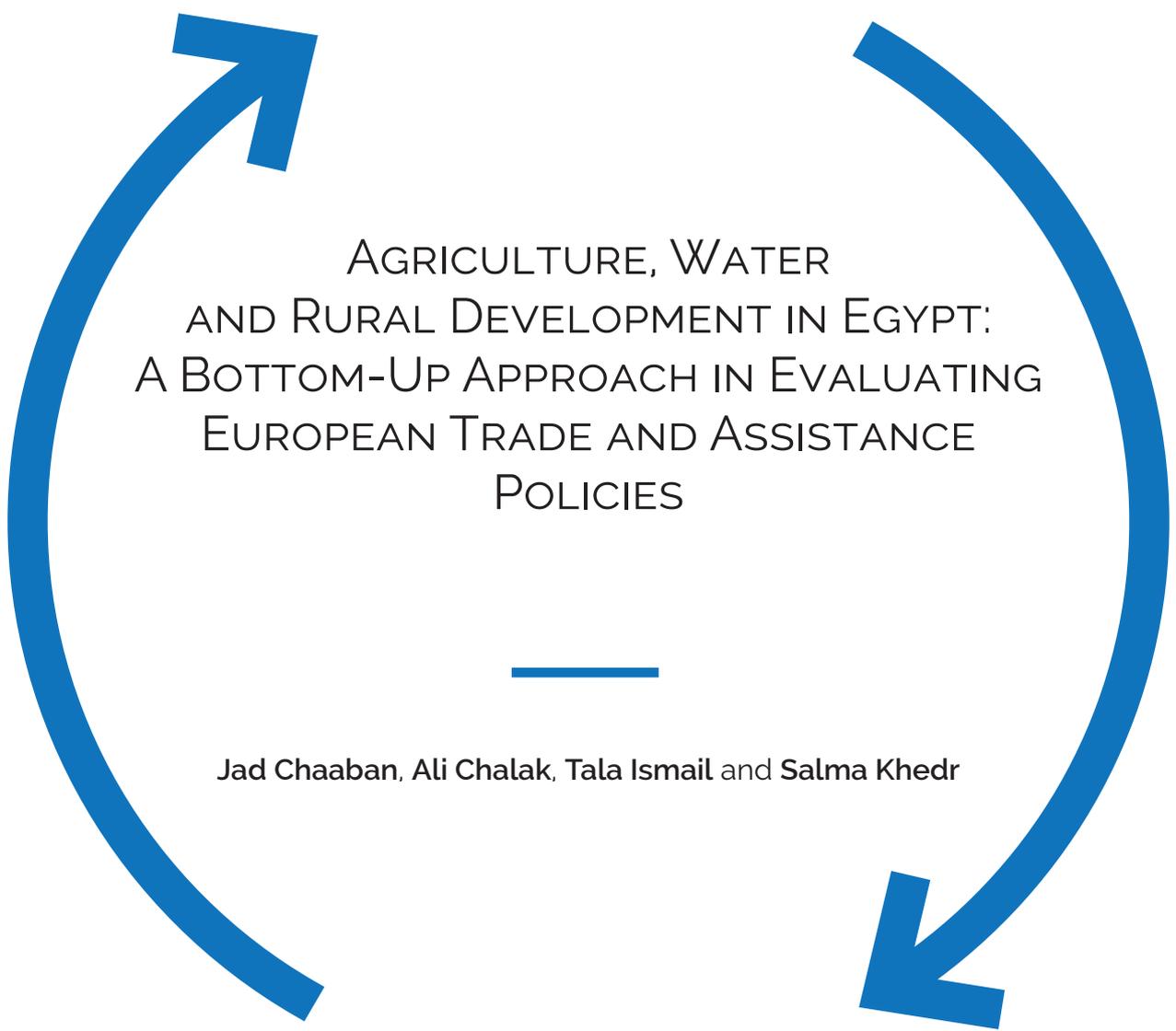




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A BOTTOM-UP APPROACH IN EVALUATING
EUROPEAN TRADE AND ASSISTANCE
POLICIES

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AGRICULTURE, WATER AND RURAL DEVELOPMENT IN EGYPT: A BOTTOM-UP APPROACH IN EVALUATING EUROPEAN TRADE AND ASSISTANCE POLICIES

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ABSTRACT

This paper is part of a series of MEDRESET working papers that investigate the effectiveness of EU policies in the southern and eastern Mediterranean countries from a bottom-up perspective. The focus of this paper will be on the agriculture and water sectors in Egypt. In particular, it will undertake: (i) a background overview of Egypt's water and agriculture sectors, (ii) an outline of main national and international policy and legislative issues; and (iii) a qualitative analysis of stakeholders' frames in the area of agriculture and water. The method used consists of a desk review of literature published by relevant stakeholders in the field of agriculture and water in Egypt, namely institutional and governmental actors, civil society organizations, and local branches of international organizations and NGOs.

INTRODUCTION

The MEDRESET project aims to evaluate the effectiveness of existing European Union (EU) trade and assistance policies from a bottom-up perspective in the fields of Water and Agriculture, Migration and Mobility, and Industry and Energy, proposing an improved version when deemed suitable. It strives to inspect existing EU policies in the Mediterranean area and determine how they align with the social, demographic, political and economic changes the region has witnessed in the past two decades. The overall resolve is to adjust the EU's policies in the region to become more flexible towards developing sectors. Although the Mediterranean encompasses countries from three different continents, MEDRESET focuses on the southern and eastern Mediterranean (SEM) countries that include North Africa and some of the countries in the Middle East. This approach was taken to ensure that EU policies, which are often modelled after the northern Mediterranean countries, are well suited for the southern countries as well. Accordingly, four countries were selected for the purpose of this project: Egypt, Lebanon, Tunisia and Morocco. Another defining feature of the project is its bottom-up approach in processing the input of all possible stakeholders. The opinions and expectations of local and grassroots actors of the respective countries will be given priority.

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This paper deals with the field of water and agriculture in Egypt. In particular, it will undertake: (i) a background overview of Egypt's profile in the water and agriculture sectors; (ii) an outline of main national and international policy and legislative issues; and (iii) a qualitative analysis of stakeholders' frames in the area of agriculture and water.

Since agriculture is the largest consumer of water, this paper will tackle both sectors as they go hand in hand in policy-making. Other indicators such as food security, international trade and rural development are affected as well by the performance of the agriculture sector. Thus, the aim of the project becomes more discernible as the EU is interested in moderating and sponsoring policies that will sustain the agriculture sector in the region, through commencing initiatives such as the Euro-Mediterranean Partnership (EMP), and related programme assistance such as the European Neighbourhood Instrument (ENI) and the European Neighbouring Programme for Agriculture and Rural Development (ENPARD).

In the SEM countries, a large percentage of the labour force is employed by the agriculture sector; however, similar to developing and developed countries, the agriculture sector has seen its share in GDP diminishing.

The bottom-up approach in this research is particularly suitable for the agriculture sector since, as mentioned above, agriculture strongly contributes to employment. Therefore, there are various stratifications in the actors that contribute to this sector. Consequently, to get accurate information, special attention has been given to the local actors in the field of agriculture and water in Egypt. This paper is interested in how these actors perceive national and European Union policies in the agriculture and water sectors, and the extent to which these policies provide equal opportunities to small-scale farmers to expand their network and increase the quality of their crops. Additionally, the project takes into consideration gender roles in the region, and how the hard nature of farm work may have contributed to limiting the likelihood of women's participation in this work. Moreover, since there is segmentation in the agricultural sector, there is no coherent categorization of the labour force; thus, moving up the scale of actors, we will find an array of small-scale to large-scale farmers with different property rights. This issue persists until we reach the level of large organizations and national ownership of land.

Within WP5, methods of collecting data from small and large actors included face-to-face interviews with key experts and stakeholders. In Egypt, however, multi-recursive interviews were not possible due to the inaccessibility of permission to collect such data; therefore, we had to rely on desk reviews. This paper will primarily review the content of various publications by relevant stakeholders that could help grasp the fluctuating circumstances of the agriculture and water sector in the past decades. In particular, agents that could possibly affect or be affected by EU policies in the agriculture and water sectors include governmental institutions, the private sector, non-governmental organizations (NGOs) and trade unions. International actors such as global NGOs and IOs were also included (see Annex 1 for an overview of relevant stakeholders).

1. BACKGROUND INFORMATION ON EGYPT'S PROFILE IN THE AGRICULTURE AND WATER SECTORS

The agriculture sector contributes significantly to the Egyptian economy since it represents roughly 11.5 per cent of the GDP.² Additionally, it employs around 25 per cent of the labour force³ and 37 per cent of women in the work place, which is equal to the employment contribution of the industrial and construction sectors combined. Thus, agriculture production in Egypt is heavily reliant on labour as opposed to machines – a characteristic that will not attract higher employment rates in this growing sector in the long run, but rather will create a market for non-agricultural products produced in rural communities where local and small businesses, referred to as micro and small enterprises (MSEs), are established. Furthermore, agriculture contributes indirectly to the GDP through providing inputs for the biggest two industries in Egypt, textiles and food. These two industries provide single-handedly 29 per cent of employment in the industrial sector (Kheir-El-Din and El-Laithy 2008: 3). Agriculture is mostly concentrated in the Nile Valley, Delta and Fayoum, along with the Nile's desert fringes – the Oldlands. This amounts to a mere 3 per cent of the country's surface area (Kruseman and Vullings 2007: 47). This said, rural poverty remains higher than its urban counterpart, and has increased considerably from the mid-nineties. According to Sabry (2010: 1), the poverty headcount ratio has increased from 23.3 to 28.9 per cent between 1995 and 2009, and has consistently been more than double the urban count since at least 2000.

