Sustainability and Resiliency are Key To Long-Term Geopolitical And Geoeconomic Regional Stability

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Abstract

Globalism has flattened out borders, identities, culture and religion. The rise of multinational corporations that compete for loyalty and power against the nation-state or political power broker that should be in charge of guaranteeing security, prosperity and happiness to its citizens. But many governments of nation-states are unable to govern their citizens and maintain the bond between the governor and the governed. Have politicians/political leaders forgotten about their citizens, about creating policies that generate economic opportunity that translate into wealth and prosperity, that allow them to house, feed and educate their children? Or have politicians neglected their citizens and are only thinking of their own self-aggrandizement? But how do politicians /governments guarantee the future for their people in face of rising isolationism, increasing terrorist risks, rising pollution/environmental challenges, such as climate change, drought or erratic weather patterns that create a general feeling/sentiment of UNCERTAINTY? Political uncertainty translates into economic and social uncertainty and unrest: if the political and economic climates are uncertain, people, companies, foreigners won't invest in the country because there is no future, which will and has translated into capital and humain flight, and contributed to the overall degradation at each level of the economy. Innovation is important for a country to stay ahead; and R&D is the key to a country's capacity to innovate and create the jobs of tomorrow, giving hope and opportunity for families to have children, who can support the economy of tomorrow. So how do the Black Sea countries create the economies of tomorrow? Corruption is the principal enemy of most emerging economies and take away as much as 25% of the national GDP. This is primarily the case in the non-diversified economies, where for example, energy or primary energy resources are the main source of GDP revenue and exports.

Keywords: Globalisation, Black Sea, Turkey, Development, Regional Stability

Özet

Küreselleşme sınırları, kimlikleri, kültürü ve dini düzleştirdi. Çokuluslu şirketlerin, vatandaşlarına güvenlik, refah ve mutluluk temin etmekle yükümlü olması gereken ulus devlet veya siyasal güç komisyoncusu aleyhine sadakat ve güç için rekabet etmeleri. Fakat ulus devletin birçok hükümeti vatandaşlarını idare edemiyor ve vali ile yönetilen arasındaki bağları koruyamıyor. Politikacılar / politik liderler vatandaşlarını unuttular mı, servet ve refaha dönüşen ekonomik fırsatlar üreten, çocuklarını evde besleyip besleyecek ve eğiten politikalar üretmek konusunda unuttunuz mu? Veya politikacılar vatandaşlarını ihmal ettiler mi ve sadece kendi öz iradelerini mi düşünüyorsunuz? Ancak politikacılar / hükümetler artan tecrit politikası, artan terörist riskler, iklim değişikliği, kuraklık ya da BELİRSİZLİĞİN genel bir duygu / düşünce oluşturan düzensiz hava koşulları gibi artan kirlilik / çevre sorunları karşısında halkı için geleceğini nasıl garanti ediyor? Siyasi belirsizlik, ekonomik ve sosyal belirsizlik ve huzursuzluğa dönüşür: siyasi ve ekonomik iklimler belirsiz ise, insanlar, şirketler, yabancılar ülkeye yatırım yapmaz; çünkü sermaye ve humere uçuşa çevrilecek ve dönüşümü olan bir gelecek yoktur ve Ekonominin her düzeyinde genel olarak bozulmaya katkıda bulunmuştur. Yenilik, bir ülkenin ileride kalması için önemlidir; Ar-Ge, bir ülkenin yarının işlerini yenileme ve yaratma kapasitesinin anahtarıdır; ailelerin çocuk sahibi olmaları için umut ve fırsat sunarak yarının ekonomisini destekleyebilir. Karadeniz ülkeleri yarının ekonomilerini nasıl yaratıyor? Yolsuzluk, gelişmekte olan ekonomilerin başlıca düşmanıdır ve ulusal GSYİH'nın% 25'ini alır. Bu, özellikle, enerji veya birincil enerji kaynaklarının GSYH gelir ve ihracatının ana kaynağı olduğu çeşitlendirilmemiş ekonomilerde geçerlidir.

Anahtar Kelimeler: Küreselleşme, Karadeniz, Türkiye, Kalkınma, Bölgesel İstikrar

Introduction

Globalism has flattened out borders, identities, culture and religion. The rise of multinational corporations that compete for loyalty and power against the nation-state or political power broker that should be in charge of guaranteeing security, prosperity and happiness to its citizens. But many governments of nation-states are unable to govern their citizens and maintain the bond between the governor and the governed. Have politicians/ political leaders forgotten about their citizens, about creating policies that generate economic opportunity that translate into wealth and prosperity, that allow them to house, feed and educate their children? Or have politicians neglected their citizens and are only thinking of their own self-aggrandizement?

