of the OSCE ensures that the common target of fostering energy security, through critical infrastructure protection, is matched by concrete steps.

The partnership between the OSCE and its Mediterranean partners has evolved since the Helsinki Final Act that stated that security in Europe is linked to security in the Mediterranean and *vice versa*.[79] A further step was taken at the 1994 Budapest Summit, and enlarged with the establishment of the Partnership Fund in 2007, as a new tool was created to finance activities specifically targeted at the Mediterranean partners. In 2009, when the Greek OSCE chairmanship launched the Corfu Process, it was decided that the partners would be invited to contribute to the discussion on "an ad hoc basis" and "after close consultation with participating states."[80] Participant states decided to provide an opportunity for strengthening the dialogue and especially to consider additional options for further enhancing the OSCE's relations with the Mediterranean Partners for Cooperation during the 2014 Basel Ministerial Council. Today, the OSCE-Mediterranean partnership is based on a broad political framework.[81] The OSCE Mediterranean Partnership offers an opportunity for exchange of views and experience with member states concerning security topics, including energy security, within the organisation's reach. In addition to cooperation with the Mediterranean partners, the OSCE expertise can offer solutions related to energy critical infrastructure protection to supplier, transit and consumer countries.

Conclusions

Priority must be given to relations with the coastal countries on the shore of the southern Mediterranean. Establishment of close international cooperation, taking into account the complementarities and the mutual benefits between energy consumers and suppliers will create new opportunities in terms of respect of riparian states' interests. The OSCE has paid increasing attention to the events that have crossed the Mediterranean region. It appears the OSCE has had a particular role to play in monitoring and warning of these types of energy security problems, economic and social crises, as they could be precursors to conflict. In order to

[79] OSCE, *Charter of Paris for a New Europe*, Paris, 21 November 1990, http://www.osce.org/node/39516.
[80] OSCE, *Decision No. 1/09 on Furthering the Corfu Process* (MC.DEC/1/09), 2 December 2009, http://www.osce.org/node/40709.
[81] Stephanie Liechtenstein, "The OSCE-Mediterranean Partnership and the Arab Uprisings", in *IPI Meeting Notes*, December 2011, p. 3, https://www.ipinst.org/?p=1024.

ensure the widest possible participation it aims to achieve sustainable and balanced socio-economic development in the region between the member states. Since the Arab Spring, the OSCE can play an important role in the new Mediterranean framework in helping to implement a long term approach on an equal basis.[82] The dialogue between East and West is the key not only to the preservation of European peace, but also for effectively addressing the crises that currently plague the Southern Mediterranean.

In terms of modern CIP, platform security and diplomatic, legal security are very central issues. Therefore in that regard, the riparian countries should cooperate with each other, rather than confront one another. CIP is very different in the Middle East and North Africa. The reserves mostly found in these regions are located offshore. In the case of Syria, Moscow has the exploration rights to both onshore and offshore areas. Within the context of critical infrastructure protection, the protection of submarine transportation cables, the provision of physical security as well as the provision of NATO Mediterranean Task Force represents a critical importance for the transportation of oil and natural gas. In that regard, tanker security is also central as well. In the future, Turkey will have an ever increasing role in the transportation of hydrocarbon.

- The possible routes for the transportation of the Eastern Mediterranean's natural gas reserves will be shaped by the relations between the five countries of Egypt, Israel, Cyprus, Greece, and Turkey.
- As political and legal consensuses are reached, all the riparian states will make serious economic gains as energy markets and transit states.
- This new strategic initiative will attract new terrorist attacks. NATO and OSCE will gain significance in that regard. The protection of new energy stations as well as the protection of energy lines from the sea, land and air and the strengthening of cyber security have the potential to deter the terrorist attacks.
- Consequently, the possibility of energy riches benefitting all the countries in the Eastern Mediterranean will no longer be a matter of compromise, but will be a mutually beneficial arrangement for all. As a last message, this new alternative route could pave the way for the EU to create an independent new energy route from Russia as well as to gain new CIP supply security.

[82] IPALMO, Final Document of the conference *The OSCE and a New Context for Regional Cooperation in the Mediterranean*, Rome, 28 May 2012, http://www.esteri.it/mae/ministero/servizi/archivi_biblioteca/20120618_relazione_osce_en.pdf.

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3.
SUSTAINABILITY AND ENERGY TRANSITION IN THE SOUTHERN MEDITERRANEAN REGION

Hans Günter Brauch

This chapter[83] focuses primarily on the OSCE's dialogue with its Mediterranean Cooperation Partners (3.1). It takes the dual contextual change of the international order (3.2) with the end of the Cold War (1990) and the transition of earth from the Holocene to the Anthropocene period – due to the human intervention in the earth system – into account (3.3). This dual contextual change requires a reconsideration of "fossil energy sources" whose massive burning since the industrial revolution has resulted in a significant increase of greenhouse gases in the atmosphere. This has caused anthropogenic climate change and its four physical effects (temperature increase, precipitation changes, sea-level rise and increase of extreme weather events), as well as societal and political consequences through people's displacement and migration, political instability, crises and conflicts. These have been addressed since the year 2000 as climate change and security issues.[84]

Trans-Mediterranean cooperation on sustainable and renewable energy has progressed from a research project to an industrial and policy initiative (3.4) where bilateral and international initiatives have emerged for sustainable energy policies in the Mediterranean Cooperation partner countries (3.5). However, the prospects for sustainable energy in the Southern Mediterranean have been constrained due to political, bureaucratic, economic and investment hurdles that have impeded the exploitation of the technical potentials of wind and solar energy, compared with fossil energy resources (3.6). Due its high dependence on oil and gas imports, only Morocco has given high priority to renewables in its energy policy plans.

[83] The chapter builds on previous texts by the author (see references).
[84] EU High Representative and European Commission, *Climate Change and International Security* (S113/08), 14 March 2008, http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/reports/99387.pdf; UN Secretary General, *Climate Change and its Possible Security Implications* (A/64/350), 11 September 2009, http://undocs.org/A/64/350; Jürgen Scheffran et al. (eds.), *Climate Change, Human Security and Violent Conflict. Challenges for Societal Stability*, Heidelberg etc., Springer, 2012.

Thus, the future dialogue and cooperation between the OSCE and its six Mediterranean partners must take global climate change into account, requiring also a reframing of fossil energy issues as its major cause. To what extent can the rich renewable (solar, wind) potential of the OSCE's Mediterranean dialogue partners be used:

- for satisfying their own energy needs – reflecting the UN's population projections until 2100 (table 1)?;
- for facilitating the goals of the G-8 (adopted in May 2015 in Elmau)?; and
- for reflecting the long-term plans of the European Union until 2050 to move towards a decarbonisation of its energy sector (by drastically reducing coal, oil and gas)?

The OSCE's energy and climate dialogue with its Mediterranean partners may address the potential for renewable energy resources to alleviate the Middle East conflict, e.g. by using solar electricity generated in the deserts of Jordan for the desalination of water in Gaza and for the growing electricity needs of the Palestinians.[85]

This is also valid for the energy cooperation between Morocco, Algeria and Tunisia in generating renewable electricity for their own needs, as well as the potential export of future surpluses to Europe to generate new income, due to declining oil and gas reserves.

3.1 OSCE and its Mediterranean cooperation partners

The OSCE's Mediterranean dialogue repeatedly noted its "economic and environmental dimension commitments" and after a joint NATO/OSCE workshop on "Water Scarcity, Land Degradation and Desertification in the Mediterranean Region" in Valencia (2007)[86] issues of "sustainable energy" were examined in 2012 at the OSCE Mediterranean Conference in Rome.[87] A project on "Renewable Energy and Energy Security" with the Mediterranean partners was launched with an OSCE study trip to a power plant in Andalucía (2011) and followed by an expert workshop on "Sustainable Energy Issues in the Southern Mediterranean" in Vienna (2013), to promote dialogue to explore and identify potential areas for action-oriented co-operation on energy issues by the OSCE with its Mediterranean

[85] Jeroen Kool, Saeb Bamya and Samer Talozi, *Sustainable Development in the Jordan Valley.-Final Report of the Regional NGO Master Plan*, Heidelberg etc., Springer, 2016 (forthcoming).
[86] José L. Rubio et al. (eds.), *Water Scarcity, Land Degradation and Desertification in the Mediterranean Region. Environmental and Security Aspects*, Heidelberg etc., Springer, 2009.
[87] OSCE, *Consolidated Summary of the 2012 OSCE Mediterranean Conference* (SEC.GAL/240/12), 10 January 2013, http://www.osce.org/node/102334.

partners. A participatory workshop on "Environment and Security Issues in the Southern Mediterranean Region" took place in Amman, Jordan in June 2012 with a second meeting in Vienna in December 2014.[88]

The OSCE Mediterranean Conference in Rome (October 2012) argued that "regional and interregional co-operation on the subject [of promoting dialogue and developing co-operation on sustainable energy] should be reinforced, particularly between states in the East and in the Southern Mediterranean."[89] The experts suggested that "intensified co-operation on energy issues will contribute to enhanced energy security in the region, since all Mediterranean Partners have a solid interest in this topic."[90] The Office of the Co-ordinator of OSCE Economic and Environmental Activities (OCEEA) "will plan as a first follow-up activity a study visit on sustainable energy for representatives from Mediterranean Partner countries, to raise awareness in relevant policy makers of the benefits of promoting renewable energy and energy efficiency, with a special focus on its integration into the built-environment."[91]