In their study, Kheir El-Din and El-Laithy (2008) focused on the gender differences in the employment pattern of the agriculture field, and found that among the 83.2 per cent of employed rural females, 40.2 per cent were self-employed (by working in their own farm without employing others), 35.9 per cent worked without pay on their family's farm, only 2.5 per cent were engaged in actual agricultural paid work, and lastly 4.6 per cent owned their own farms while employing others. On the other hand, among the 43.3 per cent of rural males employed in agriculture, only 1.8 per cent were self-employed, while 10.5 per cent worked without pay on their family's farm, 11.1 per cent were engaged in agricultural paid work, and finally 19.9 per cent owned their own farms while employing others. In regard to non-agricultural activities, 16.8 per cent of employed rural females engaged in off-farm work compared to 56.7 per cent of males. Hence, in the rural population, females are more focused in agricultural work as opposed to males who are more concentrated in off-farm work (Kheir-El-Din and El-Laithy 2008: 13). In another study conducted by Roushdy and Assaad (2008), it is noted that the agriculture sector is the largest sector to provide working women with jobs; however, these women were found to have lower quality jobs. A potential reason would be the dependence of job quality for women on their marital status. If a woman is married, the likelihood of her getting a high-quality job is low, as opposed to males whose married status would only act as an advantage for them (Roushdy and Assaad 2008).

2 World Bank Data: *Agriculture, forestry, and fishing, value added (% of GDP)*, <https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=EG>.

3 World Bank Data: *Employment in agriculture (% of total employment) (modeled ILO estimate)*, <https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS?locations=EG>.

As mentioned earlier, the agriculture sector in Egypt is still characterized by small-scale farms that usually rely on traditional methods and do not comply with international standards, causing their products to be unfit based on the standards of international organizations such as the EU.⁴ Another problem is that farmers do not own physical capital, leading most farmers to rent tractors and pumps while other farmers may resort to more traditional methods of relying on labour-intensive activities to compensate for the work of heavy machineries, which can be both time and money consuming. This can be attributed to the lack of credit and formal loans; however, the Principal Bank for Development and Agricultural Credit (PBDAC) usually provides the sector with similar loans contingent upon owning the land. Conversely, having a tenancy contract does not qualify the farmer for a loan. This pressures small farmers to resort to informal loans through rich landowners who usually provide them with credit in exchange for part of their crops (Kheir-El-Din and El-Laithy 2008: 5).

Furthermore, it appears that growing non-traditional crops can yield more profit to the farmers on the micro-level and to the country's economy on the macro-level. This can be observed by comparing the areas planted with traditional crops (92 per cent) and areas planted with non-traditional crops (8 per cent), which produce 85 per cent and 15 per cent respectively of the region's net farm income (Kheir-El-Din and El-Laithy 2008: 7). However, non-traditional crops are usually fresh products that expire easily, thus requiring quick transportation to the market and distribution points. This gives rise to the problem of transportation between the production areas and the areas of consumption, and the problem of supply chain management where networks between producers and consumers are underdeveloped (Kheir-El-Din and El-Laithy 2008: 7). Another approach to increasing the growth and profitability of the agriculture sector focuses on which goods can be traded internationally (tradable), and which are only suitable for domestic trade (non-tradable). Tradable goods depend on international demand; therefore usually an increase in their production does not lead to a decrease in the price. Non-tradable goods, however, depend solely on the domestic market thus prices decrease when supply increases (Mellor and Ranade 2002).

Focusing more on the current water profile, the main source of irrigation in Egypt is the Nile River, where around 55.5 billion cubic metres of water supply is used annually. The agricultural land in Egypt amounts to about 3.3 million hectares (ha), of which 3 million ha exist in areas surrounding and including the Nile basin and delta, where water transportation and channelling systems are relatively easier. The other 80,000 ha depend on oasis and rain water. Cropping takes place in three seasons known as winter (November–May), summer (April/May–October) and Nili (July/August–October) (Siam 2003: 6).

Since agriculture and water supply are interrelated, water scarcity needs to be discussed and is of an urgent nature in Egypt's case. Egypt has seen a decline of 15 per cent in the availability of water due to the increasing demand met by unchanging water reserves in the last two decades. The agriculture sector is the greatest consumer of water in Egypt, utilizing 80 per cent in irrigation (FAO 2010). In fact, Egypt's two main crops, rice and sugarcane, consume the largest volume of irrigation water (Eid et al. 2007: 5).

4 "Egypt Aims to Double Its High-Quality Cotton Production and Export", in *Reuters*, 8 July 2017, <http://reuters/2sRyWtY>.

The most distinguishable feature of irrigation in Egypt is its free accessibility. The government does not charge a fee or require compensation for using water for irrigation purposes. In this regard, at this production stage irrigation costs incurred are minimal as only transportation expenses are required when irrigating in areas not in close proximity to water sources. This, however, has led farmers to flood the fields with water thereby wasting scarce water resources, thus bringing into question the policies adopted and implemented by the government, and more precisely the lack of restrictive policies with regard to irrigation practices (Kheir-El-Din and El-Laithy 2008: 23). Moreover, the government plans to expand the share of land used for agriculture, which will further intensify the strain on Egypt's water supply (Eid et al. 2007).

2. MAIN POLICY AND LEGISLATIVE ISSUES AND DEVELOPMENTS IN THE AREA OF AGRICULTURE AND WATER

2.1 NATIONAL LEVEL

Agricultural reform in Egypt is one of the oldest reforms carried out by the government of Egypt (GoE) since agriculture is the most productive sector and one of the original contributors to the country's welfare. Since the end of the 1980s, most of these reforms have focused on (i) the privatization of lands that used to belong to the public sector, (ii) opening the international market to the private sector and (iii) subsidized fertilizers (World Bank 2001: 10).

The majority of these policies have had one common goal: liberalizing the sector and gradually decreasing the control of the government. These policies can be traced in chronological order starting with one of the most effective policy reforms instigated as part of the Structural Adjustment Program (SAP), which was introduced to the agricultural sector in 1987 prior to the other economic sectors in Egypt. The SAP entailed a gradual cut of taxes and subsidies in the agriculture sector by the Ministry of Agriculture (MOA). On a macro level, the SAP focused on accelerating the supply policies' reaction to market forces, so that proper allocation of resources could be achieved. The SAP was continued until 1994, allowing farmers to decide on which crops and areas to cultivate. Since SAP policies reduced the government's control, subsidies on the input products were removed and the government settled for a more market-determined price. The government also granted the private sector more control over export processes and the right to have their own stations to prepare the products for export (Soliman et al. 2010: 5). The 1990s saw the continuation of some SAP objectives with more focus on the international economy and facilitation of trade between local markets and international ones. More initiatives were taken towards the expansion of cultivated lands, efficient usage of limited resources, and growth of productivity while keeping water dependence minimal (Siam 2003: 13–6).

Enforcing agricultural policies, such as SAP, had the potential to impact the overall level of rural poverty in two contrasting ways: (i) the increasing trade between rural and urban areas under the implications of SAP was intended to decrease the level of rural poverty⁵ – in fact,

⁵ However, El-Gaafarawi (1999: 187) reports: "A recent empirical study in two Delta villages revealed uneven access to resources, land and input production, in addition to the spread of poverty. The study admits that poverty is not new and can not be attributed to SAP alone; however, the strategy introduced does not address the problems of the majority of the poor. In fact it concentrates attention, and resources, upon peasants with more than 5 feddans of land

by reducing export taxes and liberalizing prices of cotton, rice and wheat, farmers would be given an incentive to sell their products in the international market; whereas (ii) plans to remove fertilizer subsidies would impose a loss on farmers, prompting them to use fertilizers more efficiently and vigilantly to ensure high quality produce that fits international standards. However, this would burden the farmers who have to bear the increase of costs incurred during the cultivation process (El-Ehwany and El-Laithy 2001: 21–2).

The 1990s witnessed another iconic regulation, Law 96 of 1992 which revoked Nasser's agrarian reform by (i) removing the permanency of tenants' land contracts; (ii) allowing landowners to sell the land once the tenancy contract has ended; and (iii) setting the rent value to the market price rate. Nevertheless, the law did not take effect directly; instead the government granted the tenants and the landowners a five-year grace period for adjustments to be made. During this period, contracts could be inherited among the tenant's family; however, rent was increased from seven times the land tax to twenty-two times. Moreover, the law granted the landowners the right to evict tenants, yet it compensated the tenants with forty times the land tax for every year left on the contract up to 1997. Once the law was inaugurated the landowners had two options, either take back their lands or continue renting them at a market-based price.

Law 96 was intended to create an agricultural land market and increase rural investment; however, upon coming into effect in 1997 there were unforeseeable consequences. Firstly, the tenants worked harder to increase the land productivity since the lease period is for one year in contrast to the guaranteed renewable three-year contract prior to 1992. Secondly, the agriculture sector's households experienced high rates of poverty, particularly among female-headed households. Thirdly, despite the initial goal of expanding the land-market, the exchange of lands post-1997 was among landowning families, adding no value to the land-market. Lastly, the phenomenon of land politicization materialized due to increased rural violence and high tension between tenants and landowners (Nassar and Mansour 2003, Bush 2007).

The 2000s witnessed a substantial investment in the following two domains: crop productivity and desert reclamation. Certain crops (corn, rice, cotton and beans) were given priority as the agriculture policies were designed to increase their productivity. These policies aimed at increasing the quality of such crops through genetic development and monitoring chemical pesticide usage. Moreover, the government strove to meet the ever-increasing demand for food by subsidizing bread by 75 per cent as of June 2009 and by securing food through the ration card system. Simultaneously, interest in desert reclamation and cultivation started. Research centres were created for the purpose of (i) expanding land, (ii) limiting the construction of buildings on arable lands, (iii) preventing land degradation and (iv) allocating land for reclamation, investment and cultivation (FAO 2010).

