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THE GLOBAL DIWAN'S

Newsletter

CONNECTING EAST-WEST LEADERS

Place Masséna, Nice, France

EDITORIAL

Be our guest in Nice

Dear Friends,

The Global Diwan is happy to extend to you the official invitation to join the 1ST edition of our annual Forum on Blue and Green Security in Nice on 9 September 2022. You may register by following this link. We will finalise the program with our distinguished guest speakers in our next issue (n°13) to be published at the very beginning of July.

The opening of our department Global Diwan Legal is now official, and will be followed by two others: Global Diwan Capital and Global Diwan Culture. More to come very soon.

In this May issue, we introduce our partner the Institut Méditerranéen de l'Eau dedicated to connecting Mediterranean actors of the water sector. Our Project Director Khelil Mehenni provides us with an overview of the startup ecosystem in the Maghreb which deserves to be better known. We are excited to start a new collaboration with Amarante, a European leader in security solutions that will occasionally share its expertise in our newsletter.
Finally, we focus on water security with the article of a Saudi lawyer, Dr Almudayhim Abdullah, and the French water solution provider Tergys.

Don't forget to register to our next webinar on Business perspectives in tomorrow's Iraq on May 9th, and follow us on our social medias to keep up with our events to come in June: 3rd Diwaniya, thematic countries meetings, and our first Global Diwan Breakfast.

Enjoy your reading !

Éric Schell
Executive Chairman of the Global Diwan

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THE GLOBAL DIWAN
CONNECTING EAST AND WEST LEADERS

Paris-Nice-Kuwait-City, May, 2022

We are honoured to extend to you an invitation to the first Global Diwan Forum on Blue and Green Security (Environmental and Food Security), to be held on Friday September 9, 2022 at the Centre Universitaire Méditerranéen (CUM) in Nice, France.

This first in-person Global Diwan forum will take place in the Nice Metropole area, a Mediterranean center designed for hosting major international and high-level events, both by its geographical location and its secular openness to visitors from all over the world. Some 150 leading figures are expected to attend and discuss innovative solutions to some of the most pressing issues and challenges of common interest.

Offering an exclusive space to connect East and West leaders, the Global Diwan does its utmost to create a free-thinking and independent atmosphere in order to establish a strategic alliance between the Euro-Arab business communities and to support the growing of a new generation of Young Leaders between the two shores of the Mediterranean, some of whom will attend the Forum.

Christian Estrosi
Maire de Nice
Président de la Métropole Nice Côte d'Azur
Président délégué de la Région Provence-Alpes-Côte d'Azur

Intisar Al Sabah

S.A. Sheikha Intisar AlSabah
Présidente de la Fondation Intisar
Co-présidente de l'advisory board du Global Diwan

S.E. Maurice Gourdault-Montagne
Ambassadeur de France
Co-président de l'advisory board du Global Diwan

Register here

Launch of Global Diwan Legal

By Guillaume Deroubaix

WE ARE LAUNCHING FROM THIS MONTH OF MAY 2022 A NEW CHAPTER OF THE GLOBAL DIWAN : THE GLOBAL DIWAN LEGAL.

In 2018, we started with the Ambassador of France Jean-Pierre Lafon, Eric Schell and a few others the Paris Mena Legal Club (PMLC), the club for the leaders of the legal community in the MENA region. Our starting point was the understanding that the French legal practitioners (counsels, in-house lawyers, solicitors and searchers) were far too few in the great Middle East and North Africa region, even though Continental law still plays a fundamental role, alongside Islamic law and English law (currently in the free zones of the Gulf Cooperation Council countries). The Paris Mena Legal Club (PMLC) brought an answer to this insufficient presence while building bridges between France and the Arab world.

For more than 2 years, the club has organised many events (about 30 in total) around experts of the region. During conferences of variable sizes, diplomats, business leaders and searchers came to lecture the legal community about the great geostrategic equilibriums of the region. They discussed topical issues with a historical perspective or explained the players' — sovereign states or big industries — macro-economic strategies in this part of the world.
The PMLC network, a non-profit association, gathered a membership of 200. In 2020, COVID unfortunately brought a stop to its activities essentially centered around in-person meetings.

Time has come to bring back this group to life. Rather than reviving the association, we took the decision to integrate and expand its activities within the Global Diwan.
Under the aegis of Matthias Fekl, lawyer and former minister, we are gathering leaders of the legal community that have a special interest in the Arab world while associating them to the whole scope of the Global Diwan's initiatives and dedicating two events each year: one in Paris and one in the MENA region. We will discuss each time great strategic legal issues, with the light of the best experts and we will also provide a complete legal watch, a very popular service among the PMLC membership.

Our first event will take place in Paris next July, the following one will be in Kuwait in October 2022, on the issue of mediation development, with the presence of Matthias Fekl and Khalifa Al Yakout, the very first member of our legal network in MENA.

SAVE THE DATE

Webinar :

What business opportunities in tomorrow's Iraq ?