During the Vienna experts workshop it was argued that "solutions in the field of solar power are a promising for future power generation in the Mediterranean region;" and that "there is need for incorporating the issue of energy security into national security concepts" and it was proposed to organise study visits for the Mediterranean partners.[92]

On 28 October 2015, the OSCE Security Days conference on "Climate Change and Security: Unprecedented Impacts, Unpredictable Risks" held in Vienna formulated some conclusions and recommendations which are relevant for the Mediterranean,[93] especially that:

- Climate change impacts tend to accelerate instability in vulnerable areas of the world.
- There is a need for mainstreaming climate change and security and for governance mechanisms at the global level.
- The emerging discourse on "resilience" could be used as an umbrella to integrate different policy fields such as foreign policy and preventative diplomacy, peace building, climate change adaptation and humanitarian assistance. The OSCE could contribute in this regard by *inter alia* providing

[88] OSCE, *The OSCE Mediterranean Partnership for Co-operation: A Compilation of Relevant Documents and Information*, 18 December 2014, http://www.osce.org/node/132176.
[89] OSCE, *Consolidated Summary of the 2012 OSCE Mediterranean Conference*, cit., p. 16.
[90] OSCE, *The OSCE Mediterranean Partnership for Co-operation: A Compilation …*, cit., p. 55.
[91] Ibid.
[92] Ibid.
[93] OSCE, *Climate Change and Security: Unprecedented impacts, unpredictable risks. Report* (SEC.DAYS/23/15/Corr.1), 22 January 2016, http://www.osce.org/node/217746.

security perspectives and by continuing to provide an inclusive platform for dialogue among heterogeneous stakeholders.

- Addressing climate change at the regional level is critical as it links the efforts undertaken at the global and national levels. For climate change mitigation, enhancing regional co-operation on sustainable infrastructure and integrated energy systems is essential.
- If human impact on climate change is not mitigated, it will not be possible to manage the crisis only by addressing emergencies and increasing resilience. Therefore, decarbonisation is a priority of the first order.
- Technologies such as hydropower are important for climate change mitigation and sustainable development.

3.2 Change in international order for the Mediterranean

Despite severe and urgent challenges for policymakers in OSCE countries, issues of sustainability, sustainable energy policy and the impact of climate change were not perceived by policymakers in the Mediterranean region as issues of major concern, requiring instant action. From a longer-term perspective, given the projected regional environmental and climate change and demographic trends in Mediterranean partner countries, the demand for water, food, and employment will rise, while their supply will decline.

Monika Wohlfeld noted that the changes in the security concept of the CSCE/OSCE have been "by far more subtle" than in other organisations. "One major change over time has been that the concept has been turned into an operational approach following the end of the Cold War."[94] Wohlfeld observed that given the substantially limited dialogue the Euro-Mediterranean region is far from becoming a security community[95] and she concluded that the current situation in the Mediterranean region "is not conducive to a serious debate and steps towards closer co-operation with Mediterranean Partners".[96]

[94] Monika Wohlfeld, "Reconceptualization of Security in the CSCE and OSCE", in Hans Günter Brauch et al. (eds.), *Globalization and Environmental Challenges. Reconceptualizing Security in the 21st Century*, Heidelberg etc., Springer, 2008, p. 643.
[95] Karl W. Deutsch et al., *Political Community and the North Atlantic Area. International Organization in the Light of Historical Experience*, Princeton, Princeton University Press, 1957; Wolfgang Zellner (ed.), *Towards a Euro-Atlantic and Eurasian Security Community. From Vision to Reality*, Hamburg, IDEAS, October 2012, http://www.pism.pl/files/?id_plik=11986.
[96] Monika Wohlfeld, "OSCE's Mediterranean Engagement on the Eve of the 40th Anniversary of the Helsinki Final Act", in New-Med Research Network, *Towards "Helsinki +40". The OSCE, the Global Mediterranean, and the Future of Cooperative Security* (PC.DEL/1227/14/Corr.1), 4 November 2014, p. 59, http://www.osce.org/node/1263513.

The dominant short-term perspective, a lack of resources, operational capabilities and of a sense of urgency have prevented the OSCE Mediterranean dialogue from playing an important political role in addressing environmental, climate change and sustainable energy policy.

3.3 Climate change: The Mediterranean in the Anthropocene

Since 1975 the dominant political mindset within the OSCE in its Mediterranean dialogue and of other networks in the EU context (European Mediterranean Partnership - EMP, Union for the Mediterranean - UfM) has focused on short-term political, economic, societal and humanitarian efforts. This approach has lacked a longer-term and proactive strategy addressing present challenges with limited financial means, often focusing on the lowest common denominator of declaratory politics. This dialogue was often a victim of the Middle East conflict.

Since the 1970s global environmental and climate change have been analysed scientifically. In the late 1980s, they became political concerns and in the early 21st century they were discussed as security challenges.[97] The Intergovernmental Panel on Climate Change (IPCC) in its first five assessment reports claimed with high certainty that this change was human-induced or "anthropogenic."[98] As a result Nobel laureate Paul J. Crutzen has stated that we are now living in a new era of earth history, the Anthropocene, which succeeded the Holocene, which started with the end of the glacial period about 12,000 years BP.[99]

The end of the Cold War triggered a change in the international order, from a bipolar political and military confrontation to a more cooperative security regime, which fostered different efforts for a cooperation within and across the Mediterranean (EU, EMP, UfM).

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[97] Hans Günter Brauch, "Climate Change, Environmental Stress and Conflict", in Federal Ministry for the Environment (ed.), *Climate Change and Conflict*, Berlin, Federal Ministry for the Environment, November 2002, p. 9-112, http://www.afes-press.de/pdf/Brauch_ClimateChange_BMU.pdf; Hans Günter Brauch, "Securitizing Global Environmental Change", in Hans Günter Brauch et al. (eds.), *Facing Global Environmental Change. Environmental, Human, Energy, Food, Health and Water Security Concepts*, Heidelberg etc., Springer, 2009, p. 65-102; Hans Günter Brauch, "Policy Responses to Climate Change in the Mediterranean and MENA Region during the Anthropocene", in Jürgen Scheffran et al. (eds.), *Climate Change, Human Security and Violent Conflict. Challenges for Societal Stability*, Heidelberg etc., Springer, 2012, p. 719-794; Jürgen Scheffran et al. (eds.), *Climate Change, Human Security and Violent Conflict*, cit.

[98] See, for instance, the fifth assessment report: IPCC, *Climate Change 2014. Synthesis Report*, 2014, http://www.ipcc.ch/report/ar5/syr.

[99] Paul J. Crutzen, "Geology of Mankind", in *Nature*, Vol. 415, No. 6867 (3 January 2002), p. 23.

Since the 1950s, the OSCE's six Mediterranean dialogue partners have witnessed substantial changes, including a sky-rocketing demographic increase (table 1), massive urbanisation and a significant rise in greenhouse gas emissions. Until COP21 in Paris in 2015, none of the OSCE Mediterranean Partner Countries had any legal obligation to reduce their GHG emissions. Rather, the Middle East countries had the highest per capita increases in CO_2 from 1950 to 2010 after China, while those for Europe and North America declined. All six Mediterranean dialogue partner countries have significantly increased their emissions from 1950-2010 (Figure 1).

Table 1 | Population change for the six Mediterranean dialogue partners (1950-2100), projections for medium variant (thousands)

