

# The Importance and Implications of Sanitary and Phytosanitary Measures

Case Study of Egypt, Jordan, Morocco, Oman and Tunisia

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# Acronyms and Abbreviations

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BRC	British Retail Consortium
CAC	Codex Alimentarius Commission
ESCWA	Economic and Social Commission for Western Asia
EU	European Union
EUREPGAP	Euro-Retailer Produce Working Group, Good Agricultural Practices
FVO	Food and Veterinary Office
FDI	Foreign Direct Investment
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GNP	Gross National Product
GSP	Generalized System of Preferences
HACCP	Hazard Analysis and Critical Control Points
IMF	International Monetary Fund
ISO	International Organisation for Standardization
MENA	Middle East and North African
NTBs	Non-tariff Measures
OECD	Organisation for Economic Co-operation and Development
PAFTA	Pan-ARAB Free Trade Agreement
QCSs	Quality Control Standards
RASFF	Rapid Alert System for Food and Feed
RTAs	Regional Trade Agreements

SPS	Sanitary and Phytosanitary Measures
TBT	Technical Barriers to Trade
UNCTAD	United Nations Conference on Trade and Development
VFN	Vegetables Fruits and Nuts
VSS	<i>Voluntary Sustainability Standards</i>
UAE	United Arab Emirate
US	United States
USFDA	US Food and Drug Administration
WEF	World Economic Forum
WHO	World Health Organization
WTO	World Trade Organisation

# Introduction

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Non-tariff measures (NTMs) include a wide range of policy instruments that have potential effects on different aspects of trade (WTO 2012). According to UNCTAD (2015) these measures can be either Sanitary and Phytosanitary (SPS) or Technical Barriers to Trade (TBT). Both are strongly related and deals with imported agricultural and food products and are aimed to protect human, animal or plant life and health, as long as the measure does not result in unjustifiable discrimination between countries or acts as disguised restriction on international trade.<sup>1</sup>

SPS measures include all relevant regulations and procedures, including product criteria, processes and production methods, testing inspection, certification and approval procedures, quarantines treatments, provisions on relevant statistical procedures and risk assessment methods and packaging and labelling requirements directly to food safety.<sup>2</sup>(see table1)

The numbers of SPS notifications to the WTO have dramatically increased over years<sup>3</sup> along with trade remedies such as anti-dumping duties, countervailing duties and safeguards and form challenges to further growth of the mutual gains due to the lack of technical and financial capacities of most developing economies. In fact,

limited capacity to comply with standards and controls has constrained the trade opportunities particularly for smaller developing countries.

Many SPS measures are fully justified, but too often, some governments cloak discriminatory and protectionist trade measures in the guise of ensuring human, animal, or plant safety. Potential abuses of such measures as protectionist tools not only constrain international trade but also consumer's welfare by restricting the choices of goods available to them.

These measures have several characteristics. First, they are applied by both the importing and exporting countries implying various challenges and additional costs for exporters in developing countries, and may be perceived as trade impediments. Second, NTMs are widely used to correct for market failures and maximize national welfare. One of the important market failures that NTMs rectify is protecting the health and safety of consumers. Due to information asymmetry, consumers might consume products and services that can threaten their health and safety.

Third, these measures are chiefly present in the agri-food trade since these products are subject to

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<sup>1</sup>See Mavroidis (2016, vol 2, chapter 11) for detailed, up to date discussion of WTO provisions on SPS measures.

<sup>2</sup>SPS measures take the following forms: (i) prohibition and/or restriction of the final products to be imported (for example import bans on dairy products from countries with poor sanitary conditions), (ii) tolerance limits for residues and restricted use of substances such as food and feed additives used for coloring, preservation, and sweeteners, (iii) labelling, marking and packaging requirements like specifying the storage conditions, or alerting to potentially dangerous ingredients such as allergens, (iv) hygienic requirements involving microbiological criteria of the final product (such as that liquid eggs should be pasteurized or otherwise treated to destroy

salmonella microorganisms), or hygienic practices during production (such as milking equipment should be cleaned daily with a specified detergent), and other hygienic requirements; (v) post-harvest treatment such as irradiation and fumigation; and (vi) other requirements on production or post-production processes, for example requirements on how plants should be grown or how animals should be raised or caught (UNCTAD 2015).

<sup>3</sup>The total number of SPS notifications (all types of notifications) across the world for agricultural products (HS Codes 01–24) increased considerably, from 136 in 1996 to 1199 in 2014.

regulations with non-trade objectives (the protection of consumers or the environment).

Food and agricultural trade is the vital link in the mutual dependency of the global trade system and developing countries. For Egypt, Jordan, Morocco, Oman and Tunisia – the subject of this paper – exporting food and agricultural products represents substantial portion of their total exports

value and continuing exporting these products is essential for their economic growth and development. One of the most important markets to which these countries have directed their exports is the EU that also happens to be the market leader in NTM notifications. Therefore, it is very useful to evaluate their performance in the fulfilment of EU technical requirements.

**Table 1: Key SPS and Other Technical Measures Applied to Agricultural and Food Product Exports**

Food Safety	Plant/Animal Health	Environmental	Social	Product quality/ Labelling
Hygiene requirements Storage/distribution requirements Packaging requirements Traceability requirements Limits on pesticide residues Limits on naturally-occurring contaminants Limits on environmental contaminants Limits on veterinary drug residues Limits on microbiological pathogens Controls on food additives Product composition requirements Controls on new foods/technologies Inspection requirements	Quarantine requirements Surveillance requirements Sanitation requirements Fumigation/vaccination requirements Traceability requirements	Controls on water/ environmental contamination Organic production standards Controls on endangered species Environmental protection requirements Protection of biodiversity Recyclability requirements	Labour standards Animal welfare standards 'Fair trade' standards	Compositional standards Grading schemes General labelling requirements Country of origin labelling Nutrition labelling requirements Geographical indicators Controls on claims Labelling of genetically modified foods Domestic content requirements

Source: Henson, H. et al. (2000)

In the above overall context, this paper attempts to identify the specific problems that Egypt, Jordan, Morocco, Oman and Tunisia face in meeting SPS requirements in exporting their food and agricultural products and how these relate to the nature of SPS measures and the compliance resources available to governments and the supply chains.