Trade, Opportunity, Health, Mobility or the six flows of economic integration offer the best recipe for a flourishing, prosperous, sustainable economy : people, merchandise, money, information, culture and education But how do politicians /governments guarantee the future for their people in face of rising isolationism, increasing terrorist risks, rising pollution/environmental challenges, such as climate change, drought or erratic weather patterns that create a general feeling/sentiment of UNCERTAINTY ? Political uncertainty translates into economic and social uncertainty and unrest : if the political and economic climates are uncertain, people, companies, foreigners won't invest in the country because the risk level is too high, which will and has translated into capital and human flight, and contributed to the overall degradation at each level of the economy.

Innovation is important for a country to stay ahead; and R&D is the key to a country's capacity to innovate and create the jobs of tomorrow, giving hope and opportunity for families to have children, who can support the economy of tomorrow. So how do the Black Sea countries create the economies of tomorrow? The best recipe for success is Sustainable development and the creation of resilient cities that implicate the participation of each and every citizen, led1 by a government that has the interest at heart of every citizen and that mobilizes citizens who recognize the authority and ethical character of the government. Knowing that your government is above suspicion and has ONLY your interest at heart is key to generating confidence, reputation and integrity, both internally and externally.

Corruption is the principal enemy of most emerging economies and take away as much as 25% of the national GDP. This is primarily the case in the non-diversified economies, where for example, energy or primary energy resources are the main source of GDP revenue and exports. We cannot emphasize enough the aspect that corruption plays in undermining ALL aspects of a competitive, forward-looking, innovative economy and one that includes 50% of the population, women, without which, the economy will be underrepresented, unbalanced, unproductive, unethical , unsustainable.

We were recently witness to the American elections and we have seen the media swirl, including false information around the outcome, expected or not, that brought much uncertainty into the global geopolitical and geoeconomic landscape. Donald Trump is now the new President-elect of the first world power and we will see how each country will react to this new President, his agenda 2 and the relationships and challenges he and his administration will face in 2017.2 Challenges lie near and far, such as in Europe, Russia, Iran, India, China and Turkey.

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[1] Presentation of Resilient Cities at PAUWES, Tlemcen, Algeria, May 6-8, 2015, http://pauwes.univtlemcen.dz/fr/pauwes-holds-its-first-international-symposium/; https://www.youtube.com/watch?v=aaYAGFnpfag; *Presidency Key Brief*, Special COP21 issue, December 2015, Security & Climate go hand in hand : https://igmobservatory.org/2015/12/09/igmo-published-an-article-on-resilient-cities-toclimate-change-in-presidency-key-brief-special-issue-on-the-cop21/

[2] **http://carnegieendowment.org/2016/11/11/u.s.-allies-and-rivals-digest-trump-s-victory**

If we look at the first paragraph written by Marc Pierrini, two words stands out, uncertainty and fear :

> *"The initial reaction in Ankara to Trump's election conveys a level of trust, but also uncertainty. The general message from Turkish authorities seems to be a positive one and bears the hope that relations between the two countries will deepen. However, behind the diplomatic facade, there is inevitably a degree of fear resulting from the perceived Islamophobia of the Republican president-elect's campaign. Turkish President Recep Tayyip Erdoğan has often fought hard against Islamophobic tendencies—real or perceived—in Western countries."*

We can only see how a seismic event like the American election and the rise of nationalism and populism, not only in America but abroad, can affect relationships, outcomes and investment priorities and projections, which all determine the decisions that other world leaders in the four corners of the world will take. How will this anti-establishment movement influence the political arena in Europe? Whether these parties win or not, notwithstanding their lack of experience in governing, these types of parties will continue to feed into the failing Eurozone narrative long after the elections are over.3

Thomas Gomart4 underlines this view, speaking of a "frontal shock of nationalism between the US, Russia and China" :

> *"En réalité, la véritable inconnue réside aujourd'hui dans les formes que prendrait un choc des nationalismes chinois, russe et américain dans un contexte de forte interdépendance économique. Frontal, ce choc aurait des conséquences immédiates non seulement en Asie et en Europe, mais aussi au Moyen Orient et dans la region arctique. Diffus, il produit déjà ses effets dans les domaines du numérique et de l'énergie."*
>
> *La Chine et les Etats-Unis sont engagés dans une rivalité stratégique, susceptible de remettre en cause le leadership américain à horizon d'une génération. C'est pourquoi le positionnement de Moscou est si important pour Pékin et Washington. Contrairement à ce que prétendait Barack Obama, la Russie n'est pas une simple « puissance régionale », mais un pays qui a retrouvé un rôle central sur la scène internationale."5*