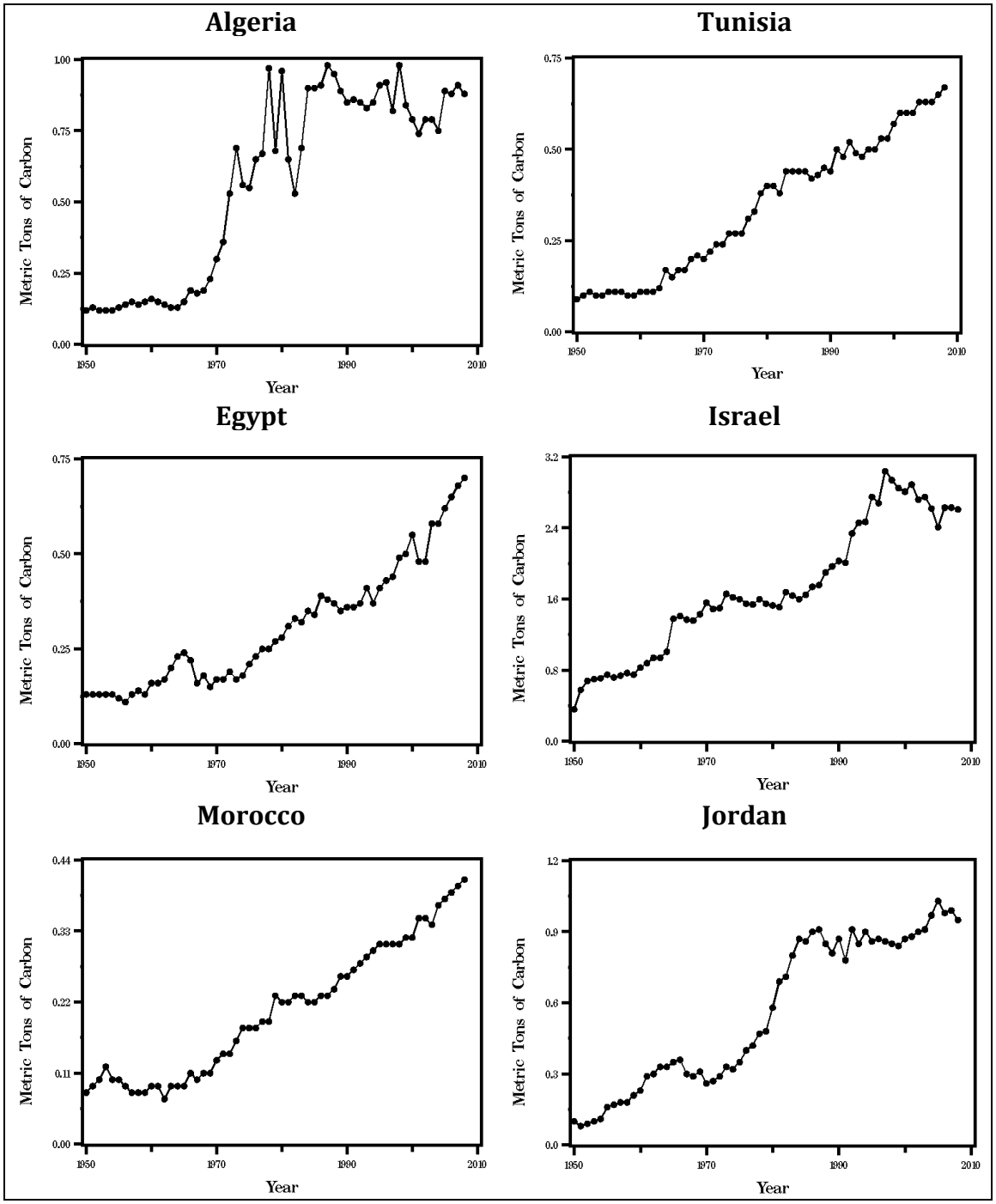
Country	1950	1970	1990	2015	2020	2035	2050	2075	2100
Algeria	8,872	14,550	25,912	39,667	43,008	50,424	56,461	60,824	61,060
Egypt	20,897	34,809	56,397	91,508	100,518	125,589	151,111	182,841	200,802
Morocco	8,986	16,040	24,950	34,378	36,444	41,073	43,696	43,857	40,888
Tunisia	3,605	5,060	8,233	11,254	11,835	12,955	13,476	13,201	12,494
Israel	1,258	2,850	4,499	8,064	8,718	10,646	12,610	15,366	17,285
Jordan	449	1,655	3,358	7,595	8,167	9,808	11,717	13,612	14,147
Total	44,07	74,964	123,349	192,466	208,690	240,687	289,071	329,701	346,676

Source: UNDESA, *World Population Prospects. The 2015 Revision*, July 2015, http://esa.un.org/unpd/wpp.

According to the United Nations' 2015 revision of its *World Population Prospects* (table 1) the population of the six OSCE Mediterranean dialogue partners has increased from 44 million in 1950 to 192 million in 2015 and is projected to rise to 289 million by 2050 and 347 million by 2100. This population growth has resulted in a major increase in the consumption of fossil energy sources, but also in the per capita increase of CO_2 emissions in the Middle East countries (Figure 1) and in the six OSCE Mediterranean dialogue partner countries between 1950 and 2010.

With the projected continued high population growth by 2050 and 2100 (table 1), the demand for energy and the consumption of fossil energy sources, and thus also GHG emissions, will also continue to rise in total and per capita (figures 2-3). In this context, the promotion of sustainable energy was put forward by the UfM with its Mediterranean Solar Plan (MSP) in 2008, but had disappeared from the EU's policy agenda by end of 2013.

Figure 1 | Carbon dioxide per capita for six Mediterranean dialogue partners (1950-2010)



Source: Carbon Dioxide Analysis Center database (22 October 2015).

3.4 From a research project to an industrial initiative

The Helsinki Final Act (1975) referred both to fossil energy sources and "new technologies of production, transport and distribution of energy […], as well as research in the field of new energy sources, including nuclear, solar and geothermal energy."[100] The oil crises of the 1970s triggered the research on renewable energy sources that matured in the debate on climate change. In some regions, wind, photovoltaic and solar thermal energy sources have become increasingly competitive with fossil energy for electricity generation.[101]

Since the early 20th century, engineers, scientists and visionary politicians have suggested the use of solar energy (solar thermal, photovoltaics, concentrated solar technologies) in the deserts (e.g. Sahara) for electricity generation and to transport this energy as electricity via long-distance cables to Europe.[102] The Trans-Mediterranean Renewable Energy Cooperation (TREC) network was instrumental for the Desertec Concept.[103] In 2009, the Desertec Industrial Initiative (Dii) was set up to examine the realization of the vision from an industry perspective. After its initial study mission was completed in October 2014, in 2105, DII was superseded by "Supporters of Desert Energy" in Dubai that includes RWE (Germany), ACWA power (Saudi Arabia), the State Grid of China, and several other companies interested in the MENA and Turkey.[104] With the increasing violence after the Arab Spring – due to security concerns and a reassessment of national energy policies – the economic and political attractiveness of this vision declined.

In 2008, the Solar Plan of the Union for the Mediterranean was launched to develop renewable energy projects with a total of 20 gigawatts by the year 2020.[105] In July 2010, in the framework of the UfM's Mediterranean Solar Plan the industrial initiative Transgreen/Medgrid was founded to promote the construction of power transmission lines in the Mediterranean region. In February 2013, the

[100] OSCE, Helsinki Final Act, 1 August 1975, p. 24, http://www.osce.org/node/39501.
[101] Winfried Hoffmann, *The Economic Competitiveness of Renewable Energy. Pathways to 100% Global Coverage*, Hoboken, Wiley, 2014.
[102] Hans Günter Brauch, "Partnership Building Measures for Long-term Non-military Challenges Affecting North-South Relations", in Hans Günter Brauch, Antonio Marquina and Abdelwahab Biad (eds.), *Euro-Mediterranean Partnership for the 21st Century*, Basingstoke, Macmillan, 2000, p. 281-318.
[103] Franz Trieb, Wolfram Krewitt and Nadine May, "Solar Energy as a Key for Power and Water in the Middle East and North Africa", in Hans Günter Brauch et al. (eds.), *Facing Global Environmental Change. Environmental, Human, Energy, Food, Health and Water Security Concepts*, Heidelberg etc., Springer, 2009, p. 411-426.
[104] See the Desertec website: http://desertenergy.org/partners/#shareholders.
[105] Hans Günter Brauch, "Policy Responses to Climate Change in the Mediterranean and MENA Region during the Anthropocene", cit.

UfM discussed a draft Master Solar Plan[106] and in November 2013 senior officials of the UfM finalised the Mediterranean Solar Master Plan for the UfM Ministerial Conference on Energy in December 2013, whose decisions were not publicised. In late 2013, the 13th FEMIP conference discussed energy efficiency[107] and in May 2014 in Athens the environment ministers set up a UfM Climate Change Expert Group and at the meeting of the Energy Ministers in Rome on 19 November 2014 it was agreed to build a Euro-Mediterranean energy bridge for "Euromed gas and electricity networks in the context of energy security."[108] The ministers also agreed on a third platform:

> The "Euro-Mediterranean Platform on Renewable Energy and Energy Efficiency" should assist governments and industry operators in the deployment of renewable energy and energy efficiency technologies and projects and of national energy efficiency action plans, and the creation of favourable conditions for private sector investments.[109]

Between December 2013 and October 2014, the prospects both of the industrial Desertec project and for the EU's Mediterranean Solar Plan were downgraded and expert groups with a wider declaratory agenda took over. Based on this brief review of the activities within the EU the prospect of the OSCE playing an operational leadership role remain low.

3.5 Bilateral and international initiatives for sustainable energy policies in the Mediterranean dialogue partner countries

As the OSCE includes, besides all 28 EU countries, also Canada, the US, Russia and Turkey, it can play a major role in political and economic agenda setting for strategies of a "sustainability transition"[110] especially in the energy sector aiming at a decarbonisation of the economy.

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[106] See the UfM website: http://ufmsecretariat.org//?s=solar.
[107] EIB, *13th FEMIP Conference "Energy Efficiency in the Mediterranean region"*, 10 December 2013, http://www.eib.org/infocentre/events/all/13th-femip-conference-brussels.htm.
[108] See the final statement of the Italian Presidency of the EU and of the European Commission available at: Med Reg, *EU-Med Ministerial meeting on Energy*, 19 November 2014, http://www.medreg-regulators.org/Portals/45/immagini_home/Rome_Final_statement_on_the_HighLevel_Conference.pdf.
[109] Ibid.
[110] John Grin, Jan Rotmans and Johan Schot (eds.), *Transitions to Sustainable Development. New Directions in the Study of Long-Term Change*, New York, Routledge, 2010; Hans Günter Brauch et al.

