

Borderless Challenges

Maarten Elferink and Florian Schierhorn

Vosbor and the Leibniz Institute of Agricultural Development in Transition Economies

Abstract

The Middle East and North Africa are highly vulnerable to climate change. In the absence of coherent mitigation of and adaptation, climate change will soon exacerbate food and water insecurity, poverty and conflicts in this region. The demographic and socio-economic situation render the climatic outlook increasingly problematic. As the link between climate change, agriculture and migration is underestimated or misunderstood, we argue that the announced EU plans to cope with migration will most likely prove ineffective. By focusing exclusively on border security and bilateral agreements, without new funds for climate-adaptation in the Middle East and North Africa (independent of the Paris Agreement pledges) and cooperation with local governments for sustainable resource management, climate change will act as an unstoppable catalyst leading to severe instability across the Middle East and North Africa and increased migration towards Europe.

Policy Recommendations

- The EU should address governments in the Middle East and North Africa on policy issues that limit inclusion of rural farmers into the financial system.
- The EU should encourage regional governments to lower fossil fuel subsidies, which will reduce carbon emissions, render renewable energy business economically competitive and release government funding for larger infrastructural projects such as desalination plants.
- The EU should convince local governments to adopt sustainable policies, abolishing adverse drought management interventions and discourage water misuse.
- The EU should commit to new development funding initiatives independent of funding pledged under the Paris Agreement to support sustainable development and climate-adaptation in the region.

Climate change in the Middle East and North Africa

The US government under president Trump has announced their withdrawal from the Paris Agreement, which went into effect last November and is the most comprehensive climate agreement since the Kyoto Protocols. Formally the US will not be able to withdraw until 2020 and \$3 billion was already committed by former president Obama, but all funding has stopped and the new government has indicated to no longer adhere to the proposed emission mitigation and climate change adaptation. The impact of this decision is likely to be enormous, not in the least as the withdrawal of the second largest emitter of carbon dioxide may also have a significant effect on the determination of other industrial nations which ratified the agreement to help fund climate mitigation and adaptation in developing countries. The EU is now under pressure to take greater responsibility in the neighbouring region of the Middle East and North Africa (MENA), which is highly vulnerable to climate change which could lead to further conflict and migration to Europe.

Under climate change, extreme weather events such as heatwaves, droughts or torrential rain increase and intensify. These conditions are particularly threatening to the developing world - where agriculture still plays a key economic role - and where farmers are more exposed to the negative impacts of such events. Nevertheless, policy makers around

the world still fail to take responsibility for the consequences of climate change with adequate measures to prepare for the worst. Recent research has shown that an exceptional extreme drought, which lasted for 5 years in Syria, was a strong factor in the events that lead to the Syrian Civil War in 2011; due to severe economic and resource mismanagement of the regime. With the president of Syria, Bashar Hafez al-Assad, who strictly regulated the tapping of new water sources for irrigation to mitigate the drought, agriculture suffered drastically. His father, Hafez al-Assad, strived for self-sufficiency in agriculture with various policy initiatives since the 1970's, although natural water resources and rainfall were not sufficient. It eventually made water regulation necessary, which further impeded the livelihood of farmers as subsidies for fertilisers and pesticides had been cancelled earlier on. This resulted in a wave of urbanisation, which strengthened existing social unrest from war refugees arriving from Iraq since 2004. Economically, Syria was not able to cope with this migration and, as a result of the drought; local food prices went up simultaneously. The Arab Spring that began in neighbouring countries - and which seems to also show causality with climate change as rising food prices fuelled protests - was the spark that changed this unstable situation into a civil war.

Other countries in MENA also show serious strains caused by climate change. Last summer, the temperature in Iraq, where 36