More recently in 2016, the liberalization of Egyptian currency, as ruled by the Central Bank, caused the country's economy to destabilize; nevertheless, the agriculture sector was one of the few sectors that have seen a positive impact. This decision helped Egyptian products in the international markets by causing them to have a relatively cheaper global price and thus giving them a competitive advantage. Egyptian agriculture exports have been reported to experience an increase in international demand, chiefly horticultural products such as

strawberries and grapes (E. Farouk 2017). On the other hand, by the end of 2016, the government imposed higher tariffs on imports such as bananas, avocados and pineapples. Such policy had a positive impact on demand in the domestic market and contributed to decreasing Egypt's deficit (Ghallab 2017).

This reform in the agriculture sector was paralleled by amendments applied to the water sector starting with the issuance of several protective policies in the field of water resources:

The law No 124/1983, states that only brackish and marine water, and infertile land that is not suitable for agriculture, can be used in aquaculture. Water supply should be restricted to water from lakes and drains, and the use of fresh (i.e. irrigation) water is prohibited, although hatcheries established by the government are exempted from this rule. By Decree, the Ministry of Agriculture may specify areas for fish farming. (Spreij 2004: 2)

Such a law was taken as a precaution against the usage of water suitable for irrigation and drinking in the business of fish farming. "Law No 48/1982 prohibits the discharge into the Nile River, irrigation canals, drains, lakes and groundwater without a licence issued by the Ministry of Water Resources and Irrigation. However, Law No 48/1982 is only applicable to inland waters" (Spreij 2004: 3).

This law heavily restricts the discharge of hazardous waste into the Nile River or any connected canal without a governmental permit in the form of a license. The government reserves the right to refuse issuing such permits if the waste does not meet applicable standards. The government also reserves the right to withdraw the license whenever the conditions put forward are breached. The license dictates how much discharge is allowed and once issued to an institution, that institution is responsible for giving accurate reports of the waste discharged and its treatment (Spreij 2004).

In 2009, additional water policies were issued by the MOA and the Ministry of Water Resources and Irrigation (MWRI). These policies focused on improving the methods of irrigation to avoid the misuse of water supply and to recycle the water used for certain crops for irrigation in others (FAO 2010). In the period between 1997 and 2017, several water-related policies were issued, the last of which dedicated the entire water supply for areas in need of irrigation and the remnants to be distributed to the remaining sectors in need. The policy was distressing as it opposed the established norm whereby water is allocated to irrigation only after it has satisfied the needs of other sectors. Synchronously, the country witnessed a shift in water usage to other sectors such as mining, industry and tourism where water is key in developing new spheres, thereby demonstrating the upsetting nature of this policy. Ultimately, the policy was deemed as a bureaucratic approach that focused more on paper values than on field values (El-Qausy et al. 2011: 135).

An additional problem that was not addressed until recently is the abuse of shallow groundwater through its continuous drainage, causing it to reach a stage of high risk involving seawater seeping into the remaining underground water. This called for new policies that restrict the usage of shallow underground water, particularly in the northern aquifers that suffer from extreme over-pumping. At the same time, drainage water was being polluted due to infiltration by domestic sewage waste at some locations, leading to policies restricting its usage as well.

These obstacles led to the inclusion of deep groundwater in irrigation in the 1997–2017 water policies. However, these policies exhausted the limited renewable and non-renewable water resources (El-Qausy et al. 2011: 135). Thus, desalination, an alternative method for irrigation, was considered. Despite the fact that desalination requires huge amounts of energy, it was found that renewable sources such as solar and wind energy could be used, keeping costs equal to the cost of transporting water from the Nile (El-Qausy et al. 2011: 136).

2.2 INTERNATIONAL LEVEL

Global agricultural trade is an essential system enabling countries around the world to compensate for their food deficiencies by importing unavailable goods while exporting excess or unique products to other countries. Such a system requires a certain set of regulations to govern the transactions and standards of the traded products. The majority of these regulations were decided upon during the Uruguay Round of multilateral trade negotiations in 1995, and later recorded in the Agreement on Agriculture (AoA). The regulations included three principal sections: market access, domestic support, and export subsidies and prohibitions. The signatory countries had an obligation to work according to these sections, with few differences between the requirements for developed countries and developing countries. Egypt, as one of the signatories to the AoA, has shaped its domestic and international policies accordingly (Tellioglu and Konandreas 2017: 17).

As such, Egypt has engaged in an array of trade agreements with states and international organizations alike. A prominent trade agreement that Egypt is a signatory and a party to is the Euro-Mediterranean Association Agreement (AA). The agreement entered into force in 2004, and formed a legal basis for bilateral cooperation between Member States in a variety of fields. One of the main pillars of the agreement is to facilitate trade between Egypt and the EU, with a focus on the trade of agricultural products. The agreement was then reinforced by the 2007 European Neighbourhood Policy EU–Egypt Action Plan that serves to further entrench EU and Egypt trade relations and cooperation in the political, economic and social fields. The Action Plan features the establishment of trade liberalization between the EU and Egypt, where Member States are able to import and export with as few tariffs as possible. As per the AA as well as the Action Plan, the EU also intends to provide the technical assistance necessary to aid Egypt in its production of goods, helping to define requisite criteria for a good to be considered suitable for export.

The Action Plan also outlines a set of goals that the Egyptian government should fulfil, under the guidance of the EU. Goals consist of the enhancement of political dialogue, economic and social development and reform, which includes promoting the rights and education of women, and the creation of jobs, by investing in the public and private sector to then generate sustainable development. Another goal is the implementation of agriculture policies and modernization of the methods of production for a better yield, and to adhere to the international sanitary and phytosanitary standards (European Commission and EEAS 2015).

The Action Plan was followed until it was replaced by the EU–Egypt Partnership Priorities adopted by the EU–Egypt Association Council in July 2017, which is intended to guide the partnership between 2017 and 2020. In a press release by the Council of the European Union (2017a), the partnership priorities are stated to comprise three main points:

(i) *Egypt's sustainable modern economy and social development*. The EU and Egypt will cooperate in advancing socio-economic goals set out in Egypt's "Sustainable Development Strategy - Vision 2030", with a view to building a stable and prosperous Egypt. It will include cooperation on economic modernisation and entrepreneurship, trade and investment, social development and social justice, energy security, the environment, and climate action. (ii) *Partnership in foreign policy*. The EU and Egypt will reinforce their cooperation at bilateral, regional and international levels, working together on stabilising their common neighbourhood and beyond, and cooperating on crisis management and humanitarian assistance. (iii) *Enhancing stability*. Stabilisation is a common challenge facing the EU and Egypt. Establishing a modern and democratic state that delivers benefits equitably to all people is essential for this. Egypt and the EU will work together to promote democracy, fundamental freedoms and human rights as constitutional rights of all citizens, in line with Egypt's constitution and international commitments. The EU and Egypt will also work together on security and terrorism, as well as on managing migratory flows for mutual benefit.

The partnership priorities make explicit mention of the creation of employment opportunities, with a focus on the empowerment of women and youth (Council of the EU 2017b: 2, 9). Also addressed is the need for establishment of a water management plan and development of policies for renewable forms of energy to combat climate change (Council of the EU 2017b: 4–5). However, the agricultural sector took a backseat in the partnership priorities, with the only mention of cooperation between the EU and Egypt being through the AA (Council of the EU 2017b: 1, 3, 9).

Egypt is also a signatory of two regional trade agreements, the Greater Arab Free Trade Area (GAFTA) and the Common Market for Eastern and Southern Africa (COMESA). GAFTA is the product of a declaration made by the Heads of Arab States at the Cairo Arab Summit in 1996, and was approved by the Arab League in 1997. Eighteen out of the twenty-two Arab States, including Egypt, signed the agreement, which aimed to reduce tariffs by 10 per cent on a yearly basis for 10 years, but was expedited to achieve zero per cent tariffs by 1 January 2005. The essential function of GAFTA is the liberalization of trade in goods between member states (Afifi 2005: 3–4). It features two major principles concerning liberalization of trade in agriculture goods: (i) the gradual reduction of custom duties and other taxes of similar effect to be fully liberalized after 10 years, and (ii) the implementation of a production season during which a number of agriculture goods shall not be subject to reductions (Afifi 2005: 5).

COMESA, for its part, is a regional trade agreement that also calls for the elimination of all tariffs between member states. It was established in 1994, and comprised 19 signatories from the African continent, such as Angola, Burundi, Kenya and Ethiopia, to name a few. The agreement also stipulates the reduction of tariffs on agriculture and animal products, mineral and non-mineral ores, and manufactured goods (Afifi 2005: 8).

However, according to Afifi (2005: 3), there is a gap in the plan for implementation and the actual implementation of both GAFTA and COMESA. Afifi argues that the non-implementation of GAFTA is primarily the result of tariff disputes as well as the lack of regulations on sanitary and phytosanitary measures as well as technical barriers to trade that have proven to be a source of tension between member states (Afifi 2005: 6–7). Similarly, implementation of COMESA has also encountered impediments due to the gradual reduction of and disputes

over tariffs, such that postponement of implementation is the product of member states' fears of losing revenue (Afifi 2005: 8–9).

3. A QUALITATIVE ANALYSIS OF STAKEHOLDERS' FRAMES IN THE AREA OF AGRICULTURE AND WATER BASED ON AVAILABLE LITERATURE

3.1 METHODOLOGY

In order to ensure a bottom-up approach, WP5 carried out a number of interview consultations with relevant stakeholders working in or affected by water and agriculture for each country case study. Unfortunately, as stated in the introduction, this paper failed to obtain fieldwork data from the stakeholders in Egypt due to problems in receiving official authorization to conduct interviews in the country. As such, this paper relies purely on desk reviews and content analyses of the documents published by the relevant stakeholders in the field of agriculture and water (approximately 35 documents). This material was used to infer challenges met by the various stakeholders, their contribution to the field, their view on existent national and international policies that relate to the agricultural and water sectors in Egypt, and if possible their take on the EU's policies in regard to the agriculture and water sectors. As shown above, the categories of the selected stakeholders include: (i) institutional and governmental actors; (ii) civil society organizations; and (iii) local branches of international organizations and NGOs.