Iraq Energy Institute

In collaboration with our partner the Iraq Energy Institute

When
May 9, 2022, 2:00 PM

Where
Book your seat here

Who

Our esteemed guests :
Anne Gadel, MENA and geopolitics analyst at Fondation Jean Jaurès
Louki-Géronimo Richou, Parliamentary Assistant at the French Senate
Robin Beaumont, Researcher at Noria Research
Yesar Al Maleki, Energy economist at the Iraq Energy Institute

Moderating this discussion :
Shathil Nawaf Taqa, Middle East Advisor at The Global Diwan

Introducing our partner:

The Mediterranean Water Institute (IME)

ACTOR IN WATER ISSUES
HTTPS://IME-EAU.ORG/

Created in Rabat (Morocco) in 1982, IME is a non-profit organisation, bringing together members of various origins with common objective, being an actor on water issues in the Mediterranean.

IME is a network that integrates all the stakeholders in the sector through its members and partners to set "the first Mediterranean Water Network".

The main objective of IME, through its network, is to develop trans-Mediterranean cooperation in the field of water, sanitation, irrigation, environment and associated energy with all Mediterranean countries.

Its aim is to facilitate and initiate regional cooperation actions between public institutions and private operators in the Mediterranean region through its large network of partners (water and sanitation managers, local authorities, specialised organisations, donors, engineers and researchers).

IME is a dynamic actor in regional cooperation in the water sector in order to promote synergy between the different stakeholders and support their initiatives.

We are happy to welcome Alain Meysonnier, IME's Chairman, who will moderate the discussions during our roundtable "Water Security Challenges", at the Blue and Green Security Forum in Nice on 9 September 2022.

ENTREPRENEUSHIP

MDBAN, a diaspora network for the startups in the Maghreb

By Khelil Mehenni

Creating a startup requires a brilliant team, a disruptive product as well as a good go-to-market strategy. However, without funding all the efforts put forth will be in vain. Besides traditional actors, business angels are a precious source of support which goes well beyond funding as these committed and seasoned professionals who have gained a unique expertise in creating and developing a business also provide entrepreneurs with unique mentoring and networking opportunities. In order to maximise their impact, these shadow advisors often tend to join forces in various networks. Today, we shed light on such a new initiative called MDBAN standing for Maghreb Diaspora Business Angels Network.

Giving back

Officially launched in March 2022 in Marseille, MDBAN gathers 33 business angels from Maghrebi descent and several diaspora organisations like ATLAS (Algerian Talents and Leaders Association), ATUGE (Association des Tunisiens des grandes écoles), Maroc Entrepreneurs and Casba Business Angels. In addition to the three core countries of the Maghreb, Libya will soon be included through a London-based Libyan business angel. As every business angels network, MDBAN is managed by seasoned professionals who are willing, after a successful career, to give back some of their experience.

It is the case of MDBAN's founders, Noomane Fehri, Marcel Dridje and Ghazi Ben Othmane. Marcel has spent 30 years of his life helping IT, Deeptech and Telecom startups based in Europe and the Silicon Valley and making a couple of IPOs successful. Marcel has acquired quite a stature in the business angel's ecosystem as he developed several networks like Med Angels which federates Mediterranean business angel's networks from 23 countries or Sophia Business Angels, based at Sophia Antipolis on the French Riviera. He also sits on the board of EBAN, Europe's leading early-stage investor network.

Let's notice that MDBAN has been supported by GIZ and ANIMA (The Next Society) which both act as staunch supporters of entrepreneurship. France's strike force in the region in this department can be explained by its ability to combine its business community's entrepreneurial expertise with European funding programmes.

Soft landing

Based in Marseille, MDBAN aims at creating a deal flow of 30 Maghrebi startups. A genuine instrument of cross border investment, it has arisen from the following paradox: with so many talents (often trained in Europe's best universities), a profusion of ideas and the numerous opportunities offered by the proximity with Europe and Africa, why Maghrebi entrepreneurial ecosystems are lagging behind?

Even though many incubators and accelerators have emerged throughout the region over the years, investments are still lacking and the business solutions produced by local startups too often focus on solving local problems only, without thinking global. In filling this void with fresh funding and global-minded mentoring, MDBAN will showcase successful startup success stories and thereby give to international investors some good reason (i.e. a proven track record) to take a closer look at what is going on in the Maghreb, a market often overlooked as uncharted waters. Therefore, MDBAN will act as a trusted third party or a label between the startups in its portfolio and international investors.

How does it work? The concept to grasp here is "soft landing" which consists in helping Maghrebi startups to internationalise their business from an overseas position while keeping the R&D at home. Concretely, a Tunisian startup with a proven concept

would open a representative office hosted at La French Tech in Marseille where it gets mentored in a mature and dynamic environment where it can scale-up while reinvesting profits back home to enable Maghrebi R&D ecosystems to take out and monetise patents.

In the past, soft landing has been widely used by Israeli cyber startups that accessed international markets from New York and the Silicon Valley while keeping all the grey matter (and the patents) at home.
This modus operandi has already allowed for the emergence of successful startups which altogether testify for the liveliness of the Maghrebi entrepreneurial scene. It is the case of Omniup, a Moroccan startup founded by Ali Bensouda, which offers a quality free Wi-Fi connection that is financed through localised advertisement.

Same promising adventure for Food 4 Future, a Tunisian foodtech startup which soft landed at La French Tech in Marseilles. Its founder, Insaf Ayarin developed a technology which democratises Spirulina as a sustainable food alternative which aims at strengthening food security. In Algeria, Mustapha Lakhdari created Goutra, a startup that offers a patent protected water saving solution. All these ventures thrived thanks to quality mentoring and adequate funding.