million people live, rose to a record of 53 degrees Celsius, grinding the economy to a halt. All public offices closed for several days. Egypt, with 91 million inhabitants, is highly dependent on water from the Nile for irrigation and as a source for drinking water, but increasing water use in the upstream countries has led to serious water shortages and bilateral disputes. The Grand Ethiopian Renaissance Dam, nearing completion in northwest Ethiopia, will create a lake that will be three times larger than Lake Constance at the borders of Germany, Switzerland and Austria – inevitability leading to critical disruptions in water supply for downstream Sudan and Egypt. According to the UN, also Algeria, Morocco, Tunisia, Libya, Israel, Lebanon and Saudi Arabia are increasingly under pressure from water scarcity, while local governments still encourage water misuse (like garden irrigation or frequent car washing) and lavish irrigation techniques through long-term subsidisation policies. For example; in Saudi Arabia, the United Arab Emirates (UAE) and Oman, agriculture contributes 2 to 7 percent of GDP, while irrigation of crops account for 60 to 90 percent of total water use. In Bahrain and Qatar, where agriculture contributes less than 1 percent of GDP, irrigation still amounts to over 50 percent of water use. At present, all countries in the Arabian Peninsula are using more than 100 percent of their renewable water resources; they are depleting their aquifers rapidly.

Forecasted climate change is likely to aggravate these issues. MENA is warming faster than most other parts of the world: the ambitious 2 degrees' Celsius target of the Paris Agreement will result in summer temperatures increases of up to 5 degrees in the region. In addition, droughts will likely intensify, last longer and occur more frequently. Climate change is a tremendous threat to the agricultural sector, which is the economic backbone of MENA and employs almost 25 percent of its total population. In Morocco it is as high as 40 percent. Agricultural production is already constrained by the arid and extreme climate conditions. On a global scale, crop yields are low and they vary significantly from one year to another. In Morocco wheat yields fluctuated between 0.5 and 2.5 tons per hectare in the last two decades. However, the outlook for crop farmers is worse, because winter precipitation - which is crucial for rain fed agriculture in MENA - will likely decline. Livestock production is threatened too, as adequate provision of both drinking water and feed crops will become more challenging.

In addition, the region is vulnerable to climate-related supply volatilities in the relatively concentrated number of major grain producing regions worldwide, as MENA is self-insufficient in food production and thus dependent on imports. The global food crises of 2008 and 2011 are exemplary of this systemic risk. Extreme weather events in major grain exporting countries like the U.S.

and Russia, or in large, mainly self-sufficient grain consumption countries like China or India - suddenly needing large imports to feed its population - can put food security and political stability in the traditional net grain importing countries of MENA at risk.

Even under the global 2 degrees' Celsius target of the Paris Agreement, human life in the inhabited parts of MENA is forecasted to be seriously [threatened](#), according to a recent study by the Max Planck Institute and the Cyprus Institute. If the climate agreement fails, the same study predicts that the extreme heat waves will render many populated places uninhabitable by the end of the 21st century. [Another study](#) confirms that if we fail to limit global warming, the wet-bulb temperature, or the combined measure of temperature and humidity, will exceed the lethal threshold of 35 degrees Celsius in the Middle East. We can survive in such heat, but only for a matter of hours as excessive humidity prevents sweat from effectively cooling down the human body. As the US has officially announced their withdrawal from the Paris Agreement, these pessimistic climate change scenarios appear increasingly likely. Paradoxically, if we are able to limit global warming as agreed on, a great share of reduction in emissions can be achieved through alternative energy usage to decrease burning of fossil fuels – which could potentially undermine stability in the oil exporting states in MENA as much as climate change. MENA governments policies should therefore adjust in anticipation of these

scenarios and be encouraged as such on the international stage, for instance by supporting the Sovereign Wealth Funds in the region to direct a greater share of their funding capacity towards developing renewable energy through co-investment projects.

Climate-induced migration

With or without the Paris Agreement, climate change is expected to exacerbate food insecurity, poverty, conflicts and trigger cross-border migration in the absence of mitigation and adaptation projects. Climate migration is extremely difficult to forecast, but considering climate trends in MENA, it is highly likely that the number of [2.4 million](#) asylum seekers, who migrated to the EU over the past two years, will look rather minor in a few decades. The demographic situation worsens this bleak outlook. The total population in MENA increased from about [68 million](#) in 1914 to over [543 million](#) people in 2015. According to the UN, there will be approximately [825 million](#) people populating the region by 2050. Furthermore, this desert area expands into the Horn of Africa, where around [129 million](#) people live – a population that is forecasted to nearly double to [253 million](#) by 2050. This region has suffered from severe droughts every few years in the past decades, which in combination with poor resource management has created numerous humanitarian crises as famine and violence spread. The deteriorating food crisis in the Horn today testifies to the lack of progress made in adaptation. Considering

the region is [more dependent](#) on domestic agriculture than North Africa and the Middle East, the [forecast](#) intensification of droughts will probably trigger more migration. This in turn will put additional pressure on the socio-economic situation of bordering countries in MENA.