Of the six Mediterrranean Dialogue partner countries, Morocco – having hardly any fossil energy resources – initiated a major solar project with the aim "to create 2,000 megawatts of solar generation capacity by the year 2020."[111] Five solar power stations are to be constructed, including both photovoltaic and concentrated solar power technology. The first plant will be commissioned in 2015, and the entire project in 2020. The completed solar project will provide 38 percent of Morocco's annual electricity generation.[112]

Since May 2013, four plants (Noor I, II, III, IV) have been under construction in Ouarzazate in Morocco, with a total capacity of more than 500 MW based on support by the World Bank, the European Investment Bank and a low-interest loan by the German Development Bank (KfW) and the German Ministry for Development and Economic Cooperation. "The 500 MW project is divided among three projects: a 160 MW concentrated solar power project, a 200 MW parabolic mirror plant, and a 150 MW solar trough plant."[113] The consortium is led by a subsidiary of ACWA Power (Saudi Arabia).

This advanced project in Morocco may be attractive for an OSCE study visit and a subsequent study on prospects for sustainable energy policies in all Mediterranean partner countries with the aim of linking present and future energy demand, and regional climate change impacts with longer-term strategies of sustainability transition, including a progressive decarbonisation of the economies, to create local employment and revenues helping MENA countries to reduce their greenhouse emissions.

The United Nations has also stressed the need for "sustainable development" in its Millennium Development Goals (2000) and in the new Sustainable Development Goals (SDG) approved by the UN General Assembly in September 2015. In May 2015 in Elmau (Germany), the heads of states and governments of the G-7 endorsed the goal of a decarbonisation of their economies by the end of this century. The EU endorsed political strategies aiming at sustainability transition in the energy and transportation sectors. These policy proposals were partly taken up by the European Commission and the European Council in its longer-term goals

(eds.), *Handbook on Sustainability Transition and Sustainable Peace*, Heidelberg etc., Springer, 2016 (forthcoming).

[111] John Bambridge, "AfDB helps fund $1.44bn Moroccan solar project"; in *Construction Week Online*, 22 May 2012.

[112] See Wikipedia webpage: *Solar power in Morocco*, https://en.wikipedia.org/wiki/Solar_power_in_Morocco.

[113] Ibid.; Rolf Obertreis, "Marokko statt Desertec", in *Tagesspiegel*, 19 May 2015, http://www.tagesspiegel.de/wirtschaft/11793588.html; Johannes Pennekamp, "Wie ein Märchen aus Tausendundeiner Nacht", in *FAZ*, 18 May 2015, http://www.faz.net/-gqe-83fpm.

and policy papers on climate change, its energy,[114] resource[115] and transport policies[116] and its "Roadmap for moving to a competitive low carbon economy in 2050."[117]

3.6 Sustainable energy in the Southern Mediterranean

The view of the OSCE differs from that of the EU due to its broader membership, different mandate and limited resources. With the dialogue with its Mediterranean partner countries it extends its geographic focus to four countries in North Africa, and to Jordan and Israel. These six Mediterranean dialogue countries differ in their own energy resources. Only Algeria is an oil and gas exporting country. Egypt and Israel have new natural gas reserves offshore, but Morocco, Tunisia, Egypt, Jordan and Israel depend on oil and partly on gas imports. All six countries have superb conditions for solar (thermal, concentrated and PV) energy and Morocco and Egypt also have good conditions for wind power, but only Morocco has undertaken major efforts to use solar and wind energy for electricity generation.[118]

A 2012 report by UNECA claimed that in the countries south of the Mediterranean by 2030 the energy demand and CO_2 emissions may "double by 2030 and demand for electricity will triple." Given that most of the electric power stations use fossil

[114] European Commission, *Roadmap to a Resource Efficient Europe* (COM/2011/571), 20 September 2011, http://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52011DC0571; European Commission, *Energy Roadmap 2050* (COM/2011/885), 15 December 2011, http://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52011DC0885.
[115] Sander Happaerts, "Discourse and Practice of Transitions in International Policy-making on Resource Efficiency in the EU", in Hans Günter Brauch et al. (eds.), *Handbook on Sustainability Transition and Sustainable Peace*, Heidelberg etc., Springer, 2016 (forthcoming); European Commission, *Analysis associated with the Roadmap to a Resource Efficient Europe. Part I* (SEC/2011/1067), 20 September 2011, http://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52011SC1067; Part II, http://ec.europa.eu/environment/resource_efficiency/pdf/working_paper_part2.pdf; European Commission, *A resource-efficient Europe - Flagship initiative under the Europe 2020 Strategy* (COM/2011/21), 26 January 2011, http://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52011DC0021.
[116] European Commission, *White Paper. Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system* (COM/2011/144), 28 March 2011, http://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52011DC0144.
[117] European Commission, *A Roadmap for moving to a competitive low carbon economy in 2050* (COM/2011/112), 8 March 2011, http://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52011DC0112; Hans Günter Brauch, "Building Sustainable Peace by Moving Towards Sustainability Transition", in Brauch, Hans Günter Brauch et al. (eds.), *Addressing Global Environmental Challenges from a Peace Ecology Perspective*, Heidelberg etc., Springer, 2016 (forthcoming).
[118] UNECA, *The Renewable Energy Sector in North Africa. Current Situation and Prospects*, Rabat, September 2012, http://hdl.handle.net/10855/22282.

fuels, "countries have had to review their energy policies and diversify the energy mix giving greater importance to renewable energies and energy efficiency, even if […] fossil fuel is likely to continue to dominate the energy mix (70%) with a larger share for natural gas.[119]

All countries have plans to increase their renewable share for electricity generation by 2020 and 2030 significantly, especially relying on solar (CSP, PV) and wind power. UNECA concluded that in North Africa "the potential for energy efficiency (EE) and renewable energy (RE) is still largely under-exploited."[120] Despite high RE potentials "its contribution to the energy mix is still quite marginal since it represented only 7% of the energy mix in 2006 (solar, wind, hydro, biomass), the rest being composed of gas (67%), oil (19%) and coal (6%)."[121] The UNECA study has reviewed the energy resources, the potentials of renewables, and thegovernment policies to facilitate their use, but also the remaining barriers that prevent their exploitation. A study by Laura El-Katiri argued

> that renewable energy – most importantly solar power […] – could play a role as a cost-competitive alternative to conventional fossil fuels, if the full opportunity cost of domestically consumed oil and natural gas resources is fully priced into the regional energy system. […] Systematically opening up the economic opportunities offered by renewable energy to the MENA region will hence require structural reform of regional energy market and pricing mechanisms, thereby rationalising the use of different energy sources in each domestic market.[122]

According to El-Katiri's study selected MENA countries offered in 2013 these renewable energy targets for 2020/2030: Algeria 6 percent of electricity generation by 2015, 15 percent by 2020 and 40 percent by 2030 (37 percent solar, 3 percent wind); Morocco 42 percent of installed electricity generation capacity by 2020; Tunisia 11 percent of electricity generation by 2015, 25 percent by 2030; Egypt 20 percent of electricity generation by 2020 (16 percent wind); Jordan 7 percent of primary energy by 2015 and 10 percent by 2020 and Israel 5 percent of electricity generation by 2014; 10 percent by 2020.[123] IRENA has published

[119] Ibid., p. ix.
[120] Ibid., p. 79.
[121] Ibid, p. 80. See also IRENA, *Africa's Renewable Future. The Path to Sustainable Growth*, Abu Dhabi, IRENA, February2013, http://www.irena.org/menu/index.aspx?mnu=Subcat&CatID=141&SubcatID=276.
[122] Laura El-Katiri, "Roadmap for Renewable Energy in the Middle East and North Africa", in *OIES Papers*, No. MEP 6 (January 2014), p. iii, https://www.oxfordenergy.org/tag/mep6.
[123] Ibid., p. 17.

several reports on the renewable energy potential in the MENA region[124] and on 19 January 2015 it discussed the socio-economic impacts of renewable energy in the Middle East and North Africa with participants from the public and private sector.[125]

Figure 2 | Regional trends in energy use, compound annual average growth (1971-2010)

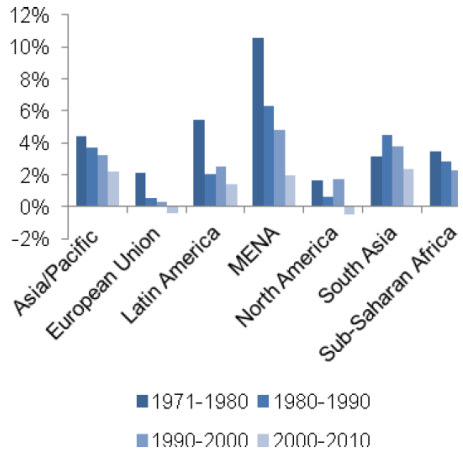
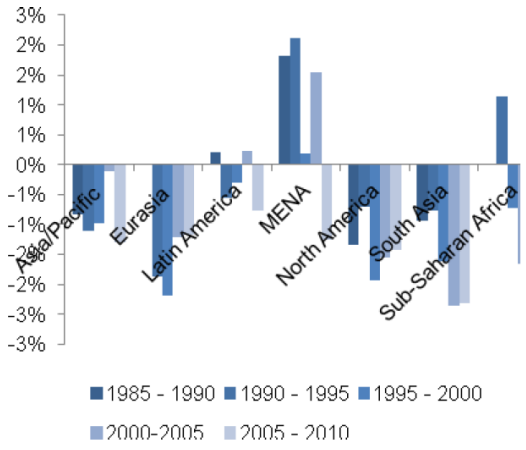


Figure 3 | Regional trends in energy intensity, compound annual average growth (1985-2010)



Source: Laura El-Katiri, "Roadmap for Renewable Energy in the Middle East and North Africa", cit., p. 3.