Evolving landscape

In Africa, if the most mature entrepreneurial ecosystems are to be found in English-speaking South Africa, Nigeria and Kenya (where, for instance, a startup named M-Pesa launched the first mobile payment solution to be ever found in the world), the Maghrebi entrepreneurial ecosystem has been expanding during the last years, especially in Tunisia and Morocco.

Today, Tunisia offers the most advanced environment for startups to thrive. The education system has been a strong enabler and now the country has launched Smart Capital, a private investment company, under the umbrella of the ministry of Technology in Tunisia and the operator of the national initiative STARTUP TUNISIA. It is also behind the implementation of the multi-million euro fund of funds ANAVA.

This highlights the important role played by national authorities who may adopt regulatory frameworks tailored to the needs of startups. Tunisia has been the first country in the Maghreb to adopt a Startup Act. In Morocco, the creation of a 1:1 matching fund system by the CDG (Caisse de Dépôt et de Gestion), a state-owned financial institution, has been very appreciated by private investors.

As for Algeria, despite the adoption of a Startup Act and the creation of a dedicated ministry, the ecosystem still needs to be strengthened. In this context, all eyes are turning to the Sonatrach, the national state-owned oil company, which could create an incubator or even a fund. The remaining question is whether the oil company would be attracted to startups operating in sectors other than energy.

Competitive clusters

Besides funding, attractive measures regarding tax, capital repatriation and exchange control are still awaited by professionals throughout the region. But things are changing as entrepreneurial leaders raise awareness about the challenges faced by startups locally. This is why MDBAN has, from day one, brought aboard eminent and renowned local actors, like Samir Idrissi Kassimy, president of MoBAN (Moroccan Business Angels Network) or Noomane Fehri, former Tunisian minister of communication technologies and digital economy, in order to ensure an efficient and fruitful dialogue between the public and private sectors as well as between homeland and the diaspora.

MDBAN has developed an ambitious long term vision for the startups and the economies of the Maghreb. Based on the experiences of Cambridge that managed to become the global leader of biotech or Scandinavia the leader of fintech, MDBAN envisions that the Maghreb could also become, one day, a global cluster in sectors where the region has a competitive advantage like tourism (travel tech) or solar energy (solar tech). In either case, the faithful and considerate support of the diaspora will be a tremendous catalyst.

GEOPOLITICS

International geo-economic upheavals linked to the war in Ukraine

By Amarante

WE ARE THRILLED AND HONOURED TO WELCOME FOR THE FIRST TIME IN OUR COLUMNS THE RENOWNED INSIGHTS OF AMARANTE, THE LEADING EUROPEAN ACTOR IN PRIVATE SECURITY AND RISK ANALYSIS.

Rivne Region, Ukraine

The war in Ukraine and the agricultural commodities market

The Black Sea region is a breadbasket that already fed the Athenian banquets of antiquity. A few years after the fall of the Soviet Union in 1991, Russia and Ukraine succeeded in strengthening their agricultural capacity and their potential as raw material exporting countries. Currently, the two countries together account for more than 30% of world wheat exports.

Ukraine is the largest agricultural country on the European continent (41.5 million hectares) and the second largest reservoir of arable land with 32.5 million hectares of chernozem, also known as "black land", which is mainly located in the Donbass region in the east of the country. Two types of structures shape the Ukrainian agricultural landscape, namely the agro-holdings resulting from the privatisation

> The Mediterranean region, North Africa - Middle East, represents about 40% of world cereal imports.

of the kolkhozes of the Soviet years, which ensure the production of cereals and oilseeds, and the individual and family semi-subsistence micro-farms that provide 60% of gross agricultural production (fruit, vegetables, meat).

Since the 2000s, Moscow has endeavoured to restore its former cereal power while ensuring national food security by boosting production for the domestic market. Paradoxically, the previous sanctions against Moscow pushed the country to strengthen its domestic agricultural sectors. Moreover, Russia is a major exporter of agricultural fertilisers, on which many of the world's intensive crops depend, namely nitrogen fertilisers, commonly known as prilled urea, phosphate and potash. It should be remembered that nitrogen fertilisers are indexed to natural gas production and that in March 2022 they were selling at over 900 euros per ton, an increase of +135 euros since the beginning of the Russian invasion of Ukraine.

The Mediterranean region, North Africa - Middle East, represents about 40% of world cereal imports. Egypt is the world's leading buyer of wheat and 80% of the wheat it consumes is Russian. Tunisia is in a relatively similar situation, even if the country is less densely populated. Morocco is hit by a drought and an already latent inflation that was aggravated by the halt in tourist revenues since the COVID-19 pandemic. Lebanon is the country in the region that could be most affected, as it has only a few weeks of cereal reserves. Moreover, although it is the world's 5th largest buyer of wheat, Algeria has financial flexibility linked to its oil and gas revenues. It should be remembered that on 17 February 2022, the country placed an order for 700,000 tons of wheat with Ukraine after having refused French and American offers.