After this brief introduction, Section 2 below gives an overview of SPS measures on the exports of developing countries. Section 3 provides a brief economic profile of the five countries covered (Egypt, Jordan, Morocco, Oman and Tunisia). Section 4 is devoted to a detailed analysis of main SPS measures faced by each of these countries on their key food and agricultural exports in their respective top export destinations. Section 5 makes some recommendations.

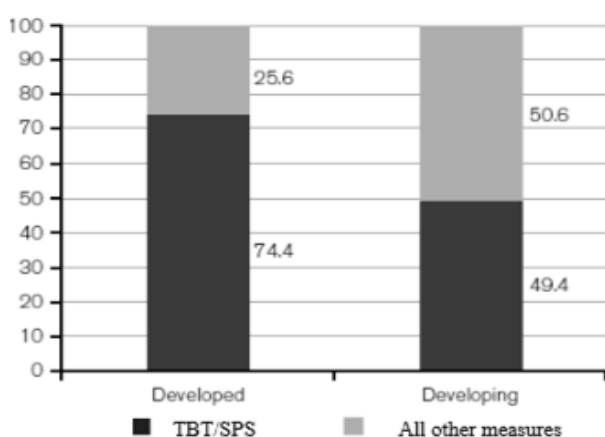


## SECTION 1

# Analysing Impact of SPS Measures on Exports from Developing Countries– Brief Literature Review

Figure 1 below illustrates that SPS and TBT measures are imposed more by developed nations, compared to developing nations. About 74% of all non-tariff measures imposed by developed countries are SPS and TBT measures. Meanwhile, SPS and TBT measure account for about 49.4% of NTMs imposed by developing nations. The content of these measures also differs and is generally more stringent in the notifications mainly by high-income countries than middle and low-income countries (Boza & Fernández, 2016).

**Figure 1: NTMs Applied by Developed vs Developing countries**



Source: ITC Business Surveys on NTMs, based on WTO World Trade Report 2012.

It is now widely acknowledged that technical measures such as food quality and SPS requirements can impede trade, particularly in the case of developing countries. The Uruguay Round addressed the impact of these requirements on trade through NTMs Agreements. Concerns have been expressed, however, that developing countries lack the resources to participate effectively in the institutions of the WTO, and thus may be unable to exploit the opportunities provided by these agreements (Michalopoulos, 1999).

In case the non-compliance with technical requirements is detected at the port of entry, the shipment involved can be refused. This implies a loss of both the revenue expected from the sale of the goods and the costs of their transportation, especially when the goods have to be destroyed. Moreover, repeated export refusals damage the reputation of the exporting country and, one would expect, its trade performance (Jouan, 2012).

Empirical studies highlight various approaches to determine the importance of NTMs and their impact on trade. These include estimating equivalents (see Kee et al 2009), and estimating

price gaps and inventory measures.<sup>4</sup> It is argued that different types of NTMs imply additional costs of compliance compared with NTMs within the same category.<sup>5</sup>

Evidence suggests that developing countries have a potential comparative advantage over developed countries in the production of agricultural and food products (Murphy & Shleifer, 1997; Edwards, 1992; Milner, 1990). This applies to traditional, mainly tropical products such as spices, groundnuts, fruits and coffee, as well as nontraditional products such as vegetables, cut flowers and fish (Marsden, 1990; Biggs, Miller, Otto, & Tyler, 1996;).

Hausmann and Klinger (2007) found that countries tend to diversify towards related products which to a large extent use a similar set of productive capabilities. Thus, a country that has built up a competence (i.e. comparative advantage) in producing a certain good can use its corresponding set of capabilities in the production of new and related products that are close to its current productive structure. But the capacity of developing countries to maintain and/or expand their world market share will depend on their ability to meet the demands of the world trading system, not only in terms of competitive prices but also, for example, quality and safety standards.

According to Spencer (2001), the trade impacts of SPS measures can be conveniently grouped into three categories: First, they can prohibit trade by imposing an import ban or by prohibitively

increasing production and marketing costs. Second, they can divert trade from one trading partner to another by laying down regulations that discriminate across potential supplies. Third, they can reduce overall trade flows by increasing costs or raising barriers for all potential suppliers.

In certain cases, stricter SPS measures are applied to imports than domestic supplies, for example, where higher risks are associated with supplies from other countries. But, even where comparable SPS measures are applied to both imported and domestic supplies, they can act to impede trade by, for example, imposing higher costs of compliance on importers than domestic suppliers.

Disdier et al. (2008), in analyzing the distortionary effects that result from SPS measures applied by OECD members on their agricultural imports, found that SPS measures significantly reduce developing countries' exports to OECD countries, while not affecting trade between OECD members. More recently, Hoda et al. (2016), showed that from a firm perspective, the SPS measures imposed on Egyptian exports have a negative impact on the probability of exporting new products to a new destination. These results have implications for developing countries' export earnings and incomes. They also affect their quest to achieve more sustainable means of development through reducing poverty, unemployment and reliance on smallholder producers (Kareem 2014).

Fontagné et al. (2005) studied trade data on 5,000 products, for 96 countries to assess the impact of environmental measures across

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<sup>4</sup>In terms of the inventory measure, according to Gourdon (2014) three indices prevail: the frequency index, the coverage ratio, and the prevalence score. The frequency index simply captures the percentage of products that are subject to one or more NTMs. The coverage ratio captures the percentage of imports that is subject to one or more NTMs. The prevalence score captures the average number of NTMs which apply to a product.