So how will this election help or hinder, engender the type and the style of governance that is needed to keep the Black Sea region stable? If we look at The Atlantic report entitled "The Global System on the Brink : Pathways toward a new normal"6 , Ukraine, Russia and Turkey are mentioned as countries that are susceptible to be involved in conflicts in the region, being also very close to the epicenter of the Middle East, where the migration crisis in Syria, the fight

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[3] https://www.stratfor.com/analysis/how-trumps-victory-will-galvanize-kindred-spirits-europe?utm_source=Twitter&utm_medium=social&utm_campaign=article

[4] https://www.linkedin.com/pulse/politique-internationale-les-habits-neufs-du-président-thomas-gomart?trk=hb_ntf_MEGAPHONE_ARTICLE_POST

[5] Translation : "in reality, the real unknown today resides in the form that the nationalism shock will be take
in America, China and Russia, in a context of strong economic interdependence . The frontal shock will have
consequences not only in Asia and in Europe, but in the Middle East, and in the Arctic region. Diffused, it has
already affected the digital and energy domains. China and the US are engaged in a strategic rivalry, suspectible to call into question American leadership in a generation. This is why the positioning of Russia is so important for Peking and Washington. Contrary to what Obama affirmed, Russia is not a simple "regional power" but a country that has recovered a central role on the international stage."

against ISIS in Irak and the Caspian Sea nearby can all be zones of regional and international crises.

Security

The first premise of guaranteeing stability in the region is security and this subject was the theme of a roundtable at the AUSA forum, entitled : "AUSA, Ocean Closer : Synchronizing Actions and words from the Baltics to the Black Sea".6

Daniel B. Baer, the U.S Representative to the Organization for Security and Cooperation in Europe (OSCE), was sworn in as Ambassador on September 10, 2013. At the conference, The laid out 7 points on EU security, which can be resumed as follows :

1) EU security is fundamental to US security
2) Russia has demonstrably departed from the rules-based security, in a 19th century policy framework with 21st century tools
3) The challenges of terrorism and the refugee crisis which is in effect increasing the rise
of populism and nationalism;
4) Open societies vs borders : can we integrate the former USSR republics into the wider world?
5) The importance and the successes of the Transatlantic relationships, with the EU and the US working together, which includes imposing sanctions on Russia and supporting Ukraine to defend itself;
6) The only way forward is a rules-based order that must be reasserted if challenges, with
the marriage of strength and principals.

Security is key to the region, as is a rule-based law system. How can Black Sea countries at the crossroads between the EU and the Eurasian Customs Union7, carve out a place for political and economic stability, job creation and prosperity?

The Munich Security 20168 report accurately describes the situation we are living in today : "For reasons that are both structural – a more complicated international system – and selfinflicted – an initial neglect of emerging crises – the traditional guardians of a liberal international order seem to believe less and less in their ability to shape events. They are faced with a growing number of spoilers – some simply emboldened, others even reckless –who further destabilize fragmenting orders. What is more, while the risk of major interstate war may still be remote, for the first time since the end of the Cold War, the escalation of violence between major powers cannot be dismissed as an unrealistic nightmare."

The balance of power was and is still today tested, at risk when the fall of the Berlin Wall occurred in 1989, with the dissolution of the Soviet Union in 1991, which broke down an international and regional order that was born of the Cold War. And the advent of the internet and rapidly advancing technology are both big factors, opening up spaces, information and transforming and empowering non-state actors, weakening national institutions, which, in

[6] **https://www.ausa.org/events/ausa-annual-meeting-exposition-2016/sessions/cmf-ocean-closersynchronizing** actions-and-words

[7] to read more on this subject, *Ukraine : prémices de guerre froide en Europe ?* L'UE-Russie : mariage de
raison ? p 121-140 ; http://www.editions-harmattan.fr/index.asp?navig=catalogue&obj=livre&no=45427&razSqlClone=1

[8] **https://www.securityconference.de/en/activities/munich-security-conference/msc-2016/**

Europe, were slowly replaced with EU institutions and laws, but with no real political and fiscal legitimacy.
If there is anything that we can learn from this flurry of events, it is that our systems of governance have to be legitimate, sustainable, resilient and transparent. Let's look at Development, Research and Development Foreign Direct Investment and the Environment as motors of sustainability and growth for the region.