3.2 FRAMING AGRICULTURE- AND WATER-RELATED POLICY CHALLENGES AND PRIORITIES

3.2.1 FOOD SECURITY

The Food and Agriculture Organization of the United Nations (FAO) defines food security as: "The realization of all citizens at all times of the physical, social, and economic capability to obtain the amount of food necessary for them to meet their human need for energy according to their nutrition preferences and to guarantee an active and healthy life" (El-Qausy et al. 2011: 137).

The food production in Egypt does not meet the domestic demand; as a result, Egypt is dependent on imported food. Egypt has an ever-growing population that is leading to a constant increase in demand for food accompanied by limited food production due to restricted water supply and arable lands. However, the problem is not only that of an increasing population and scarce resources, it also involves mismanagement by the GoE in the agriculture sector. This leads to an unsustainable agriculture and food security due to unimproved infrastructure, non-innovation in agricultural development and inefficient policies, such as food subsidies that do not respond to the sector's needs and lead to a bigger deficit (FAO 2010).

Agricultural policies in Egypt have two objectives; first, to increase the employment provided by the agriculture sector, and second, to provide food supply that meets the demands of the growing population. However, in the new strategy shaped by the GoE, the country's "Sustainable

Agricultural Development Strategy towards 2030", a different approach is put forward where the goal is to increase production of most consumed goods, such as wheat and maize, while keeping water used in irrigation to the minimum. However, according to a paper published by the International Centre for Trade and Sustainable Development (ICTSD) and the FAO, it is not clear how the government plans to achieve such a goal, given that the most consumed goods are coincidentally heavy consumers of water (Tellioglu and Konandrea 2017: ix). Moreover, an important goal set by this strategy is to increase production of wheat to meet 81 per cent of the domestic demand, which is reasonable given that the previous goal set for 2012–2017, to meet 74 per cent of domestic demand, was successfully achieved. Despite the impractical water policy, the aforementioned reflects the government's concern for the food insecurity of basic commodities and its continuous attempt to meet the increasing demand (Tellioglu and Konandrea 2017: 6).

The definition of food security adopted by the World Bank is "The possibility of providing every citizen at all times with the food sufficient to carry out his/her normal activities and to maintain good health" (El-Qausy et al. 2011: 137). The World Bank's approach towards defining food security signifies three factors that a government should take into consideration when building an agriculture and trade system that aims to secure people's needs. First, the government should design a system that supplies the market with enough products to satisfy the demand. Second, efficient policies should be established that help regulate the trade system into compensating for the demand that could not be met by local production. Third, this system should take into consideration the possibility of declining national production and the possibility of unstable prices in the global market. Generally, a country should be able to apply a combination of both domestic production and foreign trade treaties and policies that ensure the country's food security at all times (El-Qausy et al. 2011: 137).

Additionally, the World Bank stresses the need for administrative measures to regulate crop management, water management and land management, and design a plan that could protect the country from reaching a crisis due to climate change. In fact, climate change impacts the agriculture sector heavily, and its effects have already been seen during the past decade in Egypt. A study was conducted by the World Bank to show how vulnerable Egypt is to climate change during the 2000s (Eid et al. 2007). The results showed that Egypt will most likely be thrown into turmoil if the temperature continues to rise, since rising temperature leads to higher rate of water evaporation from the Nile river, Egypt's main source of water supply. Climate change is also increasing the rate at which the coastline is eroding, leading to the hindrance of agricultural development in the areas that border the sea. Therefore, several measures need to be taken by the GoE to prepare for the changes brought about by climate change. If no intervention measures are taken, the following figures could describe the expected loss by year 2050: 11 per cent decrease in national production of rice, 28 per cent decrease in soybean production, 19 per cent decrease in maize production and lastly, a decrease in cotton production by 17 per cent if the temperature increases by 2 °C and 31 per cent if it increases by 4 °C (Eid et al. 2007: 4).

Growing concerns regarding food security on the administrative level have motivated several large-scale agricultural projects, most notably the GoE's 2015 plan for desert reclamation and the 2017 Berket Ghalloum Fish Farm. Although both projects target the prospect of maximizing agricultural output to move towards greater food sovereignty, they have encountered scepticism and opposition on the part of scientists and other members of civil society (Khalil

2018). To tackle these concerns over food security, a number of alternative initiatives have surfaced from non-governmental actors. On a more social level of development, community awareness programmes have been set up in areas of Upper Egypt with prevalent malnutrition, through collaboration among the Italian Development Cooperation, the FAO and UN Food (Sarant 2017: S16). The initiative set up nutrition community kitchens for women in 15 villages to teach sustainable methods that maximized their monthly food budget. Opening the conversation on food and water scarcity with Egypt's most vulnerable populations is essential in view of the rising threats of climate change. Equally, a community-driven mentality through education and awareness is necessary to ensure that agricultural development across rural areas remains sustainable (Khalil 2018).

3.2.2 WATER-RELATED ISSUES

The lack of regulation on water management has led to the expansion of unsustainable practices in agriculture, with resource abuse figures reaching 2.9 billion m³ of water drainage contaminated with pesticides, fertilizers and organic waste (Bottoms 2014). On the non-state level, advocacy for the hard-lining resource management framework has gained ground. The Egyptian Center for Economic and Social Rights (ECESR) is active on that front, exposing numerous violations of regulatory laws that put into question the GoE's agenda which has allowed for the lapse of enforcement and consequent sacrificing of human and environmental wellbeing. For instance, the massive die-out of fish in the Nile's Rasheed branch in 2014 – an event that has recurred in the last years – demonstrates the latency of governmental policy and efforts against water contamination from human and agricultural waste (ECESR 2014). The issue of fracking, a method of rapid gas extraction by pumping chemicals into the ground, has also brought opposition to state policy after a 2011 deal between Shell and the GoE to introduce the procedure in Egypt (EIPR 2012). Risks of both groundwater contamination and water depletion are high; fracking one well consumes more water than an Egyptian citizen uses over about 40 years (EIPR 2012).

Furthermore, President Abdel Fattah al-Sisi's announced plan to reclaim 1.5 million feddan of the Western Desert into fertile agricultural terrain was met with direct criticism concerning water wastage. With the country's water supply per head currently at 660 m³, 340 m³ below the UN definition for water scarcity, the plan to extract massive amounts of groundwater to artificially irrigate the desert land is unsustainable, especially considering the non-renewable nature of groundwater. Secondly, as stated by Alvar Closas, a groundwater management researcher at the International Water Management Institute in Cairo, the project requires high towers to extract the water for a cooling process, an investment that can only be made by large commercial farms, thus disadvantaging small-scale farms (Sarant 2017: S15). Likewise, the recent Berket Ghalloum Fish Farm project that will run in conjunction with the Chinese aquaculture company Evergreen, faces resistance on the grounds of nonsustainability in terms of water consumption as well as marine biodiversity. The project is expected to pump water from the Mediterranean Sea balanced by an outflow of freshwater, which may disturb the chemical balance of the marine ecosystem while consuming large amounts of already scarce freshwater (Khalil 2018). In view of the concerns over mass-agricultural projects vis-à-vis resource security, a number of alternative initiatives have surfaced from non-governmental actors. The International Center for Agricultural Research in Dry Areas (ICARDA) has led efforts in reducing water overconsumption through mechanisms such as raised-bed farming, a technique that involves digging channels between rows of crops to maximize water distribution

and sunlight. The mechanized technology effectively saves on average 4 million cubic metres of water per year which is equivalent to "625 m³ of water per feddan per wheat season", as expressed by Atef Swelam, a water management scientist at ICARDA (Sarant 2017: S16). In parallel, international actors such as the World Bank and the French Development Agency have coordinated with the GoE to fund projects reducing water loss in agricultural processes. Established in 2013, the Farm-level Irrigation Modernization Project uses plastic pipes to replace irrigation canals. The system has successfully eliminated water loss and increased its distribution by 5 per cent, expecting to increase water efficiency to 75 per cent (Sarant 2017: S16).

One of MWRI's long-run projects, the National Water Resources Plan for Egypt 2017 (NWRP), was initiated in 2005 with a plan set for the interval up to 2017. The NWRP project drafted a policy plan to manage the socio-economic factors affecting both the quantity and quality of water in Egypt. It addresses the challenges of regulating water scarcity and also what perpetuates water scarcity. The water management plan pointed to population growth and contamination of the available water by the growing industrial development sector in Egypt, such that the growing population's consumption is affecting the quantity of water provided by the Nile river, and industrial development is adversely affecting the quality of the water and is a source of major pollution. As possible strategies for tackling these challenges, the plan pointed to the decentralization of water management as a measure to adequately distribute water. It also proposed the institutionalization of policies to improve both water management infrastructure and policies to prevent pollution and encourage private companies and farmers to produce agricultural products in a sustainable and environmentally friendly manner (MWRI 2005). With regard to gender issues, the NWRP seeks to pursue:

- Equal opportunities for men and women with regard to: (a) involvement in discussion and decision making on water use and resources issues; (b) dissemination of information and communication about water resources and water issues and financial consequences provided by institutions concerned; and (c) active participation in decision making bodies dealing with water resources and irrigation management;
- Equal benefits for men and women deriving from effective and efficient water resources management.

In a report prepared by the Ministry of Agriculture and Land Reclamation (MALR), globalization policies, land availability and water scarcity for irrigation were found to be major impediments to the agriculture sector in Egypt. It further specified five main challenges to agricultural development in Egypt: (i) the agricultural property is disrupted, which impedes the rational management of water resources; (ii) over-irrigation of the flooding, which consumes and wastes much water compared to modern irrigation methods such as drip and sprinkle axial; (iii) lack of periodic maintenance to clean the small canals, which weakens the efficiency of irrigation and prevents the access of sufficient amount of water to the end of the watercourse; (iv) surface water contamination due to the absence of a network of irrigation water banks; (v) the difficulty of developing a system for the management and distribution of irrigation water as a result of construction on agricultural land and water use in non-agricultural activities. (MALR and UPEHC 2012: 2, 2013)

The report also found that smaller agricultural holdings do not employ efficient modes of production, and often overuse pesticides, fertilizers, soil improvement materials and irrigation services, and this then affects water quality by polluting the water which also causes a decrease

in crop yield. This, however, contrasts with farmers' perceptions and practices, where their lack of access to additives negatively affects their crop yield.