A study on "Renewable Energy in the Mediterranean" offers an overview of the potentials of the Southern and Eastern Mediterranean, including the OSCE dialogue partners (table 2).[126] With regard to solar power, the high expectations for a

[124] IRENA, *Africa's Renewable Future*, cit.; John Bryden, Lily Riahi and Romain Zissler, *MENA Renewables Status Report*, Paris, REN21, May 2013, http://www.ren21.net/Portals/0/documents/activities/Regional%20Reports/MENA_2013_lowres.pdf; Hugo Lukas, *IRENA's Perspectives on Renewable Energy in MENA*, Dubai, 14 November 2013; http://www.cleanenergybusinesscouncil.com/resources/files/Hugo%20Lucas.pdf; Mohammad El-Khayat et al., *Pan-Arab Renewable Energy Strategy 2030. Roadmap of Actions for Implementation*, Abu Dhabi, IRENA, June 2014, http://www.irena.org/menu/index.aspx?mnu=Subcat&CatID=141&SubcatID=434; Olivier Lavagne d'Ortigue, Adrian Whiteman and Samah Elsayed, *Renewable Energy Capacity Statistics 2015*, Abu Dhabi, IRENA, June 2015, http://www.irena.org/menu/index.aspx?mnu=Subcat&CatID=141&SubcatID=604.

[125] See IRENA, *IRENA Examines the Socio-Economic Impacts of Renewables in the MENA Region*, 21 January 2015, http://wp.me/p5o5qE-79. See also Anna-Kathrin Wallasch et al., *The Socio-economic Benefits of Solar and Wind Energy*, Abu Dhabi, IRENA, May 2014, http://www.irena.org/menu/index.aspx?mnu=Subcat&CatID=141&SubcatID=418.

[126] Jon Bloomfield, Nathaniel Copsey and Carolyn Rowe, *Renewable Energy in the Mediterranean*, Brussels, Committee of the Regions, 2 May 2011, p. 5-10,

renewable energy bridge across the Mediterranean, which were created by the Desertec project,[127] have disappeared – partly for security reasons.

Table 2 | Wind power capacity and number of wind farms for the OSCE partners in 2010

Country	Number of farms	Capacity in megawatts
Morocco	15	286
Algeria	1	14
Tunisia	3	20
Egypt	8	550
Jordan	3	2
Israel	1	6

Source: Jon Bloomfield, Nathaniel Copsey and Carolyn Rowe, *Renewable Energy in the Mediterranean*, cit., p. 6.

In April 2015, Simone Tagliapietra argued that

> The regional electricity generation mix is still predominated by fossil fuels (55% gas, 16% coal, 16% oil) and due to the implementation of universal fossil-fuel consumption subsidies, this situation generates an unsustainable burden on the public finances of both energy importing and energy exporting countries in the region. Meanwhile, solar and wind energy continue to cover less than 1% of the region's electricity generation mix.[128]

In agreement with most older studies he noted that the Southern and Eastern Mediterranean region is "endowed with a huge solar and wind energy potential." Various scientific analyses "have demonstrated that the regional economic potential for CSP, photovoltaic and wind power is among the highest in the world."[129] While many national plans for national targets for solar and wind energy by 2020 and/or 2030 exist and national renewable energy agencies have been set up, the "SEMCs continue to lag far behind most other regions in the world in terms of solar and wind energy deployment."[130]

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http://cor.europa.eu/en/documentation/studies/Documents/renewable-energy-mediterranean.pdf.

[127] Hans Günter Brauch, "Policy Responses to Climate Change in the Mediterranean and MENA Region during the Anthropocene", cit.

[128] Simone Tagliapietra, "The Future of Renewable Energy in the Mediterranean. Translating Potential into Reality", in *FEEM Note di lavoro*, No. 30.2015 (2015), p. 2, http://www.feem.it/getpage.aspx?id=7399.

[129] Ibid.

[130] Ibid., p. 3.

He pointed to the following barriers between the high renewable energy potential and the modest realisation in this region, including the OSCE dialogue partners: (i) the extensive use of universal energy subsidies; (ii) the lack of an adequate electricity infrastructure; (iii) the lack of a stable and harmonised energy regulatory framework; and (iv) the lack of adequate financing mechanisms for the support of renewable energy.[131]

He proposed as part of an innovative approach, a joint activity involving MEDREG (Association of the Mediterranean Energy Regulators), MedTSO (Association of the Mediterranean Transmission System Operators) and the EBRD (European Bank for Reconstruction and Development) under the umbrella of a newly-established "Euro-Med Renewable Energy Platform" as "the basis of an inclusive, pragmatic and bottom-up approach [...] the new catalyst for the development of renewable energy in the Southern and Eastern Mediterranean region."[132] While the technical and increasing economic potential for solar and wind energy in the six southern Mediterranean countries is obvious, many internal market obstacles within these countries have remained. The declining will of EU member countries and the faded UfM MSP has weakened the position of the proponents of sustainable energy policies in these countries.

As part of the Paris Agreement (2015) of the UNFCCC, the OSCE Mediterranean partner countries declared to be committed to several Intended Nationally Determined Contributions (INDCs) (see table 3).

The six Mediterranean partner countries of OSCE have set themselves prior to the adoption of the Paris Agreement ambitious climate targets and renewable energy goals in their INDCs (table 3). However, most of these commitments are conditional on foreign financial and technical support, to a large extent from EU and OSCE member countries. Thus, one major challenge is to attract enough investment into renewables to facilitate the energy transition.

That pertains to the renewable technology itself (wind, solar, solar-thermal, PV, CSP) but also to the fact that integrating the renewables into the network requires substantial modernisation, overcoming mindset constraints of energy officials, bureaucratic hurdles, and reducing subsidies for fossil energy sources. The OSCE member countries from Europe and North America may offer an additional platform for dialogue and training to support these countries in creating sound conditions for investments.

[131] Ibid.
[132] Ibid.

Table 3 | INDCs of the OSCE's Mediterranean partners

Countries	Date	Intended Nationally Determined Contributions (INDCs)
Morocco	30/6/2016	• Reduce GHG emissions by 32 percent by 2030 compared to BAU projected emissions; • A cumulative reduction of 401 Mt CO_{2e} (2020-2030); • Investment of 45 billion dollars, 35 billion dollars conditional on international support. The main objectives behind this transformation are: • Reaching over 50 percent of installed electricity production capacity from renewables by 2025; • Reducing energy consumption by 15 percent by 2030; • National Energy Strategy; • Provide 42 percent of the installed electrical power from renewables, 14 percent from solar, 14 percent from wind and 14 percent from hydropower by 2020; • Achieve 12 percent energy savings by 2020 and 15 percent by 2030; • Reduce energy consumption in buildings, industry and transport by 12 percent (2020) and 15 percent (2030). Expected savings: 48 percent for industry, 23 percent for transport, 19 percent for residential and 10 percent for services; • Additional capacity of 3,900 MW of combined-cycle technology on natural gas (2030); • Supply major industries with imported and regasified natural gas by pipelines.
Algeria	3/9/2015	• Commitments based on access to new external financial resources, clean technology transfer on preferential terms and strengthening of its technical capabilities; • Reducing by 9 percent the global consumption of energy by 2030; • Deployment of PV, wind, thermal, solar, and the integration of cogeneration, biomass and geothermal energy to reach 27 percent of electricity produced from renewables (2030); • Reduction of GHG emissions by 7 percent (national means) to 22 percent (external support finance, technology development, transfer, capacity building), BAU scenario (2030). Main actions in energy sector: • Reach 27 percent of electricity generated from renewable sources of energy by 2030; • Generalise high-performance lighting; • Thermal insulation of buildings between 2021 and 2030; • Increase the share of liquefied petroleum and natural gas (2021 and 2030); • Reduce the volume of gas flaring to less than 1 percent by 2030.
Tunisia	16/9/2015	• Reducing its GHG emissions lowering its carbon intensity by 41 percent (2030), relative to the base year 2010; • Energy sector will reduce carbon intensity by 46 percent (2030) compared with 2010;

		• GHG reduction: 26 Mt CO_{2e} (2030), 207 Mt CO_{2e} (2015-2030); • Estimated 18 billion dollars for investment needs and finance capacity building; • Intensify energy efficiency, primary energy demand to decrease by 30 percent (2030); • Increasing the share of renewable energies in electricity production to 14 percent (2020) and to 30 percent in 2030, compared to 4 percent (2015); • Achieve an installed renewable energy capacity of 3,815 MW (2030): 1,755 MW for wind, 1,610 MW for solar PV and 450 MW for CSP.
Egypt	11/11/2015	• Egyptian INDC document referred to general policy goals without quantitative commitments for GHG reductions and for share of renewables.
Jordan	30/9/2015	• Reduce GHG emissions by 14 percent (2030) with 1.5 percent by its own means based on a BAU scenario based on international financial aid and support for implement-ation, commits to reduce its GHG emissions by additional 12.5 percent (2030). • Cost of 14 percent target totals 5.7 billion dollars, of which 542.75 million from its own means and 5,157.25 million from external aid for conditional target; • Transform energy mix to a higher proportion of energy by shale oil and renewables. Increase local energy sources to 25 percent (2015) up to 39 percent (2020); • Renewables will reduce dependency on oil imports reducing energy share from oil from 82 percent (2013) to 50 percent (2020).
Israel	30/9/2015	• Achieve an economy-wide unconditional target of reducing its per capita GHG emissions to 7.7 tCO_{2e} (2030), a reduction of 26 percent below the 2005 level of 10.4 tCO_{2e} per capita. An interim target of 8.8 tCO_{2e} per capita is expected by 2025; • Large scale private funding with public funding of energy efficiency projects; • Reduction in electricity consumption: 17 percent relative to BAU (2030); • Electricity generated from renewables: 17 percent (2030), current 10 percent target (2020); • Removal of barriers for the uptake of renewables; • Taking national circumstances into account, to facilitate the transition to a low-carbon and climate-resilient economy.