DEVELOPMENT
In a study conducted by Ernst & Young and Transparency International9 here below are the scores for Black Sea countries score in Human Development10 and Competitiveness,11 whereas the World Bank indicates rates of Foreign Direct Investment12 as follows :

Figure 1

Country	TPI Score 2015	HDI Rank 2016	FDI % of GDP 2015	Competitiveness Ranking 2016
Albania	36	85	8,6%	80
Armenia	35	85	1,7%	79
Azerbaijan	29	78	7,6%	37
Bulgaria	41	59	3,6%	50
Georgia	52	76	9,6%	59
Greece	46	29	- 0,1%	86
Moldova	33	107	4,1%	100
Romania	46	52	2,2%	62
Russia	29	50	0,5%	43
Serbia	40	66	6,4%	90
Turkey	42	72	2,4%	55
Ukraine	27	81	3,4%	85

[9] http://www.ey.com/Publication/vwLUAssets/ey-transparency-international-corruption-perceptionsindex-2015-in/$FILE/ey-transparency-international-corruption-perceptions-index-2015.pdf ; http://**www.transparency.org/cpi2015**

[10] **http://www.hdr.undp.org/en/countries**

[11] **http://www.tradingeconomics.com/ukraine/competitiveness-rank**

[12] **http://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS**



Figure 2

This map demonstrates the challenges, many of them in the banking sector , that are still in this day and age, subject to banking scandals. It starts with transparency and eliminating corruption.

RESEARCH and DEVELOPMENT

As in the title of this article, sustainability and resiliency are the answer. Underlying these concepts are important elements of R & D, FDI, Innovation and Education. Working against these are insecurity, corruption, unemployment and pollution. Just a year ago at the Lecanuet Forum in Paris, Justin Vaisse said that "the Black Sea has become a space of confrontation and of conflict"13 It is the epicenter, the crossroads of Eurasia, the dividing line between East and West, where many battles were fought.

But globalization knows no borders : markets have become global and many countries are not equipped to compete. So sound political and economic governance are necessary to equip and train a country to go forward and create jobs for its people and to be competitive in the world. And the role of the environment and women are key to enduring sustainability. Everything goes hand in hand : FDI14, HDI15, GDI16, CPI17 and more benchmarks that help integrate a country into the international community by joining supranational , international organisations, learning best practices conducting stress tests for banks, creating policies that create jobs, not unemployment , not only social benefits and high taxes, but real incentives for innovation and entrepreneurship. And education is key and so is retraining, reformatting people to fit the new uberized economy, to be able to work and navigate the Internet of Things, 3D printing, Virtual Reality, and many more inventions and scientific and technological advances that are leaving the older generation behind. Which explains, in part, the almost Grexit, the Brexit and rise of such candidates and parties as Pepe's 5 Stelle, Podemos, AfD, Nigel Farage and Marine Le Pen18.

Foreign Direct Investment, badly needed to help countries advance, can help implement and institute the necessary changes to their economy. We can see some examples of programs in

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[13] http://www.iris-france.org/evenements/france-europe-russie-schisme-ou-reconciliation/ , France-Europe-

Russie : Schisme ou réconciliation? November 12, 2015, Paris

[14] FDI : foreign direct investment

[15] HDI : human development index

[16] GDI : gender development index

[17] CDI : corruption perception index

[18] Read Foreign Affairs Article : *The next French Revolution : a conversation with Marine LePen* : https://

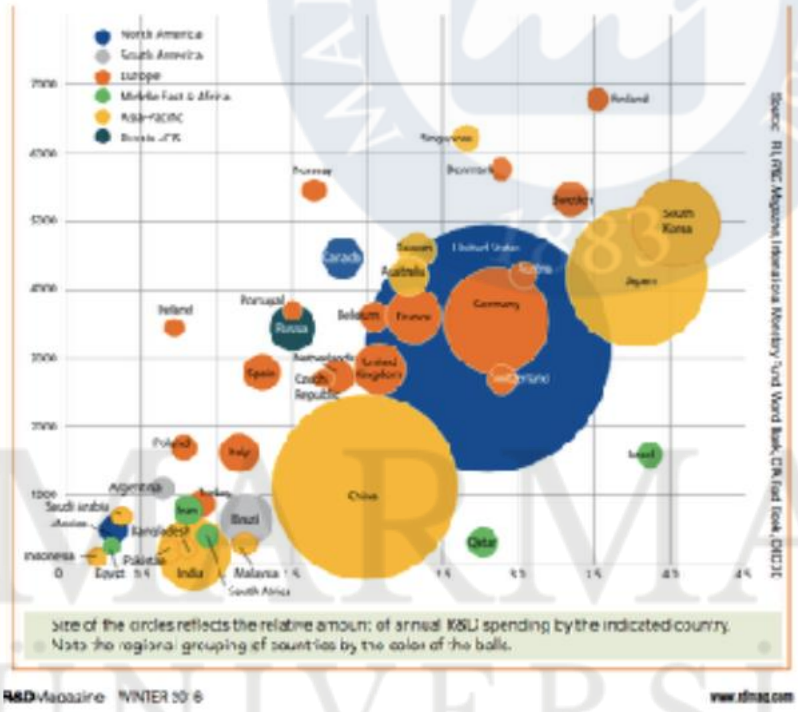
www.foreignaffairs.com/interviews/2016-10-17/la-prochaine-r-volution-fran-aise

place. In the 2014 Report of the Black Sea Development Bank19, it advances. The argument that regional cooperation needs to address the three strategic *"I's"—an inclusive, innovative, and integrated Black Sea region."*