<sup>5</sup>The different types of NTM are classified by UNCTAD in different levels structured in a hierarchical tree / branch structure. The categorization is based on the scope of the measure. At the highest level, NTMs are categorized in sixteen chapters, and then further in 122 sub- groups, which split even further up to four levels.

countries and industries, using all environmental-related notifications to the WTO for 2001 and product data at HS 6-digit level. Their study found that SPS and TBT measures have a negative impact on the trade of fresh and processed food, while there is an insignificant yet positive effect on manufactured products.

Taghouti et al (2015) found that the past border notifications affect current notifications, in other words, they affect current decisions on the implementation of food standards by the EU. The authors suggested as well that the rise in alerts indicate increased controls related to regulations and standards. They also presumed that the increment in alerts would continue, if the successive years were to be plotted.

Jong Woo kang (2017) recently find that less developed countries do not gain much when implementing the measures or are disadvantaged in exporting goods, particularly when importers are advanced economies.

As the findings suggest, developing countries are constrained in their ability to export agricultural and food products to developed countries by SPS requirements. This helps to demonstrate the fact that developed countries normally apply tougher SPS measures than developing countries and that the SPS control mechanisms established in most

developing countries are ineffective and overly fragmented.

Furthermore, in certain situations, the stipulated SPS requirements are incompatible with the prevailing systems of production that exist in developing countries. As a consequence, wholesale governmental and organizational change may be necessary in order to comply with the relevant measures. However, a particularly acute problem that must be overcome is access to appropriate scientific and technical expertise. Indeed, in many developing countries, knowledge of SPS issues is poor, both within government and the food supply chain, which may mean that the skills needed to accurately assess the measures are also lacking.

## SECTION 2

# Brief Economic and Trade Profile of the Five Countries

**Table 2: Some Key Economic and Trade Indicators**

Country	Egypt	Jordan	Tunisia	Morocco	Oman
Population (Million)	97.5	9.7	11.5	35.7	4.8
GDP (US\$ Million)	237.05	40.48	40.27	109.82	74.27
GDP per capita (US\$)	2472	4173	3688	3041	17618
Growth rate annual variation in %	4.2	2	2	4.1	0.1
Contribution of agriculture to total export	19%	4.00%	9.00%	14%	5.80%
%of total agricultural exports absorbed by EU (2017)	30%	10%	73%	64.90%	20%

Source: WEF, World Bank and own calculations.

The five countries covered in this paper reflect an interesting cross section of economic circumstances, strengths and varying levels of dependence on the EU market and the rest of the world for their agricultural export experience. Some key indicators are presented in table 2 above.

## 2.1 Egypt

Egyptian agriculture is increasingly integrated into world markets with about 20% of agricultural production exported. It is among the world's leading exporters of agro-food products such as fresh fruit, vegetables, cotton, and rice. The EU is Egypt's biggest partner and currently accounts for about 40% of Egyptian exports followed by UAE, Saudi Arabia and the United States. One of the most important factors that have the potential to

affect the long-run competitiveness of Egyptian agricultural exports in the EU markets is its compliance with food safety and SPS issues related to exporting agricultural and food products to EU.

Five product categories contributed more than 80% of Egyptian agricultural export earnings; namely, Edible fruit, nuts, peel of citrus fruit, melons (29.2%), Edible vegetables and certain roots and tubers (24.7%), Cereal (9.7%), Cotton (8.2%), and Oil seed grain, seed, fruit (5.7%).

## 2.2 Jordan

The World Bank (2017) classifies Jordan as a country of high human development with a lower middle-income economy. With nominal GDP to reach \$43.7 billion by the end of 2018, it is one

of the smallest economies in the Middle East. According to World Bank, a major challenge facing Jordan remains to reinvigorate the economy in the context of a challenging external environment. Adverse regional developments, in particular the Syria and Iraq crises remain the largest recent shock affecting Jordan. This is reflected in an unprecedented refugee influx, in disrupted trade routes, and in lower investments and tourism inflows. Continued regional uncertainty and reduced external assistance will continue to put pressure on Jordan.

The country's lack of natural resources (namely insufficient supplies of water, petroleum, and natural gas) and the large refugee inflow and regional turmoil are hampering growth.

## 2.3 Morocco

The World Bank (2017) classifies Morocco as an upper middle-income country. As is evident from table 2, the country's gross domestic product (GDP) is relatively high. Morocco has achieved relatively strong growth while preserving political stability, which has led to substantial progress in poverty reduction. Morocco's real per capita income almost doubled since 2000 and the poverty rate dropped from 15.3 percent in 2000 to 4.1 percent in 2017. Growth averaged 3.5 percent while inflation remained low (less than 2 percent) in 2012-2017.

The agriculture sector remains a pillar of the Moroccan economy. Morocco's GDP growth is strongly correlated with that of agriculture GDP. While its share of GDP has declined, agriculture still plays a large role in the country's economy compared with other middle-income countries and represented 16 percent of GDP in 2017.

Annual agriculture GDP growth has averaged 22 percent in the period 2008-2017, although this masks strong annual variations due to the sector's vulnerability to climate variability. A number of

factors give Morocco's products the edge in international trade, including: low labour costs; temperate climate that allows all-year production, especially for tomatoes, with the use of efficient irrigation; and proximity to the EU market, resulting in low transport costs and ease to export fresh products.

## 2.4 Oman

Oman is classified as a high-income country by the World Bank (2017). As is evident from table 2, the country does have the highest GDP per capita. Oman was ranked 25th out of 132 in the World Economic Forum (WEF) Enabling Trade Index (2012), which measures institutions, policies and services to facilitate trade in economies. Oman has experienced impressive economic growth in the past few years, with consistently high GDP growth, low inflation, and surpluses in both its overall fiscal position and external current account. More recently, the Sultan of Oman has attached greater importance to implementing an economic development strategy centred on a more liberal trade policy. This includes diversification away from oil dependence, whilst Oman is pursuing structural reforms such as the lifting of remaining impediments to Foreign Direct Investment (FDI) and reducing the size of its public sector, while encouraging private sector development (WTO 2012).