Europe in particular is bound to absorb large proportions of migrants from this region over time. In June, the European Parliament therefore [announced](#) the Migration Partnership Framework, alongside the creation of a European coast and border guard with more resources than the existing agency Frontex. These agreements with countries of origin and transit countries, above all aim to reduce the number of casualties in the Mediterranean, to facilitate the return of migrants, and to give refugees opportunities to find safety in the region. In return, the EU will facilitate funding of up to [€ 8 billion](#) until 2020. Following the Malta summit in February this year, [€ 200 million](#) was made available to primarily support migration-related projects in Libya and another [€ 200 million](#) in July. Unfortunately, this often consists of redistributing existing development funds - with a new provision that migration rates go down - and this new program ignores the interests of migration to governments in countries of origin, where unemployment is often a [growing problem](#) (in the Arab world there is already over 30 percent youth unemployment) and free migration partially prevents these countries from destabilising.

Moreover, when viable opportunities to support large groups of people disappear there is little that hold migrants back from crossing borders or natural obstacles, which has become tragically clear from the [increased](#) number of migrants arriving in Europe by the dangerous Central Mediterranean Route.

Adaptation financing

To address these issues the [External Investment Plan](#) was announced last September. This program provides funding of € 3.35 billion up to 2020 and is meant to mobilise further member state investments of € 62 billion in Africa and the EU Neighbourhood. Modelled on a similar EU funding initiative in Europe, it is completely uncertain however that member states will make such investments and that these would work in the far less developed markets of Africa. Certain is that this program is primarily directed at encouraging economic development, but it fails to account for the severe consequences of climate change. The € 3.35 billion committed does not come close to what will be needed for Africa to foster sustainable development and mitigate the impact of climate change on agriculture.

It is worth noting here that regional governments are funding such initiatives themselves, through the African Union and other interregional cooperation groups. Moreover, China is invested in the Middle East and the Horn of Africa through the One Belt,

One Road initiative, developing infrastructure that will also benefit climate-adaptation through improved access to international grain markets. Nonetheless, the interests of Europe in fostering mitigation and adaptation in this region to guarantee future stability supports the argument for a much more active role by the EU in financing these adaptation projects. The Global Environment Facility (GEF) and the Green Climate Fund (GCF), established following the Copenhagen Accord in 2009, were earmarked as the key fund operators for financial resources to support climate-adaptation and mitigation following the Paris Agreement. The funding ambition is stated as 'jointly providing \$100 billion annually by 2020 for mitigation and adaptation' in the Paris Decision, which served as guidance to the implementation of the agreement. By 2025 the goal is to have a yearly funding floor of \$100 billion. However, both quantitative targets are missing from the actual agreement as it enabled the US President to ratify it without having to first ask the US Senate for approval. Moreover, which country should take on what responsibility, and how this relates to the annual 2020 funding target is left open and will be based on self-assessment and determination. The question remains if funding will reach the yearly target goal by 2020 (only \$10.3 billion has been committed since drafting the agreement in 2015), especially now the largest donor has stopped all funding, and how much of any future funding will be allocated to projects in MENA.

European support

There are several ways the EU could influence climate-adaptation in MENA independently. Local farmers first of all need to adapt their production systems to a rapidly changing environment, but they lack the financial resources to make the required investments as a result of limited access to long-term financing. The EU could address local governments on the policy issues that limit inclusion of small, rural farmers into the financial system—policies like loan forgiveness programs or interest rate caps discourage bank lending. The European Bank for Reconstruction and Development (EBRD) is funding projects in Egypt, Jordan, Morocco and Tunisia, but only a fraction goes to agricultural businesses and the investment is geared toward market expansion instead of climate-adaptation.

Apart from financial resources, rural farmers lack the knowledge to efficiently adapt to climate change as well. The EU could therefore support more initiatives in education and training, for example in the field of multiple-cropping, use of heat-resistant crops, better soil management and water-efficient irrigation systems. Climate-smart agriculture can go a long way in mitigating the impact of climate change on agricultural output in the region.