Furthermore, in the water sector, the government could issue more effective policies and prioritize technological advancement. By adopting more water conservation techniques and increasing the efficiency of irrigation, the necessity of importation may decrease since more water would be available for cultivating land. The approach here relies on developing the infrastructure while increasing research and providing more rigorous training to farmers. Overall, it is an approach that aims to increase the productivity of the agricultural sector through technology and more scientific research (Tellioglu and Konandreas 2017).

According to a publication by ICARDA, structural policies working on existing reforms and projects do not apply to the infrastructure in the water sector which requires (i) renewal, (ii) improvement of irrigation techniques and (iii) implementation of additional projects in the Upper Nile to compensate for the loss of Nile water due to seepage and climate-induced evaporation. Desalination should be considered as a more suitable option as it could satisfy current domestic and industrial demand. Such policies settle for the intermediate solution – a solution that can be improved by changing the structure of the system itself. On the other hand, non-structural policies are usually characterized by interventions imposed on the system as a whole. In Egypt's case, a non-structural policy in the agriculture sector would be focusing more on high value economic goods that do not consume water heavily and at the same time can compete with an advantage in the global market. These goods would reap enough benefit to cover the cost of importing traditional crops that consume water heavily but are much needed for domestic consumption (El-Qausy et al. 2011: 146).

3.2.3 WOMEN IN THE AGRICULTURAL WORKFORCE

Women provide a substantial portion of the agricultural workforce in Egypt, with a 16 per cent higher proportion of employment among women (37.54 per cent among women) than men (21.71 per cent among men) reported in 2017.⁶ Despite their central role in the industry, women face a combination of social and structural discrimination associated with lack of access to opportunities such as land and knowledge transfer, thereby repressing the productivity of the workforce. Several studies conducted by the Association of Agricultural Research Institutions in the Near East and North Africa (AAIRENA) in 2012 demonstrate the social dynamic of these discriminations rooted in the perception of agricultural work as a male-type job (Augustin et al. 2012). Illiteracy is widespread among female agricultural workers, particularly among women involved in unpaid labour on family farms – the largest category of women in agriculture in Egypt. A case study performed in the Masharga village in Upper Egypt revealed several evident injustices faced by female heads of farms, including the lack of access to agricultural cooperatives and demands to pay higher prices for necessities such as fertilizer (Augustin et al. 2012: 77).

Although counter-discrimination efforts within civil society are lacking, several local organizations are participating in community incentives to empower female farmers. In

6 World Bank Data: *Employment in agriculture, female (% of female employment) (modeled ILO estimate)*, <https://data.worldbank.org/indicator/SL.AGR.EMPL.FE.ZS?locations=EG>.

2014, the NGO Nawaya established "Baladini", a community kitchen run by women farmers that provides a favourable environment to create and market their own brands of fresh and traditional foods domestically (Pozzi and El-Sayed 2017). Community-level projects have also emerged though international efforts under the "Pro-poor Horticulture Value Chains in Upper Egypt" campaign, a joint project between the UN Development Program (UNDP), UN Women, the UN Industrial Development Organization and the International Labour Organization, in coordination with the Egyptian Ministry of Investment and Ministry of Industry and Trade. The project established three women-led farming cooperatives over the year it was launched in 2013, aimed at supporting and stimulating small-scale farming through income-generating strategies. The presence of targeted community projects provides essential empowerment at the grassroots level, yet further efforts towards a coordinated approach among governmental and non-governmental actors is necessary to ensure more cohesive development (UNDP, UN Women and UNFPA 2013).

On the institutional level, several efforts have been conducted by the state to establish governmental agencies dedicated to women's empowerment in the agricultural sector. The Policy and Coordination Unit for Women in Agriculture (PUCWA) was established in 1992 following the International Conference on Population Development, with the central tasks of collecting needs assessments for female farmers, and providing knowledge transfer and targeted training. As voiced by the PUCWA director Dr. Kamla Mansour, however, the lack of centralization and coordination among its departments, combined with inadequate representation of the PUCWA in the national conference committee constrains its ability to attain its mandate successfully (Augustin et al. 2012: 82–3). In addition to the presence of systemic inefficiencies, several inequalities exist within development approaches conducted by government agencies, specifically under the Central Administration for Agricultural Extension and Rural Development. Although the programme transfers necessary agricultural expertise, directors of the general and animal extension programmes stated that messages are targeted solely to male farmers, with female farmers generally regarded as "assistants" (Augustin et al. 2012: 80). The institutionalization of male-chauvinistic attitudes, combined with systemic weaknesses, has ultimately prevented the state from adopting a coordinated approach that targets grassroots development for the empowerment of women in the agricultural industry.

3.2.4 SMALL AND MEDIUM FARMERS

The majority of Egyptian farmers manage smallholdings, yet the agricultural market is dominated by large-scale farms that export regionally and internationally. Due to the competitiveness of the horticultural market, traders seek to establish contracts with large farms to secure mass-production and distribution rather than networking between small farms. This situation creates a cycle of marginalization whereby farmers struggle to access trade networks and thus valuable information on policies, production and marketing techniques, ultimately confining them to the bottom end of the production chain (MALR and UPEHC 2012). This issue of mass-privatization was directly manifested in 2011, when the GoE approved the allocation of one hundred feddans in Toshka to the agricultural company alZahera for 50 Egyptian Liras per feddan, in violation of constitutional law (ECESR 2011). The event produced a legal battle between parties, companies and state bodies, demonstrating the conflict of interest that exists within the agricultural industry. Non-state actors such as ECESR strongly advocated for the rights and representation of small-scale farmers in this national debate (ECESR 2011).

Furthermore, in a 2014 study conducted by the Issam Fares Institute (IFI) for Policy Studies and International Relations, interviews were conducted with farmers, the direct stakeholders of the agriculture sector, through a fixed questionnaire in three areas throughout Egypt, all three of which function under different agriculture production systems. The purpose of the study was to assess the impact of climate change and population growth on the water scarcity, agriculture output and food security. The questionnaire focused on water resources and shortages, climate, crop and farm conditions, food security and population dynamics at the village level, and proposed solutions to farmer challenges (IFI 2014: 10).

In terms of food security, the study showed that farmers in the three villages all shared the same sentiment on the rising prices in the country. Though the livelihoods of each village depended on agriculture, the yield and livestock that they produced often did not cover the entire village, and farmers often resort to buying food. Also, the rising prices affected their access to fertilizer and other additives to yield better crops, causing a decline in both the quantity of crops as well as the quality. The study also showed that the government did provide fertilizer, wheat and rice subsidies, but that these subsidies were inadequate. This in turn threatens the food security of the farmers, such that the rise in the price as well as the scarcity of water induces deterioration and decline in both the crops and livestock produced. Moreover, there was a consensus among farmers that access to water was the greatest impediment to their agriculture practices (IFI 2014). The study concluded that farmers in Egypt perceived water scarcity as well as the unregulated water supply to be the central cause for a significant decline in their yield. It was also reported that although population growth was not rising at an alarming rate, as per the norm of Egypt, the increase in population over time would still result in a strain on water scarcity and food security (IFI 2014: 40).

Additionally, farmers highlighted their marketing difficulties, primarily due to the rural distance from urbanized and or more populous areas, and are often faced with merchants who give buyers better prices (IFI 2014). Indeed, the need for greater marketing knowledge among farmers at the lower end of the supply chain is another factor that demands attention. Most local farmers still use the traditional market system or "*kerala*", whereby crops are sold in the field per feddan and thus handled, harvested and transported by the buyer (Ghanem 2014: 13). Small-scale farmers do not partake in agribusiness at a national or regional level due to the lack of contractual relationships with exporters and thus quality standards. Many local producers struggle to find outlets for their goods when competing with large-scale farms that saturate the market, specifically among grape farmers. This issue came to the attention of the Knowledge Economy Foundation (KEF) which in response created Bashaier, an online platform that provides farmers with information concerning retailers, factories, exporters and small farmers.⁷ The application enhances communication and networking while providing access to research centres and experts, all of which is easily accessible to farmers regardless of their geographical isolation.

According to the IFI study, with regard to climate change, farmers in the three villages did not report any tangible effects and were not familiar with the scientific background of climate change, and only mentioned that the weather was slightly hotter each year, and they simply had to change their cropping schedules. It was evident that the farmers all perceived the

7 See Fiani (2015) and Bashaier official website: <http://www.kef.com.eg>.

scarcity of water to be a direct result of the mismanagement of water by the government and local authorities. In order to reduce their water consumption, farmers have chosen to grow crops that are not water intensive, such as corn and maize. As a solution to water scarcity, farmers have suggested the establishment of water reservoirs to use during times of water shortage. Farmers also stated that one reason for the increase in water scarcity is the presence of big agricultural production companies, and responded with the solution of cultivating smaller agricultural areas. However, several farmers stated that they would drill for wells or ask the government to drill for wells, if they did not have the means. The study inferred that much like their unfamiliarity with climate change, farmers were unaware of the fact that the water from wells could be depleted. Under such conditions, farmers are reported to opt for drilling wells, which is also a major financial burden. It was reported that the "lump sum" effect of water scarcity and climate change on farmers was that they incurred and will incur continuous costs, which then threatens their food security (IFI 2014).

The report by IFI (2014) indicated that even though the government provides subsidized inputs such as seeds, chemical, fertilizers, soil improvement material and irrigation services, nonetheless this support is not utilized by small farmers, such that they resort to buying unprocessed production inputs that increase their production costs. Farmers reported that they do not buy the government-subsidized additives because their quality is not adequate. In addition, the MALR report stated that the GoE's current strategy towards achieving both food security and sustainable job creation in the rural sector is to encourage farmers to adopt advanced agricultural methods on the one hand, and to open export markets on the other (MALR and UPEHC 2012, 2013).