## 2.5 Tunisia

With a per capita GDP equivalent to \$4,027 in 2017, Tunisia is classified by the World Bank as an upper-middle income country (see table 2). Trade remains extremely important for the Tunisian economy, with a ratio of trade in goods and services to GDP of about 90%.

become a modern service economy, the agricultural sector is still of vital importance,

contributing 9% of GDP and employing almost one quarter of the country's labour force. Agricultural produce represents about 6 % of the country's export earnings. The main cereal crops are wheat and barley. Tunisian farmers grow olives, dates and fresh fruits for both export and domestic consumption.

Organic agriculture is relatively new in Tunisia. However, in the last ten years, organic land area, number of farmers, and crop diversification increased rapidly.

With 155,323 hectares under organic management, that represent 1.59 % of total agricultural area. Tunisia has now one of the most developed organic sectors in Africa. This favourable trend is largely due to an active government policy in the promotion of organic agriculture. Since there is not yet a strong domestic demand market for organic products, most of the production is directed to the export market. Some of the farmers are producers and exporters at the same time. (IFOAM & FiBL2006).

### **Box 1: Some Trade-Related Challenges Facing the Five Countries**

**Dealing with NTMs** as obstacle to market access as many countries are unable to take advantage of trade preferences due to high incidence of SPS measures.

**Lack of quality infrastructure** means that the countries have little capacity to meet the standards requirements of international markets and major gaps exist nationally (e.g. in case of fisheries and agriculture products). The need is to have national quality infrastructure system i.e. policies, laws, standards, measurement, conformance assessment and accreditation systems, that are tailored to their situation and their exports.

**Increasing value-added exports** by shifting from export of primary products to processed products, as well as to services, for which the ability to demonstrate compliance with certain quality standards become more important.

**Meeting voluntary sustainability standards (VSS)** that tend to be set by the private sector and often other parties (than the producers in these countries) who take a large share of the gains realized from higher prices for products that meet sustainability standards.

**Developing digital capacities** to gain from the fourth industrial revolution which will be possible only if they are able to add digital content to their production, which will then flatten the 'smile curve' and countries will be able to add more value to their exports, including food and agricultural exports.

### SECTION 3

# SPS Measures faced by the Five Countries on Major Agricultural exports in the Key Export Markets

Middle East and North African (MENA) countries bordering Europe are in a prime location to export produce to the EU. However, unfortunately, most food control systems in the MENA region are unable to meet the mandated international requirements, due to lack of the required advanced technical and scientific knowledge and an unacceptable level of food safety by small-scale farmers and the domestic market. This remains largely unaddressed, despite major reforms being introduced to their national food safety systems, with varying degrees of accomplishments.<sup>6</sup>

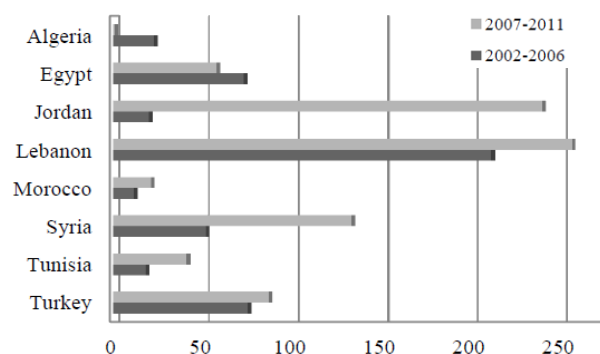
However, despite the positive policy and regulatory reforms, many developing countries, including those in the MENA region, lack credible institutional mechanisms, meaning the enforcement institutions and water governance are weak, and advocacy is fragmented. Thus, the agriculture sector is fraught with poor policies for the effective planning of resources, a lack of incentives and training, insufficient knowledge of standards for food safety and quality, and the development of agricultural economies away from efficient resource management (Milli 2017).

The period of 2002–2011 from figure 2 below showed a continuous increment in the Rapid Alert

System for Food and Feed (RASFF) notifications by the EU for products found to be unsuitable for consumption coming from Algeria, Egypt, Jordan, Lebanon, Morocco, Syria, Tunisia, and Turkey. Fruits and vegetables in particular were among the most sensitive exported products, based on the large number of notifications registered (Taghouti et al 2015).

**Figure 2: Ratio of Notifications Applied by EU on Agro-Food**

Chapters from 01 to 22 at HS2



Source: Taghouti et al, (2015)

Studies reporting on food safety issues in developing countries are very few, but what exists

<sup>6</sup>Many MENA countries have undertaken extensive reviews of their food safety systems in collaboration with WHO, and some have carried out extensive reforms to their national legislation. Over the last decade and more, Egypt, Jordan, Morocco, and Tunisia have reviewed their food safety standards, which were

adopted to be in line with the Codex Alimentarius Commission (CAC).

indicates there is widespread contaminated soil; poor agricultural growing methods with the misuse of pesticides, hormones, and fertilizers; and inappropriate post-harvest practices along the food chain, such as the use of untreated wastewater for irrigation and the processing of vegetables. (Faour-Klingbeil D et al 2015, Uyttendaele M 2014, AiatMelloula et al 1999), Hanjra M.A et al 2015)

The unregulated use of faeces-contaminated water for irrigation and the application of untreated manure on fields are classified as primary risk factors; these are largely practiced in Egypt leading to contamination of the agricultural environment and fresh produce. In Egypt, there was a high prevalence of Salmonella in strawberries (28%) and lettuce (39%), as well as in soil (42%) and water used for irrigation or washing (42%). Faour-Klingbeil D et al (2015), Uyttendaele M(2014). Below are examples of some SPS cases faced by the five countries.

Food exports from Egypt and Jordan to the US were rejected in 2001 by the US Food and Drug Administration (USFDA), due to non-compliance with the US safety measures (such as filth, microbiological contamination, greater-than-permitted levels of pesticide residues, or food additives) (CSPI,2005).