Source: Author's compilation based on the submitted documents.[133]

As the only "intercontinental" regional arrangement and agency under chapter VIII of the UN Charter with a broad policy agenda but limited financial resources for

[133] See the INDC documents in the UNFCCC website: *INDCs as communicated by Parties*, http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx.

operational tasks, the OSCE's Mediterranean dialogue has a unique opportunity for political agenda-setting across continents and thematic areas, such as security, economic and environmental and humanitarian problems. The OSCE can offer conceptual innovation, provide assistance and transfer best practice among countries.

The OSCE can address the need to translate global goals (sustainable development goals, sustainable energy policies and transitions, decarbonisation of the economy) and put them on the policy agenda in its dialogue with the six Mediterranean partner countries. Through a closer cooperation with regional NGOs, such as EcoPeace Middle East[134] it can create additional public awareness for policy proposals, which will combine functional cooperation in the energy and environmental sector with efforts to reduce the conflict and to foster trust in beneficial interregional cooperation for sustainable development – for instance, in the Jordan River or for generating solar energy in the Jordanian desert for desalination of water in Gaza.

Conclusions: Long-term goals vs. short-term action on sustainable energy in the Mediterranean

While many declaratory political documents express long-term policy goals, the perspective of most policymakers and scientists is focused on the short-term, on most pressing daily challenges and concerns. "Decarbonisation of the economy" and "sustainable energy policy" are long-term goals that must be translated into present policy agendas for action. This should be done both among OSCE countries, especially by its 28 EU members and six of seven G-7 countries in the energy debate with the six Mediterranean dialogue partner countries.

The OSCE and the EU countries need ambitious strategies for sustainability transitions[135] aiming at a gradual decarbonisation of the economy, especially in the energy sector. However, the dominance of the business-as-usual paradigm in scientific and policy discussions on energy policy and security may further exacerbate the negative longer-term consequences of climate change on security,[136] resulting in societal instability, domestic conflict, internal displacement

[134] See the EcoPeace Middle East website: http://www.foeme.org.
[135] John Grin, Jan Rotmans and Johan Schot (eds.), *Transitions to Sustainable Development*, cit.; WBGU, *World in Transition 2011. A Social Contract for Sustainability*, Berlin, WBGU, 2011, http://www.wbgu.de/en/flagship-reports/fr-2011-a-social-contract; Hans Günter Brauch et al. (eds.), *Handbook on Sustainability Transition and Sustainable Peace*, cit.
[136] EU High Representative and European Commission, *Climate Change and International Security*, cit.; UN Secretary General, *Climate Change and its Possible Security Implications*, cit.; Mostafa K.

and contributing further to the migration stream Europe has faced since 2015, and which has become a major humanitarian crisis.

The present migration was triggered primarily by political and military push factors (conflicts in Syria, Iraq, Afghanistan) and by economic pull factors triggered by poverty and a lack of prospects in the Western Balkans. In the 21st century future migration streams across the Mediterranean may increasingly be caused by environmental push factors (drought, soil degradation, desertification, lack of water, bad harvests and effects of extreme weather events[137]).

If the business-as-usual mindset should prevail in the political and diplomatic debates and scientific discourses, a +4°C world may become a reality by 2100.[138] The Mediterranean is one of the regions that has already been affected and will be affected most by these anthropogenic developments.[139] To counter this possible trend "There is also a need for mainstreaming climate change and security and for governance mechanisms at the global level."[140] The OSCE Security Days report pointed to the unique role of the OSCE, by stating that

> Due to its experience in crisis management, conflict prevention and confidence-building, as well as its comprehensive security approach, the OSCE is well placed to identify and act on the security implications of climate change. The OSCE can also play a meaningful role in supporting implementation of relevant global commitments by its participating states. The OSCE's experience in addressing climate change is considered valuable beyond the OSCE area, including in the Southern Mediterranean region.[141]

With the adoption of the Paris Agreement in December 2015 both the OSCE member countries and its six Mediterranean Partner countries are committed to ambitious INDCs to face and to cope with the impacts of global environmental and climate change in the Anthropocene period to stabilise the increase of global average temperature to 1.5°C to 2°C above pre-industrial times by end of the century.

Tolba and Najib W. Saab (eds.), *Arab Environment: Climate Change. Impact of Climate Change on Arab Countries*, Beirut, Arab Forum on Environment and Developments, November 2009, http://www.afedonline.org/afedreport09.

137 WBGU, *World in Transition 2007. Climate Change as a Security Risk*, London, Earthscan, 2008, http://www.wbgu.de/en/flagship-reports/fr-2007-security.

138 Andrey Ganopolski, Ricarda Winkelmann and Hans Joachim Schellnhuber, "Critical Insolation-CO_2 Relation for Diagnosing Past and Future Glacial Inception", in *Nature*, Vol. 529, No. 7585 (14 January 2016), p. 200-203.

139 IPCC, *Climate Change 2014. Synthesis Report*, cit.

140 OSCE, *Climate Change and Security: Unprecedented impacts, unpredictable risks. Report*, cit., p. 2.

141 Ibid., p. 4.

Given the declared awareness of the high vulnerability of southern Mediterranean countries to climate change and the projected population increase (table 1) the pressures of distress migration from both climatic and environmental push factors as well as from economic pull factors will not decline. It is therefore important to move from knowledge and awareness to proactive action.

On 18 December 2015, the European Investment Bank (EIB) announced the Mediterranean Solar Plan Project Preparation Initiative (MSP-PPI)[142] to accelerate the implementation of renewable energy and energy efficiency projects in several Mediterranean partner countries (Algeria, Egypt, Palestine, Jordan, Lebanon, Morocco, Tunisia). This is an initiative of the EIB, together with the European Commission, KfW, and the Union for the Mediterranean. It is financed by the EU-funded Neighbourhood Investment Facility which is managed by the European Commission. The MSP-PPI will help the implementation and financing of projects in the key areas of renewable energy and energy efficiency as well as grid connection. A major barrier to implementation of sustainable energy projects will be removed by the MSP-PPI by covering project preparation costs. Investments made as part of this initiative may also be eligible for funding from the participating financiers. This important initiative will seek to accelerate renewable energy production and energy efficiency to help meet growing demand in Mediterranean countries, where potential in this area is huge.

The OSCE may accompany existing cooperative and funding initiatives relying on its experience with confidence building measures (CBMs) in the political and security realm and partnership building measures (PBMs) in the economic and environmental area[143] offering a platform for dialogue that also involves Turkey, Canada, the United States and Russia and also major Mediterranean Arab countries and Israel.

[142] See more on MSP-PPI: EIB, *Mediterranean Solar Plan, Project Preparation Initiative (MSP-PPI)*, December 2015, http://dx.doi.org/10.2867/55111.
[143] Hans Günter Brauch, "Partnership Building Measures for Conflict Prevention in the Western Mediterranean", in Antonio Marquina and Hans Günter Brauch (eds.), *Confidence Building and Partnership in the Western Mediterranean. Tasks for Preventive Diplomacy and Conflict Avoidance*, Madrid, UNISCI/Mosbach, AFES Press, 1994, p. 257-324; Hans Günter Brauch, "Energy Policy in North Africa (1950-2050): From Hydrocarbons to Renewables", in *UNISCI Papers*, No. 11-12 (1997); Hans Günter Brauch, "Partnership Building Measures for Long-term Non-military Challenges Affecting North-South Relations", cit.

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European Commission, *White Paper. Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system* (COM/2011/144), 28 March 2011, http://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52011DC0144

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4.
THE OSCE AS A PLAYER IN THE REGIONAL ENERGY CONTEXT

Patrice Dreiski

Due to geological distribution, energy resources are not equally shared throughout the world, while most of the hydrocarbon reserves are situated in locations with a low level of population and low levels of consumption. During recent years, the emergence of shale gas has transformed the United States from the situation of being a net energy importer to that of a potential exporter, leading to a higher level of energy independence and to a certain extent transforming the US energy diplomacy. However the US case is quite unique, as primary energy producers of oil, gas and, to a lesser extent coal, remain in most cases major energy exporters. For these reasons, energy remains heavily dictated by geography and by the relations between producers and consumers.