The report goes on to state the geographic, demographic and economic characteristics of this region that, in terms of population equal Europe or the United States, but do not compare in terms of GDP per capita, despite the exceptional waterways for commerce that it boasts :

The Black Sea basin occupies a territory of 834,719 sq. km., and the wider Black Sea area includes a population of 332 million people living in the territories of the twelve member countries of the Black Sea Economic Cooperation (BSEC). As a region, the Black Sea has an estimated gross domestic product (GDP) of around USD 3.6 trillion, producing 4.3% of global GDP (year 2012) (World Bank, 2014b). Istanbul (13,624,240 inhabitants), Odessa (1,003,705 inhabitants), and Samsun (535,401 inhabitants) are its largest ports. There are about ten cities with at least 215,000 inhabitants. Bounded by Europe, the Caucasus, and Anatolia, it is connected to the Aegean and the Mediterranean seas to the south via the Bosporus Strait and the Sea of Marmara. The Danube is the most important river running into the Black Sea. Apart from the Danube, Europe's third and fourth largest rivers, the Dnieper and Don, flow to the Black Sea.

Figure 3



Besides the importance of the six flows of economic integration, which are the movement of people, money, merchandise, information, education and culture, there is the importance of a country being able to innovate, to renew itself every few years to stay ahead, to be competitive and to create jobs. Notice the geographic clusters on the graph in Figure 3 and that the higher and to the right the country is on the graph, the higher their GDP per capita is, meaning, that the more monies are invested in R & D, the greater their capacity is to create jobs, wealth and opportunity. And education is key to this dimension : keeping young people in country is the biggest challenge today, as brain-drains create intellectual and scientific industrial /knowledge deficits that are not easily made up in the face of declining birth rates.

[19] http://www.bstdb.org/publications/Regional_Cooperation_in_the_Black_Sea.pdf

Figure 4

Technology Sector Leaders									
	U.S.	China	France	Germany	Japan	Russia	Korea	UK	Other
Advanced Materials	59%	15%	1%	12%	7%	1%	2%	2%	2%
Agriculture/Food	68%	10%	3%	5%	2%	1%	1%	1%	10%
Automotive	22%	8%	1%	29%	32%	0%	8%	0%	2%
Commercial Aerospace	62%	3%	10%	6%	1%	13%	1%	2%	2%
Communications	67%	13%	0%	2%	13%	0%	4%	4%	6%
Energy	40%	10%	3%	20%	7%	1%	1%	1%	6%
Environmental	37%	1%	6%	26%	0%	1%	2%	6%	12%
Instrumentation	41%	9%	1%	14%	22%	1%	9%	1%	2%
Life Science/Healthcare	49%	2%	7%	18%	7%	0%	2%	6%	12%
Military/Defense	78%	6%	1%	1%	0%	11%	1%	1%	2%
Pharmaceutical/Biotech	58%	4%	3%	16%	5%	1%	1%	7%	6%

According to R & D magazine , Asia dominates world20 R & D gross expenditures on R&D investment, accounting for 40%, the US (1st), 27% and remarkably, Russia and the CIS, 3%, while Europe stands at 21%. China (2nd) alone accounts for 20% while the Middle East lags at only 2,3%. Russia (8th) is projected to invest 1,50% of its GDP and Turkey (18th), 0,86% in 2016.

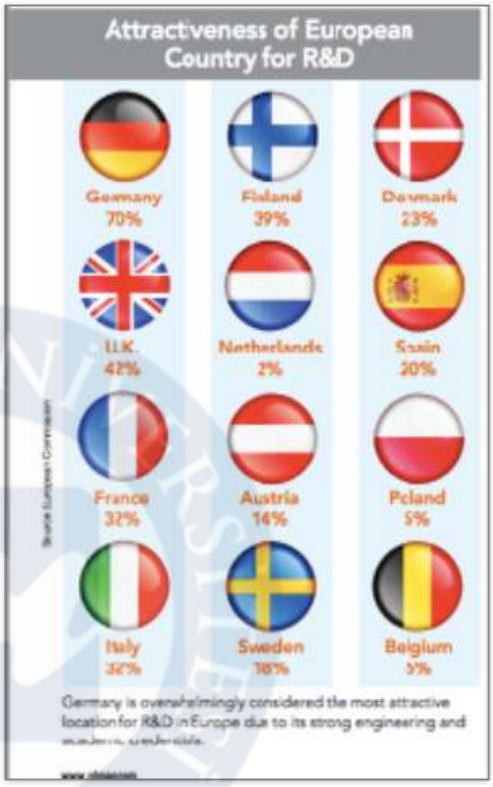
The 2016 Global R&D Funding Forecast, this year sponsored by the Industrial Research Institute (IRI) in Washington, D.C., reveals that global R&D investments will increase by 3.5% in 2016 to a total of $1.948 trillion in purchasing power parity (PPP) values for the more than 110 countries having significant R&D investments (more than $100 million).