In 2016, the United Arab Emirates imposed a ban on fruits and vegetables, including apples, imported from different MENA countries (Egypt, Oman and Jordan) due to high levels of pesticide residues that exceeded the permitted levels according to their own standards (Namrouqa ,2017).

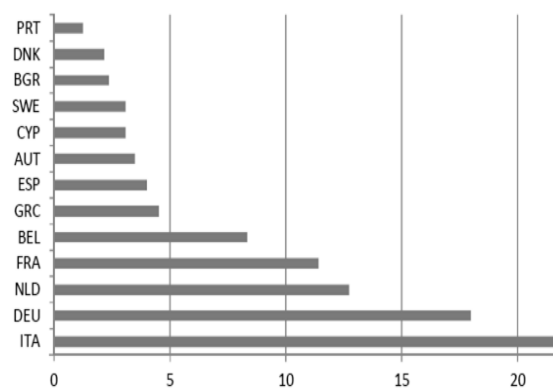
In Morocco, compliance with the EU allowable maximum residue limits (MRLs) for pesticides and the associated pre-harvest interval requirements constitute a challenge for exporters as the types of authorized pesticides in Morocco are not allowed in the EU.

### 3.1 Egypt -Key Export Markets and SPS Issues

Data from the WTO allows us to draw a picture for the SPS measures imposed on Egyptian exports, the imposing countries' characteristics as well as the effect of SPS measures on exports. First, it is worth mentioning that according to WTO, the number of SPS measures imposed on Egypt increased exponentially, from 18 in 2006 to 888 in 2012 (Hoda et al ,2016). This maybe in line with the argument that significant trade liberalization that implies low levels of tariffs can lead to more non-tariff measures imposed on trade flows, especially between developing and developed countries.

All SPS measures on products exported by Egypt are imposed by European countries (figure 3). Europe is one of Egypt's largest trading partners; exports to Europe account for close to 50% of Egypt's exports. For instance, in 2011 and 2012, the European Union imposed SPS measures on leguminous vegetables, beans and seeds imported from Egypt, stating food safety, and protection of humans, animals and plants from pests and diseases as the reason for implementing the SPS measure.

**Figure 3: SPS Measures Imposed by EU Countries on Egypt (in%)**

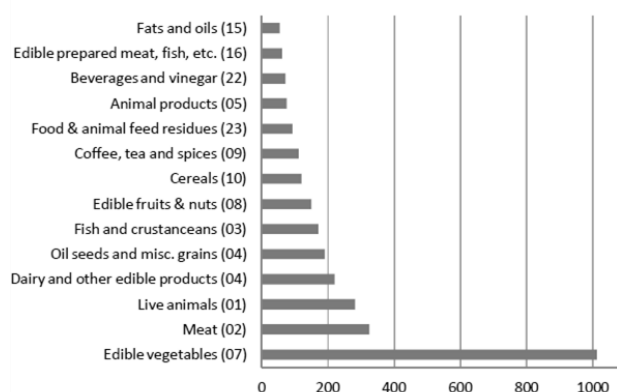


Source: Hoda et al,(2016)



In addition, through observing average exports per product, it can be deduced that the average value of exports for products not targeted by SPS measures is almost triple the value of products targeted by SPS. Most SPS measures on Egypt are in fact imposed on food products, given the risks they pose to human health. Countries put SPS measures on such products to prevent diseases to humans, animals as well as plants. At the HS2 level, the highest number of SPS measures is imposed on edible vegetables, as Figure 5 shows. The number of SPS measures on vegetables is more than triple those on meat and meat offal, and live animals, the second and third largest SPS targeted products respectively.

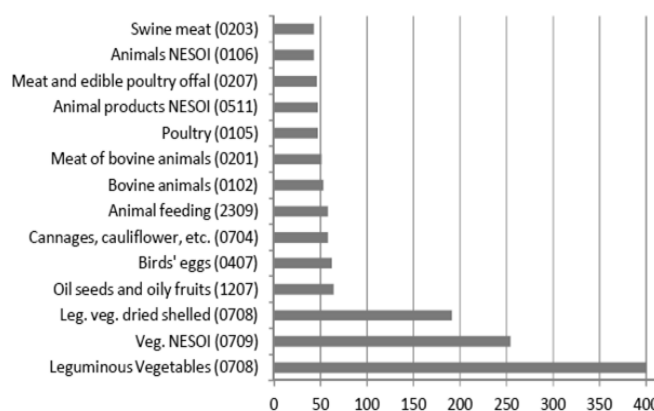
**Figure 4: SPS Measures Imposed on Egypt by EU (by sector, at HS2 level)**



Source: Hoda et al, (2016)

Meanwhile, as figure 6 illustrates below, looking at the HS4 level, countries mostly impose SPS on different kinds of vegetable. Vegetables are followed by oil seeds and oleaginous fruits, and birds' eggs. The same applies for the products that Egypt exports, as 40% of SPS measures imposed on Egyptians exports are on leguminous vegetables (shelled or unshelled, fresh or chilled). Another 50% falls on other vegetables, while about 6% goes to oil seeds and 3% to some spices.

**Figure 5: SPS Measures Imposed on Egypt by EU (by sector, at HS4 level)**



## 3.2 Jordan - Key Export Markets and SPS Issues

Jordan is one of the smallest economies in the Middle East. Agriculture accounts for over 11.5 percent of the land use: arable land (2 percent); permanent crops (1 percent); and permanent pasture (8.5 percent). Agricultural production accounts for about 4.5 percent of gross domestic product (GDP), employing by some estimates 2-3 percent of the labour force. Local agricultural production produces only a small share of the local food supply; Jordan is an insignificant producer of wheat. There are reportedly some 964 square kilometres of irrigated land (2016 estimate). Jordan is a water poor country, characterized by the scarcity of renewable fresh water resources. It pulls 160 percent more ground water than is recharged through rainfall; it is estimated that by the end of this century, Jordan will receive 30 percent less rainfall than it does today.