Furthermore, the MALR has responded to the marginalization of small-scale farms through integrative programmes like the Social Fund for Development which was established in partnership with the UNDP in 1991. According to the FAO (2010), within the Fund the provision of grants and advisory consultations to MSEs has helped boost local smallholders' access to regional markets when competing with oligopolies. Financial support for sustainable regional agribusiness has also been provided in accordance with the Principal Bank for Development and Agricultural Credit (PBDAC), which issues crop loans to farmers struggling with transportation costs. According to a 2016 UNESCO report, the GoE's distribution of credit to smallholders, alongside its support for marketing strategies and cooperatives, is part of a wider holistic approach for agricultural development (Robinson-Pant 2016: 67). Based on its ethnographic-style research targeting young farmers, however, respondents highlighted the need for greater public finance and knowledge for the establishment of new agribusinesses like fish farms (Robinson-Pant 2016: 75). Consequently, the need for a greater dissemination of knowledge and skills in rural communities is reflected more broadly in figures for crop waste resulting from a lack of technical expertise. It is estimated that the rate of waste for horticultural crops produced by smallholders reaches 30 per cent due to inefficient cultivation techniques (MALR and UPEHC 2012, 2013). Moreover, limited access to valuable information on market prices and quality standards means most smallholders only gain 10 to 35 per cent of the revenue from crop sales (MALR and UPEHC 2012, 2013).

In the public sector, efforts have been also made to establish knowledge and training networks with small-scale farms through Regional Research and Extension Councils across nine agreed agricultural regions in the country (GFRAS 2014). As assessed through a report produced by USAID's project Modernizing Extension and Advisory Services (MEAS) in 2011, however, farmers

agreed that state extension services were of least benefit among all information providers (Christiansen et al. 2011). Regardless of assistance from international donors such as USAID, public extension services lack a coherent strategy and adequate training for personnel, and thus require reinvigoration on various levels, as reiterated by the MEAS report. Moreover, according to a UNESCO study on knowledge and education in agriculture, it is observed that there is growing discord between the GoE's agenda on strategies and their implementation on the ground (Robinson-Pant 2016).

The national strategy on disseminating agricultural knowledge requires greater community-level incentives that target more sustainable development. The next step in sustainable knowledge economics is a national plan on agricultural education that works towards standardizing farming. In 2010, the GoE began efforts on this level through the establishment of 133 agricultural schools across urban and rural areas that provide both theoretical and practical teaching (Robinson-Pant 2016: 68). However, according to the UNESCO study, although the educational programme has provided much-needed technical knowledge and employment in the sector, yet it is not easily accessible to all farming communities, most of which are spread across rural areas (Robinson-Pant 2016: 118). Civil organizations have been increasingly active on that front, reaching out to more isolated communities to provide knowledge-based development. Nawayya, a locally based NGO, works towards "transitioning small-scale farmer livelihoods towards sustainability by developing their food production skills across the value chain". Smallholders have benefited from Nawayya's training programmes and exchange forums to develop soft skills in management, farming techniques and entrepreneurship. From an international leverage, the EU has funded several projects on the ground since its consolidation of trade and development relations with the GoE in 2007. The Support to Agricultural SMEs project in particular has provided support for small-scale farming development, through finance and technical assistance schemes designed to improve their productivity in the agricultural sector. The project's large funding base in accordance with the French Development Agency amounts to 52 million euro (EEAS 2018e).

Sustainable development strategies to counter the marginalization of small farmers have been approached by a number of state and non-state actors. For the Egyptian agricultural economy to continue developing, however, a grand strategy is needed to integrate smallholders into the global supply chain. The Union of Producers and Exporters of Horticultural Crops (UPEHC) has incentivized the large-scale redevelopment of Egyptian agribusiness from a bottom-up approach. Current steps are being taken to enlarge the international export market on crops such as oranges, grapes and potatoes in accordance with the Good Agricultural Practices policies. The Union is working on creating global and regional export links, while establishing agricultural research centres that recruit experts from institutions such as the FAO and the EU. UPEHC equally recognizes the significance of smallholders in agricultural production, and provides technical guidance and access to modern machines training in its integrated mechanization units in Fayoum and Minya. Highlighted on the Union's agenda is an annual plan in accordance with the Ministry of Agriculture to compartmentalize and unify the production of crops across governorates, to increase the efficiency of output that will help elevate the nation's economy.

Efforts towards sustainable agricultural development on the ground bring attention to the issue of labour rights for farmers, particularly in the area of healthcare. A gap in accessible healthcare services is felt particularly in rural and agriculture-based areas, with an estimated Ministry of

Health allocation of nurses and physicians of only 1 in 10,000 people, as shown in a report published by the FAO (Aboulnaga et al. 2017: 51). On the subject of health insurance, criticisms have been levied by non-state actors such as the Egyptian Initiative for Personal Rights concerning policy implementation. Although legal reform to expand the outreach of the General Agency for Health Insurance was passed in 2014, scepticism exists over its implementation due to the lack of clear enforcement mechanisms and limited funding in view of its vast demands (EIPR 2014). The separation of funding organs and service providers, and the geographical decentralization of insurance policy under the comprehensive health insurance law further fragments the system, which reaches only 8 percent of its insured recipients (EIPR 2014).

As mentioned in this paper, the agriculture and water sectors in Egypt face many challenges. According to a paper published by the ICTSD and the FAO, adopting the right strategy is essential in order to tackle the challenges at hand (Tellioglu and Konandreas 2017). For instance, changing the type of crop cultivated addresses the problem of expanding cultivated land in light of water scarcity. In fact, by choosing a crop that has higher economic value and that does not necessitate a heavy consumption of water, the government can increase exports. Another example would be table grapes whose farmers complain about lack of access to international markets thus relying on exporters in order to sell their products. These exporters add a markup of approximately 40 per cent to the initial farm value, leading to a loss in the competitive price advantage the country has been aiming for. Such a problem could be solved by providing the farmers with proper access to the international market (Tellioglu and Konandreas 2017: 30).

3.3 EVALUATING THE EFFECTIVENESS AND POTENTIAL OF EU AGRICULTURE- AND WATER-RELATED TRADE AND ASSISTANCE POLICIES

The EU is both an important recipient of Egyptian products (8,116 million euro), and an important exporter to Egypt (19,866 million euro). In fact, total trade between Egypt and the EU has increased from 11,800 million euro in 2004 to 27,900 million euro in 2017, demonstrating why the Egypt–European Union Partnership agreement was a principal factor in enhancing Egypt's experience with global trade (European Commission 2018).⁸

Trade liberalization between Egypt and the EU since 2010 has helped Egypt elevate its supply chain to global standards, yet the mass-privatization of the agricultural industry has produced negative impacts on the ground locally. In a joint statement by civil society groups from the South Eastern Mediterranean region, the trade-oriented interventions of the European Bank for Reconstruction and Development were critiqued for reducing the policy space for development initiatives (ANND et al. 2013). The concerns raised centre on the need for more perspective on national rather than trade priorities, the responsibility for promoting job-generating growth on the lower end of the supply chain, and the mainstreaming of environmental sustainability through its policies (ANND et al. 2013). Parallel claims were made on occasion of the 9th Ministerial Conference of the WTO by the Arab NGO Network for Development in 2013, stressing the need to protect small farmers who are vulnerable to the domination of multi-national corporations by raised tariffs and subsidies. Overall, greater inclusion of civil society actors in the discussion and legislation of policies is necessary to broaden the scope of development through a bottom-up perspective (ANND et al. 2013).

8 See also the European Commission DG Trade website: *Egypt – Trade*, <https://europa.eu/!RQ63py>.

In fact, Egypt has had numerous clashes with the EU regarding agricultural goods due to unmatched standards. Egypt's most persistent problem remains meeting the world standards for food quality and safety. Food safety and sanitary and phytosanitary contingency measures pose more problems to Egypt than direct price-related policies. According to these measures, Egypt has to meet certain standards to be allowed to compete in the global market. Not complying with such standards can pose barriers to exportation for developing countries. This was the case when Egypt was banned from exporting fruits and vegetables to the European Union (Torayeh 2013). Despite the fact that since 1996 the GoE has applied intensive measures and regulations to ensure that vegetables such as potatoes are up to international standards, the European Commission applied restrictions on importing potatoes from Egypt due to the spread of *Pseudomonas Solanacearum*, causing potatoes to form brown rot. In 2008, the issue had worsened, leading the Commission to completely ban importing potatoes from Egypt due to complete contamination with *Pseudomonas Solanacearum*. However, in 2009 the EU removed the ban and once again allowed potatoes to be imported from Egypt. Egypt, on its side, took measures to ensure that this would not be repeated by prohibiting the areas where the contaminated potatoes had been grown from exporting potatoes again, through withdrawal of export permits, and through banning the companies involved from exporting their goods for three consecutive seasons. Another case of sanitary and phytosanitary non-compliance was in 1999 when the Commission suspended imports of peanuts from Egypt due to the detection of aflatoxins higher than the allowed standard. As a result, the GoE has put high priority on keeping aflatoxins in peanuts within the required limit since Egypt exported around 68 per cent of its peanut production to European countries prior to the incident (FAO 2010).