Figure 4 above designates Technology Sector Leaders and two stand out : the automotive sector, very competitively divided up amongst the US, Germany and Japan, an indication of where investments will go to develop automated driving systems and integrated electronic systems; and in the Environment, where the US and Germany are the leaders. It is interesting to note in Figure 5 below the attractiveness of these EU countries for R &D, with Germany leading, followed by the UK, France, Italy and Finland.

[20] https://www.iriweb.org/sites/default/files/2016GlobalR%26DFundingForecast_2.pdf : 2016 Global R & D Funding Forecast

Figure 5

Environment, one of the sectors mentioned above in Figure 4, is at the heart of the future investment flows, notably, following the signature of The Paris Climate Accord at the COP21[22] conference in December 2015.



With the US and China being the biggest consumers of fossil fuels and being the biggest polluters on the planet, we can see that both countries dominate their geographic regions and lead R & D efforts to stay competitive.

In the CIS region in 2016,. Russia's economic problems (and its strong R&D dominance in its region) will contribute to forecast a 0.8% decline in R&D spending from the $53.92 billion the region is estimated to spend in 2015. The Middle East, on the other hand, is expected to have strong R&D growth of 3.5% in 2016, driven by the region's strong long-term growth policies amid a slowdown in petroleum-based revenues limiting its overall economic growth.

These countries, however, are constrained by a weak R&D infrastructure and the ability to recruit experienced scientists and engineers from outside their region. Which could prove difficult for these countries and the Black Sea region to make the transition from fossil fuels, as long as they are abundant and cheap, to renewable or clean energies, making them less exclusively dependent on petroleum revenues as is the case at present. So how can we see more Masdar23 city models around the Black Sea? This low-carbon development has an integral role in transforming Abu Dhabi's economy from one based on fossil fuels to one that is forward leaning, and that will transform it to be a center of innovation and entrepreneurship. How can a city reduce its environmental impact and be entirely run on renewable, clean energy?



Developing human capital is key for the transition from a labor-based society to a knowledge-based society. In 2007, Masdar partnered with the Massachusetts Institute of Technology (MIT), to create the Masdar Institute, which integrates theory and practice to incubate a culture of innovation and entrepreneurship. With its world-class faculty and top-tier students, the institute is committed to finding solutions to the challenges of clean energy and climate change through education and research.

Sustainable development and clean energy are at the heart of the revolution that should take place in the Black Sea region. Research, innovation and new technologies should create jobs and and a class of entrepreneurs to push forward the next generation of researchers and innovators to take the region into the 21st century. Harnessing nature's forces are the keys to the sustainability and longevity of peace and prosperity in the region.

Many of the major challenges are in the natural resources category,[21] as well as pollutants that accompany those ouputs, being

1) Land-based sources of pollutants, such as nitrates coming through the Danube River[22]
which account for more than 70% of all pollution.

2) As the wider Black Sea area is becoming[23] increasingly important for energy production, transportation and distribution, pollution sources are numerous and the outputs as a result of oil pollution along major shipping routes and in coastal areas around river mouths, as well as sewage outputs, industrial installations and ports. Around 50 000 ships sail through the Bosphorus every year, including at least 10 000 oil tankers. Several Black Sea ports in Russia and Georgia are terminals for oil and gas pipelines from the Caspian Sea[24]. While bringing jobs and economic development, the increase of oil transport/transit and handling operations, if not regulated and systematically monitored, could put additional pressure on the already
fragile ecosystem of the region.

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[21] **http://www.eea.europa.eu/soer-2015/countries/black-sea**

[22] for more on the Danube River : "Regions, Regionalism, and Security in the Danube Region" by Ioan Crăciun in the *Geostrategic Maritime Review, N° 2,* Spring/Summer, 2014, pp 58-66.

[23] https://igmobservatory.org/geostrategic-maritime-review/gmr-n3-fallwinter-2014/, *Geostrategic Maritime Review,* n°3, Fall/Winter 2014, special Black Sea issue

[24] For additional reading on Energy security in the EU and the Black Sea, *Geostrategic Maritime Review, N° 3, Fall/Winter 2014*

3) The full-scale extraction of some of stocks of hydrogen sulfide and gas/oil available in the depth of Black Sea will require the development of new and more complex technologies. which serve to underline the increased economic significance of the region.