Horticulture represents almost half of all agricultural exports of the country. Fruits and vegetables were in fact Jordan's third largest merchandise exports i, after textiles and fertilizers. Before the start of the Syrian crisis in 2011, the Kingdom used to export over 1 million tonnes of

fruit and vegetables per year, generating around JD1 billion, the exports and the earnings have dropped by half during the past five years. (the Jordan times 2017). Tomatoes account for 45 per cent of exported vegetables, while peaches are the number one fruit exported, according to the official. Jordan is a member of many Regional Trade Agreements (RTAs) including the Pan-ARAB Free Trade Agreement (PAFTA), and bilateral agreements with Canada, EU, Singapore and USA.

Gulf countries as well, receive 90 per cent of the Kingdom's exports. Kuwait is a primary importer, as it functions as a gateway for Jordanian exports to Iraq, since the border closed in 2015.

Despite the efforts to open new portals, farmers, producers and exporters are losing European markets by the day due to the ongoing closure of borders with Syria and the increased number of refugees (more than 600000 registered Syrian refugees)<sup>7</sup>.

Major challenges facing agriculture in Jordan and thus constraining the agricultural exports of the country include: reduced availability of freshwater for irrigation; the widening gap between food exports and food imports; the degradation of and misuse of natural resources, and the loss of agricultural land to urbanization, Absence of modern and efficient packing and grading facilities; ;Reduced availability of fresh water for irrigation; use of pesticide that do not comply with EU standards and constitute , and main obstacle to access to foreign markets; Degradation of and misuse of natural resources; Low added value, especially with regard to packing and packaging procedures and materials; Inefficient market infrastructure (especially wholesale) and marketing channels and systems; Absence of quality control laboratories in the region especially

for testing chemical residues; Marketing and production challenges also exist such as: adding values to agricultural products and improving production; pricing policies and marketing of agriculture products undermined investments in the agricultural sector, and fostered reluctance of participation of small farmers and youth entrepreneurs.

The constraints in meeting these challenges are weakness of institutions to plan and implement the necessary adjustment measures to modernize agriculture and make it more competitive; inappropriate legal framework to facilitate major adjustments required; vulnerability of agricultural exports due to political uncertainty in the region; a price system which ignores the opportunity cost of resources; and the slow adoption of technology due to weakness in the extension service and the credit system. For example in February 2016, farmers in Jordan valley destroyed tomato crops and protest mounting losses due to low prices. Prices were less than the cost of sending their products to the markets (The Jordan Times, 2016). Shortage of primary production credit was one of the major causes of declining the participation of small farmers and youth entrepreneurs in the sector. The potential of microfinance in Jordan and many developing countries to foster agriculture development still not well utilized. , like what happened in many developed countries, France for example FAO (2011).

The timing of export needs to be synchronized to make the competition with the EU domestic produce irrelevant. This can be achieved through the utilisation of the comparative advantage of the early and off-season production in the fruit and vegetables. The knowledge gap is not the only impediment: the costs of infrastructure needed to meet SPS conditions are high and inspection

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<sup>7</sup> The Syria crisis is having a profound and long-term impact on neighbouring countries as well as the Syrian Arab Republic itself.

mechanisms to monitor domestic production areas are absent.

The Jordanian packing segment lacks competitiveness in EU for many reasons that may include but are not limited to the quality of labour, access to proper transportation services and routes and availability of proper packing and packaging systems and materials.

Until recently, a portion of Jordanian produce directed to the European market was first exported to neighbouring countries, such as Turkey and Syria, where it was graded, repackaged, labelled and exported to the European Union and Gulf at higher prices. The enduring Syrian crisis has, however de facto interrupted this window.

The governments' strategies should include, in addition to providing the necessary enabling environment, awareness programs to provide information on the SPS and TBT regulations in place in EU markets, as well as advice on traceability, residue testing, food safety risk/conformity assessments and certification techniques.

### 3.3 Morocco - Key Export Markets and SPS Issues

European market is the traditional destination for Moroccan fresh produce exports. Preferential access to European markets has been continuous for citrus and tomatoes since the 1960s. However, citrus export markets are much more diversified than the tomatoes export markets, since the former also include export markets in Eastern Europe and the Middle East.

#### Food Exports and European Union Market Access

Food exports of US\$2.8 billion represent 21 percent of total exports (year 2016). Moroccan

food exports include primarily fresh and processed fish, and fresh and processed fruits and vegetables. Both categories of products are sensitive to SPS regulations. Traditional fresh produce exports include citrus, tomatoes, and potatoes. More recently, fresh strawberries, green beans, and zucchini have increased their share in total exports. On average, the value of citrus exports represents 13 percent of total food exports, and tomatoes represent 18 percent. The export value of these traditional products is stagnating, and their share in total food exports declining partly due to increase and new SPS requirements.

Citrus and tomatoes are part of the agricultural exception regime that is applied in the Euro-Moroccan free-trade agreement established in 1995 and ratified in 2000. In this agreement, agricultural products are submitted to particular protocols that result from bilateral negotiations under the reciprocity principle. In Morocco, citrus varieties are produced all year round and can be exported any time during the year. The decline in Morocco's share in the EU market may be due to the failure and the difficulty to comply with the safety standards and requirements.

#### SPS and Food Safety: Issues, Costs, and Strategies

This section analyses the SPS issues, including costs and exporters' strategies, for fresh produce exports, especially the citrus and tomatoes subsectors. Markets are divided into high-level SPS and market standards (Canada and Scandinavia), medium-level market standards (EU), and low-level market standards (Eastern Europe and Middle East). Voluntary standards set by the private sector and other organisations have become an integral part of an increasing number of standards at all levels. Voluntary standards set by foreign buyers have increasingly become de facto requirements for producers, processors, and distributors as their importance for

competitiveness in international markets has significantly increased over time. Hence, the distinction between different standard-setting levels becomes volatile and the distinction between mandatory and voluntary standards irrelevant in practice.