The Mediterranean local governments have already realised the short-to-medium-term risk to their food security. Some have been subsidising staple foods for several years, while others are trying to limit speculation. Most of the economic systems in these countries are based on already fragile foundations, which have been undermined by the global pandemic of COVID-19. Moreover, the question of the sustainability of these policies is now being raised. This geopolitical space is riddled with fractures that could degenerate into systemic collapse: a Taliban Afghanistan in the grip of famine, an interminable war in Yemen, a devastated Syria, a Lebanon that is turning into a failed state, the fragile giant of Egypt, the Sahel swept away by the jihad, Ethiopia caught up in a fratricidal war, and the other African giant, Nigeria, which is desperately looking for a solution to its endemic insecurity and corruption.

> The Mediterranean local governments have already realised the short-to-medium-term risk to their food security (...) While the worst-case scenario is not necessarily the most likely (...) it will be important to identify the first signs of a deterioration country by country, zone by zone.

Rising prices for wheat, sunflower oil and soon rice, risk plunging hundreds of millions of people into exacerbated food insecurity. While the worst-case scenario is not necessarily the most likely, given the surprising resilience and adaptability of these societies, the fact remains that not all of these regimes will escape unscathed. In the coming months, it will be important to identify the first signs of a deterioration country by country, zone by zone.

The war in Ukraine and the questioning of globalisation

The international sanctions against Russia can be considered as the first economic confrontation between symmetrical powers and therefore as the first inter-state economic war. The economic sanctions imposed on Iraq after 1991 or on Iran belong to the register of asymmetry, since the sanctioner does not suffer. This time, for the Western bloc to be effective, it must deal with negative consequences and even rethink its supply models.

It is highly likely that this economic war will last and that its consequences will be felt throughout the economic world-system. Thus, beyond its foreseeable effects on energy and agricultural supplies, the very foundations of economic globalisation will be revisited to identify dependencies and bottlenecks in order to avoid repeating the same mistakes made in the power relationship with Russia.

Are we heading for an explosive "deglobalisation" that would lead to a chaotic reversal of the process of integrating the world's economies into a single whole? It is probably far too early to make such a claim. On the other hand, it would be naive not to consider the hypothesis. It should also be noted that the seeds of a certain deglobalisation have already been sown in recent years by the affirmation of Sino-American economic rivalry, the COVID-19 pandemic and the awareness of Western countries in terms of health security, as well as by the gradual recognition by European countries of new forms of dependence that are likely to have a major impact on the security of member countries.

An example of technical dependence: rare earths

During the COVID-19 pandemic, European countries became aware of

the strategic importance of certain sectors through the shortage of medical components and basic medicines. In short, the war in Ukraine has only reinforced this trend. In fact, beyond the direct consequences, notably energy, that Europe may have to face, the objective today is to reflect on European capacities to reduce its technical and technological dependence.

> “(...) beyond its foreseeable effects on energy and agricultural supplies, the very foundations of economic globalisation will be revisited to identify dependencies and bottlenecks in order to avoid repeating the same mistakes

China dominates the world production of rare earth elements (REEs), the 17 strategic metals that are essential to any technological and energy transformation in our societies. In 2021, it was still producing 60% of the world's demand for 37% of the world's known reserves (U.S. Geological Survey). At the end of December 2021, the Chinese authorities announced by decree the creation of a new public agency, the China Rare Earth Group, which will be responsible for supervising the country's rare earth assets. This unit is the result of the merger of three Chinese giants (Minmetals, Chinalco and Ganzhou Rare Earth) and two technology and R&D groups (Grinm Group and China Iron & Steel Research Institute).

After China, the largest known reserves of rare earths are found in Brazil (18%), Vietnam (18%), India (6%), Australia (3%) and the United States (1%). Due to its rich soil, Russia has major industrial metals (nickel, aluminium, titanium, cobalt, tungsten, palladium) as well as 10% of the world's rare earth reserves. As regards rare earths, the European continent is therefore more than 75% dependent on Chinese and Latin American suppliers. In an attempt to overcome this dependence on foreign inputs, the European Commission for the Internal Market is expected to present an emergency instrument in the near future.

An example of technological dependence: submarine cables

There are 1.2 million kilometers of undersea cables that connect all our societies to the global internet. Since the invasion of Ukraine in February and especially since the military fronts in Ukraine were fixed in mid-March, there has been growing concern about whether Moscow is capable of cutting the submarine cables and thus depriving part of Europe of the global Internet. Although an alternative so-called back-up network exists, its communication capacity is greatly reduced. In addition, the secondary network could also be targeted. Accidents of unintentional shearing of submarine cables, especially from fishing anchors, have already been reported. Cables cannot be repaired at a depth of 3,000 metres and new cables have to be laid. In 2007, for example, Vietnam lost 90% of its internet connection for three weeks after such an accident in the South China Sea.

As our societies and systems are now interconnected, the severing of submarine cables would have major geo-economic consequences, with devastating cascading effects. Between the United States and Europe, these cables are often no wider than a garden hose and could easily be severed. A belligerent vessel could act with impunity on the high seas, and although the deliberate severing of submarine cables would likely be considered an act of war, it would not constitute a direct attack under international law.

The Russian spy ship “Yantar” has been under satellite surveillance since it was found guilty of deliberately cutting submarine cables in 2014 during the annexation of Crimea. In August 2021, it again demonstrated its capability by following the route of the Celtic Norse and AE Connect-1 submarine cables, which connect Ireland to the United States, and submerging an AS-37 mini submarine to a depth of 6,000 metres. Furthermore, in February 2022, just before the Russian offensive in Ukraine, the “Yantar” was reportedly observed in the south-west of Ireland, at the level of NATO's military communications cables.