Energy security is a concept that goes beyond the strict availability of energy resources. Although many definitions actually exist for energy security, a good definition can be summarised through the "three P rule." It includes the resource availability regarding the "product" itself, the "place" where these resources are located and the "price" at which they are traded. The balanced combination of these components defines the concept of energy security: if one of them is missing or is unbalanced, there is an unsecured energy situation. This suggested definition of energy security also leads to considering geography as a key element of energy security.[144]

Within the framework of the New-Med project, wishing to address the comprehensive security in the Mediterranean region, this report aims at proposing new tools to be developed within the OSCE constituency to address energy issues and, in particular, energy governance. The global energy sector has changed considerably during the last two decades, due to the evolution of the energy mix in most of the OECD countries, the development of renewable energy resources, the re-orientation of the development of nuclear energy and the rise of new global consumers like China and India. These changes had several strong economic

[144] Patrice Dreiski, "Energy Security: An OSCE Perspective", in *OSCE Yearbook 2010*, p. 303, https://ifsh.de/en/core/publications/osce-yearbook/2010.

consequences such as re-orientation of energy investment programmes and the shift from energy providers for most of the OSCE countries. Nevertheless, energy remains a commodity being traded interregionally (mainly due to the geological situation), as the geography remains identical, as do the straits and maritime routes carrying on oil and gas. This is a fact that will remain relevant for many years.

Although there is a technical evolution in the development and use of energy, there is limited flexibility in the "energy-mix" (the domestic part of every source of primary energy in a country) due to the limits of the technical use of energy (i.e house heating will remain dominated by gas and fuel, and transport – although in transition towards electricity – will remain constrained by the present gasoline or diesel-powered cars and lorries. For this reason, the state of dependency of many countries is not flexible, they are very dependent on their energy providers and their geographical situation. Gaining a more flexible energy-mix can also be guided by ambitious environmental objectives.

The Mediterranean region is the heart of a significant group of European countries through the history, the culture and the language. It has been the place where many major events have happened during the last century, such as civil wars and political revolutions. Even today, major political, military and diplomatic events take place in the Mediterranean and Middle East, as demonstrated by the conflict between Israel and the Arab countries, but also by the current hostilities in Libya and Syria.

Bridging Europe and regions such as the Maghreb and the Mashrek, the Mediterranean is still host to numerous active and "frozen" conflicts, or situations which can trigger political instability. In this decade the Arab Spring, born in Tunisia and Egypt and extended with differing intensity to the broader Maghreb and Mashrek regions, has brought the attention of the world to this region. In the meantime, the emergence of terrorist organisations has increased the confusion concerning the political situation and potential development in the Mediterranean countries. Bridging also European countries to the southern shore of the Mediterranean, this region links two worlds that are often different, despite some strong historical commonalities in their history, in particular for the South of Europe and the Maghreb and Mashrek.

Inherited from the Cold War period, the OSCE offers wide experience as a cooperation platform having contributed to uniting two parts of Europe that had been divided by historical and political developments since the first part of the 20th century – the division of Europe between East and West. While other major international organisations might have in their initial vocation and mandate to "get together" and build some common policies – i.e. the United Nations, or more

technical organisations, such as the regional United Nations Economic Commission for Europe (UNECE) with a similar constituency as the OSCE, or the Energy Charter Treaty, specifically for the energy field – the OSCE offers a unique cooperation framework thanks to its comprehensive mandate, which includes: the Political and Security dimension, the Human dimension, and the Economical and Environmental dimension. Additionally, the OSCE has accumulated solid experience in regions affected by local potential or active conflicts, such as the Caucasus, Central Europe and parts of Central Asia.

This combination of thematic and geographical expertise is fitting with the comprehensive mandate of the OSCE throughout its entire constituency. The OSCE's Participating Countries and OSCE Partners for Cooperation have witnessed during the last decade increasing concerns regarding the Mediterranean region, including in particular the Eastern Mediterranean, as numerous countries of the region have been affected by the "Arab Spring" and its consequences in terms of internal and regional stability. For instance, the war in Syria has direct and significant consequences in the region, directly involving OSCE countries like Turkey, and indirectly OSCE countries involved in a military coalition taking part in the crisis. Based on the above-mentioned aspects, there is an opportunity to valorise the *acquis* and experience of the OSCE with the challenges occurring in energy security within the Mediterranean region. This opportunity will combine two of the three dimensions of the Organisation: security and economic and environmental dimensions.

Including energy security within the OSCE mandate as a part of its economic and environmental dimension has not been an easy task, due to the strong reluctance of major energy producers among the participating states. A report by the OSCE Secretary General concerning the complementary role of the OSCE in the field of energy security was launched in 2010 in order to provide the first definition of this role for the Organisation.[145] Rich in proposals, the report has paved the way for numerous activities in the field of energy that have been developed since. This report underlined the activities related to the protection of critical energy infrastructures, facilitating capacity building in this field, suggesting the promotion of confidence building and development of early warning mechanisms and diversification of supply and transport routes. The contribution of the OSCE to energy governance in the Mediterranean region is even more ambitious: despite numerous international organisations directly and indirectly operating in the field of energy[146], there is not, thus far, any real energy governance worldwide, but a

[145] UNECE, *Review of the Implementation of the OSCE Commitments in the Field of Energy* (EEF.IO/11/13), 6 September 2013, p. 4, http://www.osce.org/node/104541.
[146] These include the International Energy Agency (IEA), the International Energy Forum (IEF), the Organisation of Petroleum Exporting Countries (OPEC), the Gas Exporting Countries Forum (GECF),

sum of different specific policies for energy. Although most of the same countries gather in these different fora, it remains difficult to imagine a unique set of energy governance rules. The interests of energy producers differ from those of energy consumers and they are also different from those of potential transit countries. The wide geographic constituency of the OSCE gathers these different categories of countries.

The world of energy has changed during recent decades: the objective of energy independence are no longer valid for any of the consuming countries, and it has been replaced by a more realistic goal for interdependency. Despite the increasing development of renewable energy sources, fossil energy will remain dominant during the next two decades. The energy economic choices are dictated by economic assessment of financial sustainability and despite the fact that energy, in the whole value-chain requires massive investment, there are some "stop and go" investment choices linked with the price of major energy resources, such as oil, in particular. Such "reassessment" of investment choices can contribute to destabilising the market of resources that are supposed to be long-term. This is particularly true when considering investment in renewable energy where the immediate rentability is dictated by the price of fossil energy resources.

As the OSCE gathers various energy producers, it is important and valuable to include energy security, and the governance of all of its components – exploitation of energy resources, climate policies and integration of renewables, protection of critical infrastructure – in the organisation's agenda. This step would trigger an internal reflection on how the OSCE should contribute to fostering coordination among security and energy-related organisations, in order to develop sustainable and coherent principles of energy governance to be shared between the OSCE Participating and non-participating countries throughout the Mediterranean region. Dealing with the different energy components mentioned above is a decisive element of stability throughout the world, and it represents a key element of the foreign policy of the most influential countries in the Mediterranean region.

Since energy markets are increasingly characterised by mutual interdependence, the objective of being fully independent in terms of energy supply cannot any longer be considered a realistic goal for any major consumer country – effective energy governance mechanisms represent a fundamental factor for global and regional stability. This is an additional argument for the OSCE to contribute as a player in the regional energy context in the Mediterranean Region, forty years after Helsinki.

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the Energy Charter Treaty, the United Nations Economic Commissions, the International Renewable Energy Agency (IRENA), and NATO (on specific aspects of energy).

Based on the heterogeneous elements mentioned above, the OSCE involvement in energy governance in the Mediterranean region is a policy to be undertaken cautiously. The OSCE has extensive experience in fostering necessary cooperation, and in this regard, the energy field should confirm the relevance of this role: in fact, although in many countries the exploitation of energy resources are managed and operated by private companies, as demonstrated in the chapter by El-Katiri in this report, energy is basically treated as a matter of national sovereignty, and as such is a very sensitive political issue. Energy, and in particular, energy alliances, are part of national foreign policies and any interference has immediate reactions which may jeopardize sovereignty. Energy governance mechanisms in the Mediterranean region (as in many other parts of the world) are not usually easy to define, as they derive from the accumulation of a set of principles coming from different sources: international law (i.e. UNCLOS for offshore resources exploitation), EU regulations (for market, competition, transit and possibly investments), World Trade Organisation and Energy Charter Treaty rule (for investment and trade issues), and social regulations (for workers participating to energy activities). In this regard, the OSCE could positively contribute to inviting the interested countries to adopt some of these rules and principles by acting as a common platform for energy governance in the Mediterranean area.

In particular, the OSCE should consider working in close cooperation with the Union for the Mediterranean (UfM), which aims at providing a solid cooperation framework to the South-Eastern Mediterranean countries together with the EU Member States. Co-chaired by the European Union and one country from the South, the organisation aims at developing concrete policies for the region on selected topics, among which energy assumes particular relevance. As highlighted in the chapter by Brauch in this report, the UfM's members face common energy and climate challenges that require a high level of cooperation and collective action. Cooperation in the energy and climate field represents an opportunity for both shores of the Mediterranean to achieve the ultimate goal of integration and social and economic development in the region, in accordance with sustainable criteria. In order to fulfil the above-mentioned objectives, the UfM Secretariat works together with UfM Member States and relevant stakeholders through two main platforms, the Extended Technical Committee on Energy Efficiency and Renewable Energy and the UfM Climate Change Expert Group. In this context, the cooperation between the OSCE and the Union for the Mediterranean could materialise through co-organised events in the region.