## SPS Regulation and Enforcement in Morocco

In general, Moroccan exporters of fresh produce have been familiar with and have been trained about external conformity through public controls implemented by competent and trained staff. However, these arrangements are no longer appropriate to meet the new demands of external markets. New challenges are related to the greater requirements for private controls by importers. Some companies involved in tomatoes and citrus production and packaging have responded by implementing new control systems.

Morocco recognizes all the new SPS measures by bodies acknowledged in the WTO agreements. Many of the standards set by these bodies are adopted by Morocco's private and public institutions. Citrus and tomato exporters are among those who are implementing a variety of measures related to criteria for end products,

quarantine treatments (packaging), sampling procedure (labelling), and risk assessment (testing, inspection, certification, approval procedure.).

However, the concept of quality had been limited to the visual and commercial criteria (size, colour, weight). Recently, SPS requirements in foreign markets have been recognized and progressively integrated in the quality control systems. Table 3 presents the main standards implemented for fresh agricultural exports. Six Quality Control Standards (QCSs) are implemented either at the farm and/or packing house levels for citrus and vegetables. With regard to the institutions imposing or requiring these standards, the systems can be classified in 3 categories: (1) worldwide known standards (HACCP and ISO 9001), (2) private EU standards (organic and biodynamic standards), and (3) standards of individual European retailers (EUREPGAP, BRC, Nature's Choice). The certification bodies for all these standards are from Belgium, Britain, France, and the Netherlands. There is no national certification body yet operating in Morocco. Consequently, Moroccan farmers and exporters are paying the same high price for certification as their counterparts in Europe.

**Table 3. Main Quality Control Standards in the Citrus and Tomato Sectors in Morocco**

Standards	Status of certification	Site of implementation in the supply chain	Reference and/or providers
HACCP	Not certified	Packing houses	Endorsed by CODEX Alimentarius
ISO9001& 9014	Certified	Packing houses	IOC
EUREPGAP	Certified	Farms	Retailers
Organic and biodynamic	Certified	Farm and packing houses	European Union and IFOAM
BRC	Certified	Packing houses	British Retail Consortium
Nature's Choice	Certified	Farms	Retailers

Source: Aloui et al (2004)

## 3.4 Oman - Key Export Markets and SPS Issues

Oman is uniquely positioned as an attractive site for commercial fisheries due to its 3,165 km coastline and rich fishing grounds. The country is regarded as a net exporter of fish products with around 61% of its production in 2015 exported mainly to neighbouring Gulf countries. The fisheries sector is considered one of the most important non-oil sources of income for Oman although its contribution to the GDP is only 1 percent and, combined with agriculture, the figure is still only 5.8 percent (UNCTAD, 2017). In 2017, Oman exported 300,172 tonnes to countries around the globe. Most of the exports by volume were to the Gulf Cooperation Council (GCC) members (70%) followed by Asian countries (18%) with only 2.2% exported to EU. The proportions of exports to the highly valued markets of the USA and Japan were tiny representing 0.03% and 0.05% of all exports respectively, and less than 1 % in quantity. This clearly demonstrates the opportunities available for market expansion and product diversification.

Seafood products, either wild or farmed, are highly perishable. Their quality degrades rapidly due to the high content of water and easily digestible macro-components.<sup>8</sup> That is why the seafood safety and quality has become a priority for the Omani government. In fact, following the EU ban in 1998, the authorities safeguarded seafood quality and safety to meet internationally acceptable standards by adopting HACCP (MNE,

2007). In November 2006, the EU's Food and Veterinary Office (FVO) re-visited Oman. After detailed investigations, the team reported the following deficiencies: 1) the overall production chain of fish products exported to the EU was not controlled by the system, 2) incorrect handling and documentation/reporting of the approved establishment, 3) failure to identify some deficiencies by the HACCP inspectors and inconsistent follow-up of inspection outcomes, 4) although accreditation was in progress the quality system in the laboratories was not established, 5) poor number or lack of some official analysis expected by community provisions, and inconsistent sampling procedures with national provisions for histamine and bacteriology, and 6) lack of knowledge of some of public health requirements. Despite the reported shortcomings the team felt that fishery products exported to the EU could not pose threat to consumer health. However, the team asked for a detailed action plan to address the issues in a satisfactory manner (European Commission, 2006). Recently, a new regulation has been issued by Omani authorities which covers the organization and operation of fish retail and whole sale markets, seafood products handling, and market monitoring in terms of hygiene and safety of the marketed products (Qatan, 2015).

The table below a global picture of SPS notifications on fish and fish products by EU countries in a ten-year period. This gives useful information about not only the types of fish and fish products being subject to SPS measures, but also the concerns/reasons leading to such measures.

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<sup>8</sup> The fish is susceptible to rapid deterioration and postharvest loss due both to microbial growth and biochemical reactions aggravated by raised temperatures. Other problems are caused by contaminants that are present in the environment where the seafoods are grown and harvested.