Ukraine conflict opens diplomatic and energy opportunities

Russia's invasion of Ukraine has opened up diplomatic and commercial opportunities for gas exporter Qatar to expand energy sales to the West and bolster its alliance with Washington amid US tensions with other Gulf Arab states.

Qatar has sought a largely neutral stance on the conflict, but while trying to avoid choosing sides, it has signaled through its response that it can offer significant political and economic assistance to Western partners.

With many European energy importers looking urgently for ways to ease their heavy dependence on Russia, Qatar has suggested it could direct more gas to Europe in the Future. Qatar, which hosts the largest U.S. air base in the Middle East, was designated a major non-NATO ally of the United States last month - a status neither the UAE nor Saudi Arabia have been awarded. It has sought to play a role throughout the Iran nuclear talks and has carried messages between Tehran and Washington.

Among the world's largest producers of liquified natural gas (LNG), Qatar is one of the wealthiest nations per capita and is home to barely three million people, 85% of them foreign workers. On the international stage, Qatar's central role has been to host Afghan peace talks that led to the 2020 agreement for the U.S. withdrawal. It remains an essential link between Western nations and the Taliban-led government, hosting the West's Afghan diplomatic missions and even flying officials into Kabul, whose airport Qatar helps manage and control.

When Qatar decided to hike LNG production by 2027, some questioned how Qatar would find customers. But now, amid strong demand and high prices, Western

leaders are urging Qatar to boost supplies to Europe amid concerns about Russia, which currently supplies some 30-40% of the continent's gas needs. The renewed interest in diversifying European gas supplies presents an enormous opportunity for Qatar to sell the vast new supplies coming onstream.

However, Qatar has not yet announced new long term European contracts, and it will take time to negotiate and require new infrastructure to receive Qatar's LNG tankers.
Among the Maghreb countries that could step to the fore are Algeria and Libya, with Algeria harbouring the highest potential. Algeria is one of the world's largest gas producers, and is among Europe's top five LNG exporters. It could technically increase its gas supply to Europe through several operating pipelines running through Italy and Spain. However, Algeria's domestic political decision-making, highly contentious relationship with neighbouring Morocco, and decades-long strategic alignment with Russia, stand in the way.

Algeria has a close relationship with Russia and the US largely based on strategic military synergies. In Libya, Russia put its weight behind the main spoiler - General Khalifa Haftar. For its part, the US has mainly focused on working with the UN and with Libyans interested in organising contested election processes.

Countries like Algeria are unlikely to step up to replace Russian gas supply without an implicit nod from Russia. European policy makers had hoped Algeria and Libya would alleviate European dependence on Russia. However, North African countries are acting based on their own calculus. This involves seeking concessions from Europe and the US on their priorities and managing their relationship with Russia. This diminishes hopes of European policy makers expecting that Algeria and Libya would alleviate economic hardship.
Algeria, a major gas exporter to the EU, is walking a tight rope. It is undoubtedly the country with the most expansive relations with Russia in the region. This is requiring it to try and reconcile two conflicting principles. Living by its longstanding position on the sanctity of international borders while signaling its continuous unwavering support to its strategic military and diplomatic ally, Russia.

Algeria is Russia's third largest weapon importer. In the lead-up to the Ukraine invasion, Algeria stopped short of signaling any antagonism towards its historical partner. However, as the EU seeks new, sustainable alternatives to the sanction-stricken Russian energy exporters, Algeria is strategically positioned to fill the gap. It could, technically, meet Europe's gas demands. Algeria currently exports approximately 22 billion cubic meters of gas annually via the TransMed pipeline to Italy. It could, increase this by nearly half the current rate. The Maghreb-Europe Gas Pipeline (MEG), linking Algeria's largest gas field to Spain through Morocco was shut down in October 2021 when Algeria severed its relations with Morocco.

But Algeria seems to be reluctant to fulfil requests to increase its gas exports to Europe. Algeria won't want to alienate Russia. Nevertheless, it will want to take advantage of skyrocketing energy prices. It might also try and secure concessions from the EU and US on a number of issues the country deems strategic, such as Western Sahara. The dispute over the Western Sahara territory has strained relations between Morocco and Algeria since the 1970s. Morocco took control of most of the territory in 1976. Algeria has provided military, diplomatic, and financial support to the Polisario Front ever since. The front is an armed insurgent group working for the independence of the territory. Decades and several UN mediation attempts later, the conflict continues to be intractable.

The current Ukraine crisis and attempts by the US and the EU to "separate" Russia from its key regional allies (in this case, Algeria), coupled with what Algeria can offer the EU in terms of energy, could potentially shake the equilibrium in the Great Powers relations with Morocco and Algeria.

A changing global geo-economic system

The war in Ukraine is therefore challenging globalisation as we know it. The economic consequences are already being felt by countries that import agricultural materials and those that depend on Russian hydrocarbons. The politico-military situation in the Ukrainian theatre leaves little room for a return to the economic status quo. Thus, several geo-economic scenarios could be envisaged, from hard to mild...