The EU could also encourage lowering of fossil fuel subsidies in MENA; reducing carbon

emissions, while cleaner alternatives become financially attractive. When fuel subsidies are lowered, it will attract private investment in renewable energy, which could boost the natural advantage of MENA in solar energy production and potentially create more jobs – Morocco for one is forecast to generate up to half a million jobs in renewable energy, primarily from their Noor-Ouarzazate solar complex currently under construction. The reduction in budgetary expenditures from lowering fuel subsidies would create fiscal room for larger adaptive infrastructure projects, such as plants for desalination and re-use of water.

Simultaneously, it should engage with local governments to adopt sustainable policies. Local governments often revert to drought management interventions (like the subsidisation of feed for livestock or water well drilling), which [leads](#) to unsustainable farming practices and dependence on government assistance, as well as creating moral hazard. Also water misuse is a region-wide problem and remains one of the most important reasons that water management initiatives are very slowly progressing – although effective water pricing and education are proven methods of fostering change. Saudi Arabia is exemplary in this respect, as government policies supporting agricultural production resulted in the country becoming a net exporter of wheat in the mid-1980s while producing insufficient amounts to feed even its own population a few years earlier. As the

aquifers quickly depleted, the World Bank achieved considerable [success](#) by convincing the government of Saudi Arabia to remove subsidies on wheat production and deciding last year to rely on imports entirely – saving water and financial resources. Evidently, relying on imports of staple food is not ideal, but the increased vulnerability to supply shocks can be reduced by investments in infrastructure (storage) and diversification of trading partners. Europe could and should work more closely with governments in the region to achieve similar results as in Saudi Arabia.

In the past the EU has already committed itself to cooperation on climate change issues in MENA through the Africa-EU partnership, the formal channel through which the EU and the African continent work together. In 2010 they released an [action plan](#) to strengthen both climate change mitigation and adaptation in Africa and work towards common Africa-EU positions on climate change. The main pillars of the [EU-African cooperation](#) on climate change were support for the Great Green Wall for the Sahara and Sahel Initiative (or GGSSI, a reforestation project south of the Sahara by the African Union to prevent further desertification), ClimDev Africa (a program addressing climate information needs in Africa) and GCCA (the Global Climate Change Alliance; a platform for cooperation between the EU and vulnerable developing countries). Only ClimDev and GCCA [addressed](#) climate change in North Africa, among other African

regions. However, considering the importance of a transnational program in the absence of structural national initiatives, it was without doubt severely **underfunded** at € 8 million – of which only a portion was **contributed** by the EU. Although the European Investment Bank (EIB) invests and lends to **various** private sector initiatives to support economic and social development, there is currently no direct EU development funding initiative in MENA explicitly targeting sustainable development or climate-adaptation. In contrast, the United Nations and other international organisations are regionally active in both sustainable development and climate-adaptation, through the World Food Program (WFP), the Food and Agriculture Organization (FAO), the International Fund for Agricultural Development (IFAD) and the World Bank among others. In Europe however, the link between climate change, agriculture and migration seems to be underestimated or misunderstood.

Conclusion

Further cooperation among EU countries is fundamental to reach comprehensive migration partnerships with MENA governments, which balance interests on both sides, and to alleviate the impact of climate

change in vulnerable areas by allocating European funds to sustainable development and climate-adaptation projects in MENA. In the end, it is up to EU policymakers to create willingness for taking greater responsibility in these pending issues. Recognising that the migration challenge can only be managed through cooperation with third-countries is important. However, if the approach focuses almost exclusively on providing incentives for local governments to limit migration without effectively addressing the root cause of forecast climate migration, it is destined to fail long-term.

Maarten Elferink is Managing Director at Vosbor, an international commodity service and solutions provider dedicated to sustainability, specialising in the origination, trading and distribution of soft commodities and derivative products from Eastern Europe and the FSU.

Dr. Florian Schierhorn is a post-doctoral researcher at the Leibniz Institute of Agricultural Development in Transition Economies (IAMO) in Halle, Germany and was selected for participation in the Lindau Nobel Laureate Meeting on Economic Sciences in 2014. Dr. Schierhorn is mainly working on trade-environment interactions and on the yield effects of climate change.