Another EU-related policy issue was banning methyl bromide (MB) treatment on cotton in 2010. This policy had a profound impact on Egypt where imported cotton has to be treated with MB under vacuum fumigation at the port of the exporting country before arrival in Egypt (Ministerial Decree 2007/2002). This is no longer allowed in the EU countries, forcing Egypt to stop importing cotton from the EU (FAO 2010). Accordingly, the GoE has taken measures to stimulate the stagnant economy by doubling the production of cotton to increase the quantity exported. However, Egyptian economists have expressed their fears that such an increase in cotton production will not be accompanied by sufficient marketing campaigns. Essentially, there is national support for the new policy as long as it is supported through a marketing strategy that would be able to compete in and target the convenient international market segment (M. Farouk 2017). Fortunately, the GoE is already taking steps towards preparing the global market for Egyptian cotton through cooperating with the EU in launching an initiative to promote Egyptian cotton in various world countries (M. Farouk 2017). Meanwhile, vis-à-vis the supply chain, Egyptian exporters have demanded more reforms from the government to maintain Egypt's competitive price advantage in the international market since the devaluation of the Egyptian currency. To further employ Egypt's competitive price advantage, the GoE has been trying to improve the accessibility of Egyptian products to international markets by urging international institutions to remove the ban imposed on some Egyptian products due to the overuse of pesticides (E. Farouk 2017).

Horticultural products are Egypt's hidden potential in invading the global market, particularly the EU market which it continuously imports fresh supplies of horticultural products. The main exporters of winter horticultural products to the EU are South Africa, Chile, Kenya and Zimbabwe. However, the EU would still need a stable source that can supply horticultural products all year round. Therefore, Egypt has a great opportunity to become a main exporter of

horticultural products to both the EU market and the Gulf market. Egypt's climate is not subject to dramatic seasonal fluctuations, giving it an advantage in cultivating horticultural products all year round at competitive prices, leading to the creation of job opportunities (World Bank 2001: 37). However, in a more recent study by ICTSD and FAO, the production of grapes by the Egyptian agriculture system is said to face constraints in the EU market due to the market price. It was found that grapes mature at the end of June, and accordingly are exported to EU countries from the end of June to mid-July, where they cannot compete with low prices in the EU market. As such, the GoE is trying to replace these grape varieties with ones that mature earlier to achieve a competitive advantage in the market (Tellioglu and Konandreas 2017: 30).

In light of recent problems arising in Egypt due to the establishment of the Grand Ethiopian Renaissance Dam (GERD)⁹ in the headwaters of the Nile, the Ministry of Water Resources and Irrigation (MWRI) has stated, after meeting with the EU's foreign policy chief, that in regard to the Cooperative Framework Agreement, the EU's acceptance of the technical programme to manage the region's water sources opposes its adopted policies that ensure compliance with international law and regional stability in other regions. The minister warned that further implementation of the programme under the umbrella of the Nile Basin Initiative would only serve to escalate the situation.¹⁰ Moreover, to tackle water scarcity and quality in Egypt, the EU has funded numerous projects such as the EU Joint Rural Development Project, the Improved Water and Wastewater Programme and a technical assistance project to the Holding Company for Water and Wastewater (HCW/W) for technical studies and strategy development (EEAS 2016, 2018b, 2018a). The EU also recently invested in preparation of the National Water Resource Plan for Egypt 2017–2037 that builds on the NWRP (EEAS 2018d). In terms of both the assessment and evaluation of EU projects and initiatives in Egypt, there proved to be a lack of information. Ministries, such as the MWRI, have seemingly failed to conduct studies or progress reports on the above projects. As such, there is a need for the administration of project assessment and impact reporting by the corresponding ministries in the GoE.

On another note, while state policies towards women in agriculture are in need of realignment, bilateral development initiatives between international organizations and the GoE have increased in the past decade. The EU in particular has recently consolidated its relationship with the GoE through its "Sustainable Development Strategy – Vision 2030". A significant 40 per cent of the budget is allocated towards social development and protection, with an emphasis on women and youth (Council of the EU 2017b). The 2015 EU-funded project "Improving livelihoods of urban and rural women dependant on informal sector in Egypt" targets empowerment activities in 30 communities (EEAS 2018c). Although projects aim to create empowerment hubs among women, there is limited emphasis on their role in the agricultural sector, which remains an overwhelmingly patriarchal industry. Moreover, the lack of publicized feedback for EU-funded projects such as the above calls for greater monitoring mechanisms on the ground to measure the outcomes and developments of such initiatives. More broadly speaking, gender has not materialized as a policy on the EU–Egypt development agenda, but has been placed as an overarching theme due to the focus on economy and security (Abdel-Latif 2010).

9 The dam, which is intended to be the largest hydroelectric power plant in Africa, will produce 6,000 megawatts of electricity. It is said that it will hinder growth of the agricultural sector in Egypt due to the disrupted flow of the Nile (Dahir 2018).

10 "Egypt's FM Meets EU Foreign Policy Chief for Talks on Qatar Crisis, Nile-water and Libya", in *Ahram Online*, 25 July 2017, <http://english.ahram.org.eg/News/274185.aspx>.

CONCLUSION: POLICY IMPLICATIONS FOR EURO-MEDITERRANEAN COOPERATION IN THE FIELD OF AGRICULTURE AND WATER

The policy implications for Euro-Mediterranean cooperation in the field of agriculture are as follows:

- Continuous complaints were brought to light in a study conducted by the ICTSD and the FAO, regarding the infrastructure in the agriculture sector and the availability of only old machinery for cultivation and harvesting, while at the same time small farmers are unable to afford more advanced machinery (Tellioglu and Konandreas 2017). The EU should put in place policies that set a standard for the cultivation process, which could lead the GoE to provide small farms and MSEs with more advanced technology (Belloumi and Matoussi 2008).
- Access to the international market faces many constraints placed either by the exporting country or by the market itself. In theory Egypt could provide the EU market with desired goods such as horticultural products; however, farmers have no access to the international market due to lack of information, as shown in studies conducted by the Knowledge Economy Foundation (KEF) and AAIRENA (Augustin et al. 2012). In this regard, the platform Bashaier created by KEF enables the integration of small farmers into the global supply chain, thereby tackling the problem of an incomplete supply chain. Therefore, the EU may set up a reformed system in the Mediterranean countries that allows easier access to information about the international market for small-scale farmers, such as lists of existing buyers, as well as requisite criteria for a good to be eligible for export to the EU market.
- Egypt's exports have been banned several times from entering the international market since the products did not meet international standards due to the overuse of chemicals. Quality standard-related policies should continue to be imposed to push the GoE to raise the quality of its crops through research and through providing free training to farmers to avoid such practices.
- Food security has been a main issue in Egypt due to the scarcity of water and cultivated land. Egypt has been trying to overcome such hindrances by focusing on cultivating goods that have a higher economic value in the international market to increase its exports and consequently income, as mentioned in studies conducted by FAO and ICARDA (El-Qausy 2011). The EU could apply a system that allows various countries to directly market their high-value products in other countries.
- The Land Center for Human Rights (LCHR) demands that the Egyptian authorities: (i) consider and respond to farmers' needs in order to ensure all basic needs of the Egyptian population are met in the future; (ii) halt the excessive ravaging of Egypt's resources; and (iii) protect the Egyptian people from hunger and poverty (LCHR 2013).
- Integrating Egypt into the world market in terms of agro-export has been the dominant goal for the past decade. Accordingly, the EU has been encouraged to increase its capacity for Egyptian horticulture produce and to accommodate easier trade channels between the EU

market and Egypt's agricultural exports. However, there has been a parallel need for local grain production to satisfy the ever-increasing local demand that threatens the food security of the country and is leading to increased poverty and rural decay (Bush 2007). Therefore, the EU should apply policies to sustain the local supply of agricultural produce in parallel to the production of crops for export.

- While women's empowerment remains a core principle of the EU, the absence of targeted policies and strategies for equality brings some uncertainty for prospects of women's empowerment, particularly at the community level in the agricultural sector.
- For Egypt's agricultural sector to integrate itself globally while maintaining a sustainable base locally, all actors involved in agricultural development – including the state, civil society and organizations – must act cooperatively and through a unified purpose.

The policy implications for Euro-Mediterranean cooperation in the field of water are as follows:

- The water sector in Egypt relies mainly on the Nile River for various uses, but mainly for irrigation. There are many contributors to the pollution of the Nile River but drainage water from irrigation that is heavily loaded with chemical and fertilizers is one of the main sources. By allowing only a certain quantity to be used in cultivating certain crops in order to achieve the international standard for exported goods, the EU has already helped in decreasing the amount of chemicals used on crops and as such should maintain restrictions on the use of fertilizers and chemicals to limit the pollution of the Nile River.
- This paper discussed the issue of irrigation water and how it is the number one contributor to wasted water resources. Beside the governmental regulations that should be applied to restrain the misuse of the Nile's water in agricultural practice, the EU can provide other services in parallel to further enhance the governmental policies, such as (i) funding water projects that install water canals for irrigation purposes that are heavily lined to decrease the amount of water loss during irrigation and (ii) running water-use education programmes in rural communities to spread the culture of sustainable water usage in irrigation (Nassar and Mansour 2003: 155).
- The EU's stance on the Nile issue between Egypt and Ethiopia due to the GERD is questionable. On one hand, the EU supports and enforces the international law under which Egypt has a certain share in the Nile's water. On the other hand, the EU has declared its support for the technical project GERD and accepted its role in managing water distribution in the region. Therefore, there has been a call by the MWRI for the EU to revise its approval of the project and to create a communication platform to facilitate negotiations between Egypt and the other Nile basin countries such as Ethiopia, to maintain stability in the region.
- Given the present circumstances of water scarcity on a national scale in Egypt, it is unjustifiable that the GoE allows the use of technology such as fracking without a profound impact assessment for the environment and public health. The ECESR calls for massive reinforcement of governmental regulations in alignment with international agreements to which Egypt is a signatory, in recognition of the basic right to clean water and adequate sanitation (ECESR 2014).

ANNEX 1: INSTITUTIONAL FRAMEWORK AND MAIN STAKEHOLDERS INVOLVED IN POLICY-MAKING

The agriculture and water sectors in Egypt are guided by several stakeholders that act as crucial players in directing relevant policies, actions, and plans.