Far from being political fiction, these lines of thought allow us to look at the mechanisms and consequences of a more or less complete break in the economic relations of the Western bloc (Europe and North America) with its then declared Eurasian competitors (Russia, China). They also make it possible to identify the place that Africa and South America could occupy in this new global geo-economic paradigm.

FOOD AND WATER SECURITY

Science and technology for food and water security

By S.J.D Abdullah Almudayhim

> For most countries in the region, food and water security are related to national security (...) given the fact that the region has the lowest per capita availability of water and arable land in the world.

The Middle East and North Africa (MENA) has descended into turmoil since 2010/2011 – a period that also coincided with regional drought. At the 2016 Warsaw Summit, NATO made clear that transatlantic security is "deeply affected by the security situation in the Middle East and North Africa" (NATO, 2016)[1]. Daesh* and other extremist groups have struck Allied territory with vicious terrorist attacks. Large numbers of refugees and migrants have fled the region for neighbouring countries and Europe. Other threats and challenges loom, including trafficking of small arms and light weapons, the proliferation of weapons of mass destruction and their means of delivery as well as threats against maritime security and energy supplies. Consequently, NATO emphasised "the need to do more to achieve lasting calm and an end to violence", as "Peace and stability in this region are essential for the Alliance". Food and water shortage are a critical issue in the MENA region like in many parts of the world. In fact, for most countries in the region, food and water security are related to national security. This should come as no surprise, given the fact that the region has the lowest per capita availability of water and arable land in the world.

FAO identified a food gap of close to 70 per cent between the crop calories available in 2006 and the expected calorie demand in 2050. To close this gap, it would be necessary to increase food production by making genetic improvements, reduce food loss and waste, shift diets and raise productivity by improving or maintaining

[1] NATO, Warsaw Summit Communiqué, 2016

soil fertility, pastureland productivity and restoring degraded land. In this context, food availability will have to make up for this food gap, while considering decreasing arable land, limited water resources and other environmental, ecological, and agronomic constraints. It is estimated that in the past 40 years, almost 33 per cent of the world's arable land has been lost to pollution or erosion.

Science, technology, and innovation can play a critical role in producing more food by creating plant varieties with improved traits, as well as optimising the inputs needed to make agriculture more productive. Like soil fertility, the availability of water is a critical input for ensuring and improving crop productivity. Approximately 70 per cent of global freshwater supply is devoted to agriculture. Many farmers do not have access to water for agriculture because of physical water scarcity (not enough water to meet demands) or economic water scarcity (lack of investments in water infrastructure or insufficient human capacity to satisfy water demand), among other factors. In response to such challenges, low-cost and affordable drills, renewable energy-powered pumps and technologies for desalination and improved water efficiency can potentially make water more available for food production.

Lightweight drills for shallow groundwater and equipment to detect groundwater can potentially make groundwater more accessible as a form of irrigation. Solar-powered irrigation pumps could potentially increase access to irrigation where manual irrigation pumps that may be strenuous to use are inadequate or expensive motorised pumps with recurring fuel costs are financially out of reach. Affordable rainfall storage systems are also a potential technology for addressing irrigation.

Where diesel - or solar-powered pumps are not feasible, hydro-powered pumps can be used to irrigate fields wherever there is flowing water. Greenhouses can mitigate the unavailability of water caused by unpredictable rainfall and enable farmers to have a year-round growing season. Important differences exist between countries in the MENA region, both in terms of their overall food and water security, but also in their ability to cope with their current and future situation. Overall, the long-term prospects for food and water security in the MENA region are dire. Home to 5% of the global population, the region has access to only 1% of the world's renewable water supply (Swain and Jägerskog, 2016)[2].

> “Saudi Arabia aims to reuse 100% of urban wastewater by 2025 and over 90% of its total wastewater by 2040. As a result, USD 66 billion in long-term capital investments have been committed for water and sanitation projects until 2025

This is one reason why total water demand exceeds naturally available water supplies by almost 20% according to the World Bank. During the period from 2000 to 2009, the total unmet demand equaled 42km3, but by 2040-2050, this figure is projected to reach a worrisome 199km3 (The World Bank, 2012)[3]. About half of the MENA population already lives under conditions of water stress (less than 1,700 m3 /year) (FAO, 2013)[4]. On average, water availability is only 1,200m3 /year, compared to the worldwide average of 7,000m3 /year (Al-Otaibi, 2015)[5]. Perhaps reflecting the substantial water shortage, the MENA region has the highest percentage of total renewable water resources withdrawal in the world. In particular, the FAO singles out the Arabian Peninsula and Northern Africa as regions significantly overexploiting their water resources – by respectively up to 500% and 175% (Aquastat, 2016)[6]. The main consequences of such overexploitation of water resources are depletion of renewable groundwater, over-reliance on fossil non-renewable groundwater, and use of non-conventional water such as recycled wastewater or desalinated sea water.

Recycling and reusing wastewater is another vital strategy in maximising water availability. To illustrate the potential of such technologies, in developing countries, around 90% of wastewater is released untreated into bodies of water; and globally, 60% of water used in irrigation does not reach the roots of the crops (Adelphi, 2017)[7]. This technique is particularly developed in Israel, the world leader in this domain, which treats 86% of its domestic wastewater and recycles it for agricultural use – up to 55% of the total water used in agriculture (Kershner, 2015)[8].