4) The fish stock has deteriorated dramatically over the past three decades. The diversity of commercial fish caught has decreased over this period from about 26 species to 6. This is almost entirely due to significant anchovy fishing by Turkey, accounting for almost 80% of the total catch. The main factors behind the decline of fish stocks are: changes to the ecosystem as a result of eutrophication; the arrival of alien species and overfishing. Illegal fishing in the Black Sea is rapidly increasing, affecting both the marine biodiversity as well as economic activities in the region, in particular the fishing industry.

It is not hard to imagine a conflict arising from a fragilised Black Sea, be it through migrant flows, extreme climate conditions, pollution or water shortages, that in turn will result in social unrest, unemployment or cybersecurity threats. So what can the Black Sea countries do to harness nature's forces for a more sustainable, carbon-neutral economic growth project ? The European Union's Strategic Energy Technology (SET) Plan puts research and technology at the heart of securing and ensuring the European Energy Union28 through its Integrated Roadmap.25 In the EU, the scale of investment needed in the power sector and energy networks by 2020 has been estimated at more than EUR 1,000 billion and this trend is likely to continue up to 2030.

How would the Integrated Roadmap work? By

1) EU becoming a global leader in renewable energy
2) facilitating consumer participation and accelerate the progress towards a smart energy system
3) develop and reinforce energy efficient systems
4) diversify and strengthen options for sustainable transport
5) drive ambition in carbon capture and storage deployment
6) increase safety in the use of nuclear energy.

The key to innovation is of course financing, where there are barriers that hinder the all-out deployment of energy saving technologies. The lack of adequate capital allocation, the lack of appropriate innovative financing are all proof that the energy efficiency market is still viewed by investors and lenders as risky and fragmented.

So how can we find support for the development of investment vehicles for energy efficiency and refinancing on secondary markets, where appropriate benchmarks for asset portfolios would be valued and rated? By informing consumers and decision makers on how to acquire financing and to better understand the benefits of energy efficiency investments.

25 **https://setis.ec.europa.eu/system/files/Towards%20an%20Integrated%20Roadmap_0.pdf**

Figure 6

Table 2: Renewable Energy Support Policies

	Regulatory Policies						Fiscal Incentives				Public Finances	
	Feed-in tariff (incl. premium payment)	Electric utility quota obligation /RPS	Net Metering	Biofuels obligation / mandate	Heat obligation / mandate	Tradable REC	Capital subsidy, grant or rebate	Investment or production tax credits	Reduction in sales, energy, CO_2, VAT or other taxes	Energy production payment	Public investments or loans	Competitive public bidding
United States	o	o	o	x	o	x	x	x	x	x	x	x
China	x	x		x	x		x			x	x	x
Germany	x			x	x		x	x	x		x	
Italy	x	x	x	x	x	x	x	x	x		x	x
Spain [1]	x			x	x		o	x	x		x	
Turkey	x			x								

[1] The VAT reduction is applicable for the 2010-2012 period.

o : some states x : whole country

Source: Renewables 2011 Global Status Report

If we look at the PWC 2012 report on sustainable energy in Turkey 30, we see here below a table of some of the types of financial incentives that are available in the countries cited below in Figure 6, as well as an explanation of the incentives listed in Figure 7 below.

Figure 7

Renewable Energy Support Policies

Feed-in tariff: A policy that: (a) sets a fixed, guaranteed price over a stated fixed-term period at which small or large generators can sell renewable power into the electricity network, and (b) usually guarantees grid access to renewable electricity generators. Some policies provide a fixed tariff whereas others provide fixed Premium payments that are added to wholesale market- or cost-related tariffs. Other variations exist, and feed-in tariffs for heat are evolving.

Electric utility quota obligation/Renewable Portfolio Standard (RPS): A measure requiring that a minimum percentage of total electricity or heat sold, or generation capacity installed, be provided using renewable energy sources. Obligated utilities are required to ensure that the target is met; if it is not, a fine is usually levied.

Net metering: A power supply arrangement that allows a two-way flow of electricity between the electricity distribution grid and customers that have their own generation system. The customer pays only for the net electricity delivered from the utility (total consumption minus self production). A variation that employs two meters with differing tariffs for purchasing electricity or exporting excess electricity off-site is called "net billing".

Mandate/obligation: A measure that requires designated parties (consumers, suppliers, generators) to meet a minimum, and often gradually increasing, target for renewable energy such as a percentage of total supply or a stated amount of capacity. Costs are generally borne by consumers. In addition to electricity mandates through renewable portfolio standards/ quotas, mandates can include building codes or obligations that require the installation of renewable heat or power technologies (often in combination with energy efficiency investments); renewable heat purchase mandates; and requirements for blending biofuels into transportation fuel.