Endowing the OSCE with the relevant tools to become a cross-regional platform for energy governance in the Mediterranean region is a key challenge, which would open a new era for the Organisation to escape its historical border in Eurasia. This challenge is serious. So far, setting up energy governance rules within the Mediterranean has been neither successful nor feasible. Given the global nature of

the oil and (to a lesser extent) gas markets, with consumers and producers spread all over the world, and the investors for this highly capital consuming activity being concentrated in a very small number of companies, specific energy frameworks applied to the Mediterranean have not yet been set up. Additionally, the existence, close to the Mediterranean region, of producer and exporter organisations (OPEC, GECF) strongly limits any governance mechanism developed outside these organisations' internal rules.

The report, therefore, considers that focusing on energy governance in the Mediterranean is without doubt worth considering, but would definitely give a new orientation to the Organisation inherited from Helsinki. Such orientation should not be limited to the economic and environmental dimension of the Organisation, but should be considered as a matter of security, given the historical objective at the foundation of the Organisation. Arguments in favour of such an initiative should take into account other matters that are of crucial importance between the two shores of the Mediterranean, such as migration issues, which represent a strong competence for the OSCE, through its human dimension.

These considerations lead to the observation that, in itself, energy governance could not be the unique argument for the OSCE to seek a political mandate in the Mediterranean, but should be accompanied by others. The OSCE has proven an undisputable know-how in technical matters throughout its historical constituency (economic and environmental dimension, security confidence building measures) justifying such an extension of the mandate of the Organisation.

Nevertheless, it is the duty of this report to send a clear political warning regarding the expected reluctance of countries already participating states and potential new Partners for Cooperation. The influence of – and the reluctance for – rules on energy governance should not be underestimated from the side of the Russian Federation, and other participating states under Moscow's influence such as Armenia, as well as participating states that are energy producers, like Azerbaijan or Kazakhstan. Some existing or potential new invited Partners for Cooperation could have a similar attitude to accepting energy governance rules, such as Algeria – member of OPEC and GECF –, or Egypt and Libya.

The OSCE could build on this new ambition as well as on its acquired experience in Central Asia on water management and the water-energy nexus as it concerns hydro-electricity generation. Water management and, in particular, the water-energy nexus has been a field of experience for the OSCE in Central Asia and, to a lesser extent, in the Caucasus (cf. also the chapter by Brauch). Disputes between upstream and downstream countries on the share of water resources have created sources of tensions between the affected countries. As these issues are susceptible to generating conflicts between the populations concerned, the OSCE has

successfully demonstrated its capacity to build mediation and suggest governance principles, in particular in Central Asia. This successful policy has contributed to building some principles regarding the water-energy nexus and has been an instrument for cooperation. This type of action has been made possible since the Organisation has a long standing relationship with Central Asian and Caucasus countries since their access to independency following the former Soviet Union period.

There are many energy-related issues in which the OSCE could significantly contribute, such as:

- *Preventive energy and environmental diplomacy*: as stressed in the chapter by Caşın in this report, the technical choice to be made by some countries to valorise their energy resources and infrastructure might cause potential threats to environmental security. For example, the choice for LNG shipping versus undersea pipelines is not neutral in terms of potential target threats and consequent environmental damages: in fact, technological solutions to reduce or mitigate the dependence from a limited group of energy suppliers – such as the realisation of LNG terminals or the expansion of energy infrastructure – may have some significant consequences in terms of environmental security. In addition, the heavy reliance on the Suez Canal – recently enlarged, but still controlled by Egypt – to move oil and gas supplies between Middle Eastern producers and Western markets, represents a potential cause of political tensions.

- *Confidence building measures*: the OSCE does not have any international legal instrument to make countries agree on legally binding policies or political solutions. However, part of the added value of the Organisation is the capacity to set up confidence-building measures, possibly also in the Mediterranean – a region characterised by existing or potential conflicts – where this confidence building would be necessary and welcome. So far, no other regional organisation, including the European Union or League of Arab States, has successfully managed to be accepted in a confidence-building role.

- *Conflict of competences between EU and non-EU countries on the Cyprus issue*: as highlighted in the chapter by El-Katiri in this report, Cyprus is a geographically insular member of the European Union directly concerned by the discoveries of gas fields in the Eastern Mediterranean. The fragile economic situation of the country would directly benefit from the new income provided by the energy exploitation and valorisation. Nevertheless, the technical and geographical choice to valorise and extract the product cannot be easily decided without going through a non-EU third country, namely Turkey. Due to the sensitive relationship between Cyprus and Turkey, the OSCE is a unique organisation able to reduce tensions with positive objectives for both countries.

Given the analysis made above, the report suggests a set of tracks:

• The objective for the OSCE to become a player in energy governance in the Mediterranean region will require the development of a technical capacity in order to be recognised by the other stakeholders, and importantly, by the eminent player countries. Although some positive developments in the energy security domain could be expected through the economic dimension of the Organisation, an enlargement of the Partners for Cooperation countries towards countries such Algeria, Egypt, Libya and Lebanon seems necessary to achieve ambitious objectives in the energy sectors. For political and internal reasons, the latter are not necessarily ready to accept an extended role of the OSCE in this field, and they could consider the Vienna-based Organisation to be a Western-guided organisation, and therefore not directly addressing their own energy interests. Nevertheless, the discoveries of oil and gas in the Eastern Mediterranean region remains a strong argument to eventually consider this objective.

• As highlighted above, without any recognised political broker, the energy issue will continue to be, in the Eastern Mediterranean region, a question of bilateral relations between countries: Israel and Lebanon, Israel and Egypt, and with Palestine. Indeed, the exploitation of the gas fields is still hampered by the lack of confidence between these countries, which do not wish to see their new energy posture and strategies depending on a third country, while mutual trust does not yet exist.

• In this context, it is recommended that the OSCE should build cooperation in the region in conjunction with the Union for the Mediterranean, and work with this initiative for the development of energy networks throughout the Mediterranean. In the past, the Barcelona-based Organisation has mainly worked on the promotion of power generation from renewable energies. Today, however, its energy portfolio has been broadened, as witnessed by the creation of the three Euro-Mediterranean platforms on gas, electricity market and renewables and efficiency (the latter yet to be fully established). In this domain, better cooperation mechanisms between the OSCE and the UfM could support the implementation of coherent climate policies and enhance a sustainable energy transition in the Mediterranean region.

• In a similar way, it is recommended that the tools and principles supported by the Energy Charter and the Energy Charter Treaty be promoted in the region. This international organisation based in Brussels, with numerous OSCE Participating Countries from Western and Eastern Europe, Caucasus and Central Asia, has increased its potential constituency since an international conference promoted by the Government of the Netherlands in May 2015. It is essential to convince the

countries of the Southern shore of the Mediterranean to adhere to the principles of the Energy Charter, and to link this choice with a closer integration into the OSCE mechanisms. These will provide a common language in terms of protection of investment, and rules of trade and transit as well as principles and tools for managing potential disputes. Since energy, in particular in the upstream segment, is regarded as connected to sovereignty, it is suggested to include the OSCE Parliamentary Assembly as a tool to build trust and confidence. This could work in cooperation with the twin Union for the Mediterranean body, which has a dedicated Energy Committee.

In many places of the world, energy has been simultaneously an opportunity for cooperation and a reason for conflict. The Mediterranean region is – and possibly will be – no exception to this trend. Should the OSCE have the capacity to bring a positive contribution in this region, it would be worth doing. This report aims at bringing some ideas and proposing some solutions to pave the way for this development.

New-Med
research
network

Energy governance is at the core of the dialogue between Europe and the Mediterranean region to foster the creation of a shared area of peace, prosperity and stability. Against this backdrop, this report dwells on the potential role of the OSCE in hammering out policies and initiatives targeting energy governance in the Mediterranean beyond the purely economic dimension. It discusses the manifold political, security and environmental challenges and opportunities linked to the use of energy resources, in particular those located in contested areas. It also elaborates on the Organisation's potential role in preventing disruptions to critical energy infrastructure and in providing assistance and transferring best practices with a view to strengthening the efforts of Mediterranean countries in their transition toward a more sustainable and efficient energy sector.

This report was produced in the framework of New-Med, a cooperative endeavour launched by the Istituto Affari Internazionali (IAI) of Rome, the Compagnia di San Paolo of Turin, the OSCE Secretariat in Vienna, the Italian Ministry of Foreign Affairs and International Cooperation and the German Marshall Fund (GMF). Established in June 2014, New-Med is a research network of Mediterranean experts and policy analysts with a special interest in the complex social, political, cultural and security-related dynamics that are unfolding in the Mediterranean region. At the core of the New-Med activities stands the need to rethink the role of multilateral, regional and sub-regional organisations with a view to making them better equipped to respond to fast-changing local and global conditions and to address the pressing demands coming from Mediterranean societies all around the basin.