Experts have however pointed out that the

[2] Ashok and Anders Jägerskog , “Water, Migration and How They Are Interlinked”, Working paper 27, Stockholm International Water Institute, 2016

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[12] Nahhas, Roufan, “Jordan's Water Shortage Made Worse by Refugee Crisis”, The Arab Weekly, 19 March 2017

> Sufficient water exists to support the Earth's population today and the near future. Thus, "the water crisis is essentially a crisis of governance and societies" (...) and many argue that the world can escape this trap if it uses all instruments at hand".

overall low demand for recycled water in the MENA region stems from artificially low prices of the subsidised conventional water supply (and thus the subsequent lack of incentive for water productivity) and negative perceptions regarding the impact of lower quality water on crop yields (Jeuland, 2015)[9]. Nevertheless, countries in the region are realising the potential – and indeed imperative – to recycle and reuse. For example, Saudi Arabia, the third largest water reuse market in the world after the United States and China, aims to reuse 100% of urban wastewater by 2025 and over 90% of its total wastewater by 2040.

As a result, USD 66 billion in long-term capital investments have been committed for water and sanitation projects until 2025 (Haider, 2015)[10]. Jordan's policies are yet another example of a successful mitigation strategy in the face of extreme water scarcity. While precipitation has decreased by 20% over the past eight decades, the share of fresh water used for agriculture was reduced from 80% in the 1970s to around 60% in recent years (Ministry of Water and Irrigation of Jordan, 2016)[11].

In 2014, 125m3 of treated wastewater were reused, a figure projected to increase to 240m3 by the year 2025. However, Jordan's carefully planned water strategy was unable to account for the massive influx of refugees, which has increased total water demand by 22% (Nahhas, 2017)[12]. As the Committee on the Civil Dimension of Security learned on its 2013 visit to the Zaatari Refugee Camp, water distribution and waste collection still takes place by truck (with a fleet of over 80 huge tanker trucks for water deliveries).

The good news is that solutions for the MENA region's food and water problems are available. Sufficient water exists to support the Earth's population today and the near future. Thus, "the water crisis is essentially a crisis of governance and societies" (Adelphi, 2017)[13]. Equally, the spectra of the "Malthusian Trap" (i.e that population growth will outpace food production) has not yet materialised, and many argue that the world can escape this trap if it uses all instruments at hand. Many experts agree that the following steps should be taken by MENA countries to tackle their long-term challenges:

Food security:

- Modernise agriculture and food value chains to reduce food subsidies and price controls.
- Increase public awareness campaigns on the resource implications of food production and food waste.
- Build strategic storage capacities to increase efficiency of the national and regional food markets to reduce waste.
- Enhance the management of food imports

Water security:

- Improve the efficiency of water treatment and (re)use.
- Expand water supply and availability in a sustainable manner.
- Reduce or eliminate water subsidies.
- Increase public awareness campaigns on saving water.
- Build water storage systems, dams, hydroelectric power plants and reservoirs.
- Utilise transboundary water in an equitable, reasonable and sustainable manner

Climate change:

- Design national climate change policies that will address their long-term food and water insecurity.

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WATER AND ENERGY

Autonomous water and green energy systems

A CONTAINERISED PLUG-AND-PLAY SOLUTION WITH NO CARBON EMISSION

By Gilles Desorbay and Hervé Suty

TERGYS
Water and Energy Systems

Access to clean water and sustainable energy is a primary concern to hundreds of millions of people worldwide.

This article presents attractive and unique decentralised energy and water production systems, fitted to the requirements of the client's needs and its specific environment.

A new and sustainable model, ready to meet the challenges of water transition, particularly in the MENA region, with no carbon emission.

1. Background

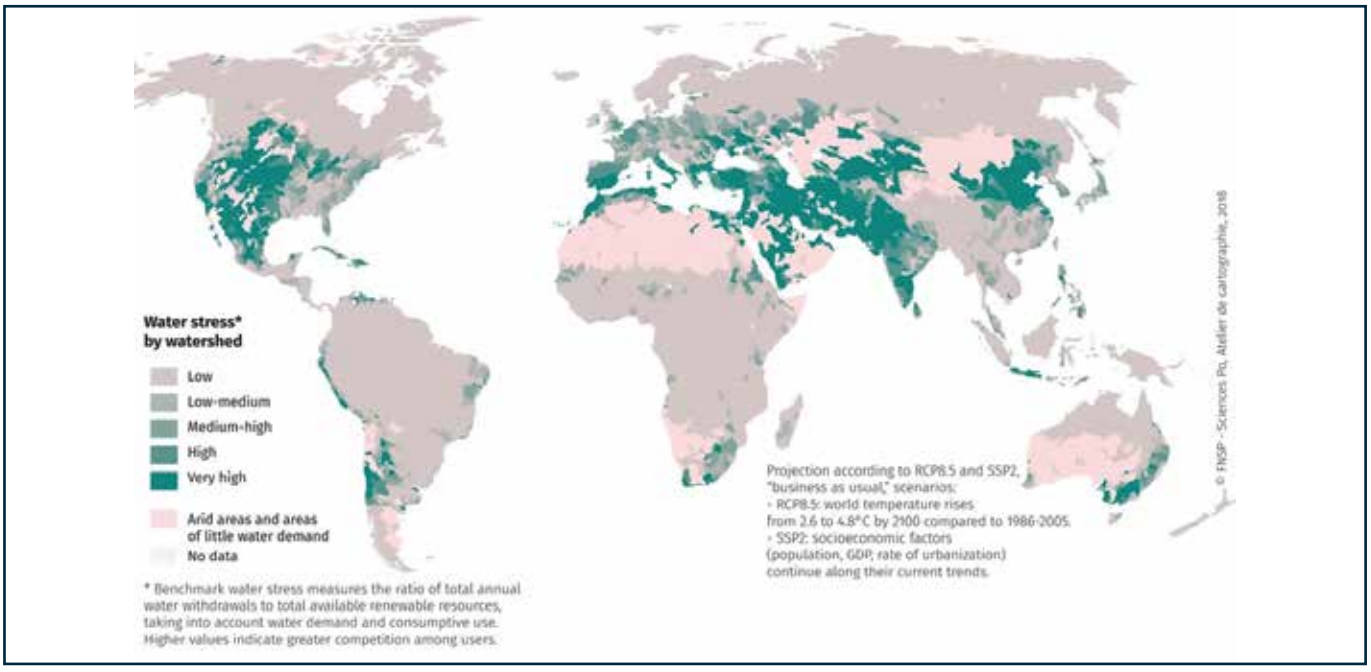
To introduce the subject and purpose of this innovative solution, let's first lay-out the global environment with a few figures:

- Today, approx. 850 million people do not have access to drinking water while over 1.1 billion do not have access to electricity.
- In 2050, 68% of the world's population will be living in an urban environment compared to 55% today, an addition of 2.5 billion inhabitants within 30 years.
- 40% of the 7.7 billion inhabitants live in coastal areas (less than 100km from a coast).

Global world water consumption was 4,000 km3 in 2000 and is expected to double by 2080. Out of which 70% is used for irrigation, 22% for industry and 8% for domestic needs.

Climate change, demographic pressure and urban concentration are among the high-stake trends of this century, creating water stress for 1.8 billion people worldwide by 2025. More conflicts are likely to be triggered by - or using - access to resources.

And as drinking water production requires from 0.05 to 0.5 kWh/m3 and desalination already consumes 200 GWh per year globally, it is easy to appreciate that water treatment is also about energy consumption. Thus, access to new drinking water and energy supplies is becoming a major challenge of our times.



2. Decentralised autonomous systems

TERGYS, a company founded by water experts in 2017 with headquarters in the Bordeaux region in France, was created to develop and deliver autonomous and containerised systems providing water treatment and green energy solutions to communities around the world. The comparative strength of TERGYS' solution is to assemble existing proven and reliable technologies and optimise the entire set-up via its own patented energy management system.

For its water treatment units, TERGYS uses membranes - from Ultra Filtration to Reverse Osmosis, well-known products from mature technologies, assembled in compact and robust solutions.

For its energy production modules, TERGYS integrates established decentralised renewable solutions based on either solar photovoltaic, wind, bio-waste or wave (or any combination) to produce green energy required by the water treatment unit. Moreover, any system can also be designed to supply excess energy to meet additional needs of the community, when required, in the form of electricity, heating / cooling, ...

To allow the solution to be operational 24/7, a system of battery storage is integrated. And the overall package is managed by a patented energy management system. The entire system is assembled and delivered in a container, ready to produce water and energy in an autonomous manner: a genuine plug-and-play solution, tailored to the specific requirements of the client. Customers using these solutions can be off-grid and include islands, resorts, rural communities, industries...

The overall system optimisation is based on multiple factors, including:

- Geographical location
- Historical meteorologic data
- Water sources
- Water needs
- Types of water treatment required
- Client's water and energy demand profiles
- Types and nature of locally available renewable energy sources
- Size of batteries
- Size of water storage

From these inputs, TERGYS provides turn-key systems with guaranteed volumes of water and quantities of electricity production, with a predicted number of events when water volume can be below demand, and associated CAPEX and OPEX.

3. Applications

These systems provide access to water and electricity to various types of users including those living in remote areas, suburban areas, islands, resorts, remote communities and living camps. Supply of drinking water will satisfy communities of up to 5,000 people.

The entire system will be delivered in containers housing pumping, water treatment, energy storage and energy management system.

TERGYS also has the capability to include water recycling, bio-waste systems as well heated air to dry agriculture production or refrigeration.

TERGYS is also developing a new autonomous Zero Liquid Discharge concept for its desalination systems, and the use of second-life batteries from automotive and second-life RO membranes from large scale plants.

4. Conclusion

These systems benefit from recent trends in cost reductions in electricity production from concentrated solar power, solar photovoltaic, wind turbines and battery energy storage. Added to the fact that no extra civil infrastructure is required, these solutions benefit from competitive capital and operating costs.

In summary, TERGYS provides combined autonomous water and energy production systems, able to supply off-grid communities 24/7, with no CO2 emissions.

The solutions are tailor-made, adapted to different applications and modular, to optimally match local contexts and customer needs. Housed in containers, this robust equipment is delivered ready to be used on site.

We will participate at the next Global Diwan Annual Forum* and present these solutions in more details.

Meanwhile, you can find more information on https://tergys.com/en/, and if you have specific questions or requirements please contact Gilles Desorbay at gilles.desorbay@tergys.com or Hervé Suty at herve.suty@tergys.com.

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