Renewable energy certificate (REC): A certificate that is awarded to certify the generation of one unit of renewable energy (typically 1 MWh of electricity but also less commonly of heat). Certificates can be accumulated to meet renewable energy obligations and also provide a tool for trading among consumers and/or producers. They also are a means of enabling purchases of voluntary green energy.

Capital subsidy, grant or rebate: One-time payments by a government or utility to cover a percentage of the capital cost of an investment, such as a solar water heater or a solar PV system.

Investment or production tax credit: Investment tax credit is a taxation measure that allows investments in renewable energy to be fully or partially deducted from the tax obligations or income of a project developer, industry, building owner, etc. Production tax credit is a taxation measure that provides the investor or owner of a qualifying property or facility with an annual tax credit based on the amount of renewable energy (electricity, heat, or biofuel) generated by that facility.

Public competitive bidding: An approach under which public authorities organise tenders for a given quota of renewable supplies or capacity, and remunerate winning bids at prices that are typically above standard market levels.

Conclusion

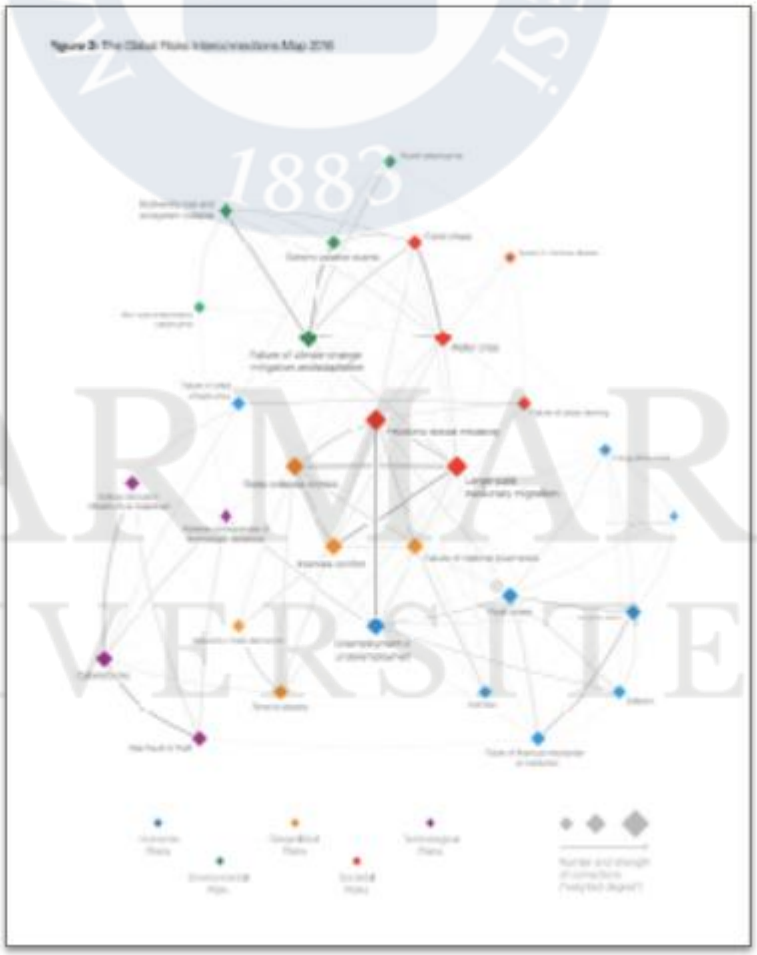
This paper has demonstrated that investments, financial vehicles and policies are at the heart of ensuring a resilient and sustainable future for the Black Sea region. Security, Development, Research and Development, Foreign Direct Investment and financial incentives are necessary

to engage policymakers and educate consumers alike to take charge of their future and engage down a path of innovation and efficiency to best preserve and sustain the natural resources of the Black Sea.

The World Economic Forum's Global Risk Report 2016,26 under the direction of Dr Klaus Schwab, states that the most impactful risks for the past three years have been the failure of climate change mitigation that has risen to the top of the risks and is perceived in 2016 as the most impactful risk for the years to come, ahead of weapons of mass destruction, ranking 2nd, and water crises, ranking 3rd. Not surprising, large-scale involuntary migration was also rated among the top five risks for impact, as was severe energy price shock. The risk rated most likely was large-scale involuntary migration, with last year's top scorer, interstate conflict with regional consequences, giving way to the environmental risks of extreme weather events and the failure of climate change mitigation and adaptation and followed by major natural catastrophes. Let's connect the dots here below to better understand the interconnectedness, the multidimensional factors in the geopolitical, economic, social and environmental and technological risks facing us today and tomorrow.

Figure 8

Connect the dots



[26] **http://www3.weforum.org/docs/Media/TheGlobalRisksReport2016.pdf**