INSTITUTIONAL FRAMEWORK AND GOVERNMENTAL STAKEHOLDERS

The agriculture and water sectors are governed by laws and regulations, formulated as a guideline to be followed when working in the field. Consequently, the governmental institutions responsible for issuing and implementing such regulations are key actors when approaching the two sectors for criticism and development. In Egypt, the governmental institutions in charge of the two sectors include:

Agricultural Bank of Egypt (ABE): Originally known as "Principal Bank for Development and Agricultural Credit" (PBDAC), in 2016 the institution was moved to the public sector and had its name changed accordingly. Its mission is to increase the integration of financial operations in agricultural society, by providing banking packages that move towards more transparent business between citizens and farmers. Its objective is to help SMEs in adding to the growth of the agricultural economy by providing them with the necessary financial services.

See official website: <https://www.abe.com.eg/index.php/en/about-us/about-the-bank>

Egyptian Ministry of Agriculture and Land Reclamation (MALR): The Ministry of Agriculture was established on 20 November 1913. In 1996, it was renamed Ministry of Agriculture and Land Reclamation. One of its goals is to address sustainability in agriculture through increasing the efficiency of agricultural irrigation.

See official website: <http://www.agr-egypt.gov.eg>

Egyptian Ministry of Water Resources and Irrigation (MWRI): It is the ministry responsible for the water resources in Egypt and their protection. It is also responsible for issuing policies and legislation to ensure fair distribution of water supply and clean usage of available sources. There are six sectors and departments working under the jurisdiction of the MWRI: (i) the Nile Water Sector sustaining the negotiations and cooperation with the Nile basin countries; (ii) the Irrigation Department that operates and maintains the irrigation system through technical guidance; (iii) the Mechanical and Electrical Department which is involved directly in applying new technological methods in irrigation and drainage; (iv) the Planning Sector responsible for collecting data and drafting aggregate strategies; (v) the Water Resources and Irrigation Sector in Lower/Upper Egypt; and (vi) the Water Resources, Irrigation and National Structure Sector in North Sinai (FAO 2016).

See official website: <https://www.mwri.gov.eg/en>

National Water Research Centre (NWRC): NWRC was established in 1975 as an institution within the MWRI to carry out research in the field of water management. It encompasses 12 research institutions,¹¹ each striving to draft technical plans to be implemented on the national

11 The Environment and Climate Research Institute (ECRI), Coastal Research Institute (CORI), Survey Research

level. The NWRC also administers a specialized central library, a Geographic Information System (GIS) and a Central Laboratory for Environmental Quality Monitoring to conduct highly detailed research. It utilizes applied research to develop sustainable solutions that could be applied by both the private and the public sectors. Its main goal is to create engineered strategies minimizing the deficit created by water consumption through drafting policies for water resources management and strengthening infrastructure.

See official website: <http://www.nwrc.gov.eg>

LOCAL NGOS, CIVIL SOCIETY AND GRASSROOTS ORGANIZATIONS, TRADE UNIONS AND EMPLOYERS' ASSOCIATIONS

The civil society in Egypt includes the following organizations:

Egyptian Center for Economic and Social Rights (ECESR): ECESR is an Egyptian non-governmental legal institution, founded in 2009, arising from values of justice, liberty and equality. ECESR works through litigation, research, data provision and campaigning to champion and protect economic and social rights and expand their domain. The centre's mission covers a wide range of programmes and issues, including social rights such as labour rights, unionizing and organizing, education, health and housing, as well as economic policies. Through its main office in Cairo, three branches in Alexandria, Daqahliya and Aswan, and legal representatives in more than 20 governorates across Egypt, ECESR works closely with grassroots movements, and operates within anti-poverty national, regional and international networks that counter marginalization and fight injustice. ECESR has been particularly vocal in contesting the free trade policies and the concomitant lifting of state support for agriculture.

Egyptian Initiative for Personal Rights (EIPR): EIPR is a non-governmental organization that has been working to support and strengthen fundamental rights and liberties in Egypt since its establishment in 2002. Its mechanisms include research and activism on grassroots and institutional levels to pressurize legal reform, founded on the advocacy of personal rights as a basis for political and social development.

See official website: <https://www.eipr.org/en>

Knowledge Economy Foundation (KEF): KEF is a non-governmental organization founded by a group of partners in the private sector who strive for the agriculture sector in Egypt to have a more sustainable supply chain and a more informative link between farmers and wholesalers. Its overall objective is to strengthen the Egyptian economy through applying technological advancements in agriculture.

See official website: <http://www.kef.com.eg>

Land Center for Human Rights (LCHR): LCHR is a non-governmental organization established in Egypt in 1996, which aims to protect and improve living conditions and support rural groups in learning about and standing up for their civil rights. To accomplish this, LCHR provides legal

Institute (SRI), Mechanical and Electrical Research Institute (MERI), Construction Research Institute (CRI), Research Institute for Groundwater (RIGW), Channel Maintenance Research Institute (CMRI), Drainage Research Institute (DRI), Hydraulics Research Institute (HRI), Water Resources Research Institute (WRRI), Water Management Research Institute (WMRI) and Nile Research Institute (NRI).

aid, conducts studies, holds training workshops and introduces rural groups to a network of activists to strengthen connections between farmers and relevant organizations.
See official website: <http://lchr-eg.org/en/about-us.html>

Mada Masr: Mada Masr is an Egyptian media organization working to broaden the scope of fact-based and engaging journalism since its establishment in 2013. Through both English and Arabic reporting, it brings together a dynamic team from areas of media, business, arts, social development, education and human rights, with the central aim of re-examining the relationship between media and public mobilization.
See official website: <https://www.madamasr.com/en>

Nawaya: Nawaya is a social enterprise that works to create a business link between the farmers' communities and the consumers. It works towards building a more sustainable food system that can encourage small-scale food-producing communities to be more engaging in the market. Its approach includes providing education, conducting research and acting as the link between SMEs and the consumption agents. Its goal is to help farmers integrate an added value to the process of food production, thereby improving the farmers' income in multiple ways while simultaneously building a consumer base that is directly in touch with the roots of the food they are consuming.
See official website: <https://www.nawayaegypt.org/approach>

Union of Producers and Exporters of Horticultural Crops (UPEHC): UPEHC is a union for agricultural producers that aims to improve Egyptian agricultural exports specifically of goods produced by members of the union, ensuring that high quality and safety standards set internationally are met. The Union is specialized in producing organic horticultural crops such as oranges, grapes and onions using advanced agricultural practices (Kruseman and Vullings 2007).
See official website (in Arabic): http://www.upehc.org/UPEHC_Goals.aspx

LOCAL BRANCHES/OFFICES OF EUROPEAN/GLOBAL NGOs AND IOS

International organizations provide support to the two sectors in the form of funding, projects and research. They collaborate with the government and civil society to reach a wider community for potential reform. Some of the international stakeholders operating directly or indirectly in Egypt include:

African Development Bank (AFDB): The AFDB is a funding organization that was established in 1963 under an agreement signed by the 23 founding member countries, and that started effectively operating in 1966. It has expanded to include 80 member countries, 26 of which are non-African countries. The AFDP aims to develop sustainable economies in the member countries through funding potential developmental projects and providing policy recommendations (AFDP 2017). Egypt is a member country; thus several projects have been implemented by the AFDP to enhance the Egyptian economy including the Rural Income and Economic Enhancement Project. This project, implemented from 2010 through 2015, had as its main objective providing Egyptian small-scale farmers with other sources beside the Principal Bank for Development and Agriculture Credit (PBDAC). Therefore, the project led a campaign to raise the credit institutions' awareness of the agriculture sector's potential, prompting them to integrate a subdivision that expands their agro-portfolio. Additionally, the project strove to build capacities incorporating both farmers and stakeholders to improve the value chain

component (AFDB 2017).

See official website: <https://www.afdb.org/en/about-us/mission-strategy>

EU Delegation to Egypt: The delegation acts as a representative of the European Union in Egypt dealing with EU–Egypt political and economic agendas, and engaging in the implementation and monitoring of partnership priorities in the setting of the European Neighbourhood Policy (ENP). Through governmental institutions, civil society agencies and non-governmental organizations it promotes a strong cooperative relation between the EU and Egypt.

See official website: https://eeas.europa.eu/delegations/egypt_en

Food and Agricultural Organization (FAO): FAO is an inter-governmental organization that has 194 member nations and one member organization, the EU. The FAO engages in different fields that provide support and guidelines for governments to achieve a sustainable agricultural system and an up-to-demand food supply. Its objective is to reach a level of global agricultural development that could combat food insecurity and malnutrition. Other objectives include striving to achieve the reduction of rural poverty and to include a sufficient agricultural and food system.

See official website: <http://www.fao.org/about/who-we-are/en>

International Centre for Agricultural Research in the Dry Areas (ICARDA): ICARDA is a global research-for-development organization that was established in 1977 as an NGO. Its vision is based on the likelihood of having a sustainable agriculture sector in countries that suffer from drylands. They aim to develop such countries to withstand and combat possible low income, food insecurity and health problems that could arise from having dryland. ICARDA's main work includes conducting research in such countries and applying development programmes in more than 50 countries in the world's dry areas, including countries in North Africa and South Asia. Its research is based on scientific methods of collecting data and on providing solutions and strategies that are supported scientifically to help improve the conditions of dry areas. Accordingly, its main goal for countries with dryland is having food and water security while sustaining their natural resources (ICARDA 2017).

See official website: <http://www.icarda.org/mission-and-vision>

World Bank: The World Bank is a cooperative founded in 1944 with the goal of providing loans to countries affected by World War II in order for them to rebuild. Later on, its mission included the development of countries in the fields of infrastructure and agriculture. In time, the World Bank grew to include more member countries (currently 189) and more objectives such as fighting poverty, endorsing economic growth and reaching a more sustainable economy in developing nations. The World Bank adopted a self-imposed criterion in its assessment of a country's needs that includes having effective institutions, evaluation and research work, issuing comprehensive policies and keeping a partnership with the private sector. By adopting such factors, the bank has succeeded in addressing development challenges in different countries while ensuring that global common problems such as climate change, pandemics and forced migration are approached collectively.

See official website: <https://www.worldbank.org/en/country/egypt>

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