**Table 4: Fish and Fish Products Notifications by EU Countries (2004-2013)**

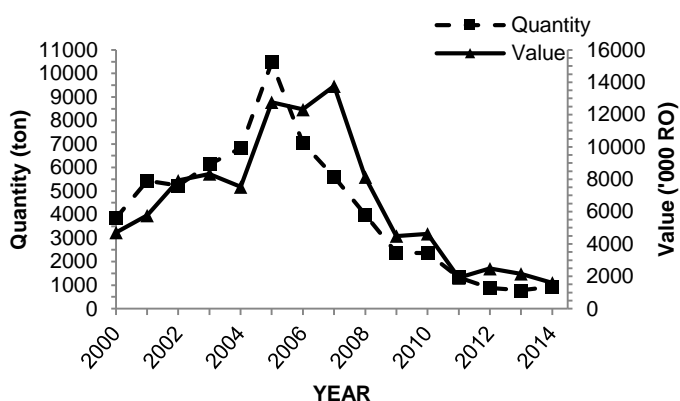
Year	No. of cases	Country	Species	Reasons
2004	1	Cyprus	Fresh Seabream ( <i>Pagruspagrus</i> ) and Grouper ( <i>Epinephelus</i> spp.)	<i>Listeria innocua</i> (presence /25g)
2005	6	France (1) & Italy (5)	Fresh and Chilled Tuna Loins ( <i>Thunnusalbacares</i> )	Carbon monoxide treatment
2006	5	Italy	Fresh Grouper fillets ( <i>Epinephelus</i> spp.), and Fresh chilled tuna	Unauthorized use of colour E 122 and lead in sliced fresh chilled tuna
2007	2	Italy	Frozen fish and Fresh Grouper fillets ( <i>Epinephelus</i> spp.)	Abnormal colour of frozen fish and parasitic infestation with tapeworms
2008	1	UK	Frozen shark fillets	Cadmium
2009	1	Italy	Seabream	Cadmium
2010	1	Germany	Jack mackerels	High aerobic plate count ( $8.0 \times 10^6$ CFU/g)
2011	1	Spain	Chilled Snapper and Grouper	Absence of health certificate(s) for and poor hygienic state
2013	1	Spain	Unnamed	Poor temperature control

Source: The Rapid Alert System for Food and Feed (RASFF)

## An Overview of Fisheries Sector

Between 2000-2014, around 44% of the total fish landings were exported to international markets. For the EU market the average share in total export in terms of quantity and value during the same period was between 0.3% and 0.8%. Figure 7 shows quantity (ton) and gross value of fish exports ('000 RO) to the EU during the period 2000-2014. It is noted that the quantity and value of fish exports experienced a considerable decline (about 88%) after 2005 and 2007 respectively. This once again raises an important question: are SPS measures responsible for the apparent decline?

**Figure 7: Total Quantity and Value of Fish Exports to the EU: 2000-2014**

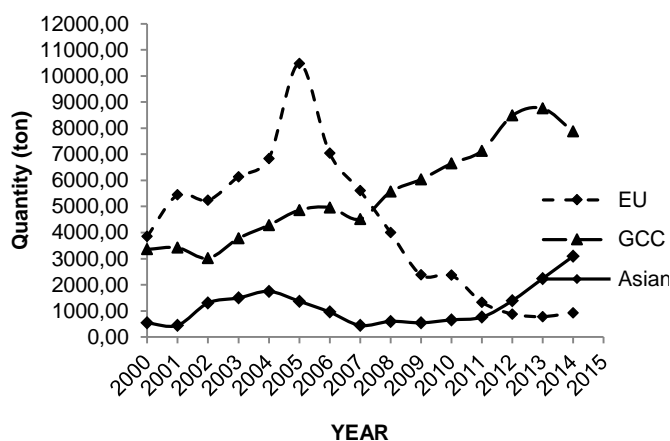


Source: MAF, (2014)

Figure 8 shows the fish export quantity (ton) to the EU, GCC, and the Asian countries (includes Thailand, Korea, Viet Nam, China, India, Sri Lanka, Malaysia, and Bangladesh) during the period 2000-2014. While the quantity of fish exports to the EU experienced a considerable

decline after 2005<sup>9</sup>, the same was not the case for the GCC and Asian countries. A continual positive trend in quantity of fish exports is observed for the GCC countries and a gradual increase of the same is observed in the case of Asian countries. This, perhaps, signal the occurrence of export diversification towards countries with non-stringent SPS measures.

**Figure 8: Total quantity of fish exports to the EU, GCC, and Asian markets: 2000-2014**



Source: MAF, (2014)

Another challenge facing Oman is the country dependence on the desalination of the sea water as a source of fresh water supply, therefore control the quality of the marine environment is vital for the country.<sup>10</sup>

In Oman, dominated by artisanal fisheries and traders, post-harvest losses can be very detrimental both to the contribution fisheries make to the national economy and to the

country's sufficiency in terms of food security. With the fisheries activities scattered along the long coast line, artisanal fishermen and retailers adopt simple techniques for harvesting, handling and processing respectively. These are often insufficient to preserve the quality and safety of the harvested fisheries products for long storage periods and consequently limit their market value ((Al-Jufaili M. Saud and Opara Linus U. (2006)).

Furthermore, loses in both quality and quantity limit the profitability and competitiveness of local fishery produce. One study of the tuna supply chain (Al-Jufaili M. Saud and Opara Linus U. (2006) suggested that shelf life is limited to 3 days by the current postharvest practices. They confirmed the need to upgrade the existing postharvest procedures and to apply modern cold chain technology to overcome loses and extend shelf-life. One consequence of the short life is that often downgraded fish are used to produce secondary fish products (such as salted or dried products) so as reduce the losses faced by the fishermen and traders – this though can lead to further safety issues. It seems that despite the existence of a well-defined legal framework throughout the seafood supply chain, there has only been partial implementation of modern food safety management systems in the country.

As indicated above, the development of the aquaculture industry in Oman is a key part of the country's plan to diversify its economy beyond the hydrocarbon sector (MAF, 2014). However, a decrease in the landing of fish species with higher export values internationally has caused some local exporters to question the value of meeting these enhanced standards. The potential for

<sup>9</sup>It can be explained by the fact that export to the EU market have been influenced by historic ban on export in 1998 and increased usage of SPS measures in seafood trade.

<sup>10</sup>An emerging threat to desalination and to public health is the formation of Harmful Algal Blooms (HABs) commonly known as red tides (Thangaraja, Al-Aisry, & Al-Kharusi, 2007). An outbreak in the Arabian Gulf and Sea of Oman in 2008/2009 was due to the din flagellate *Cochlodinium polykrikoides* and

lasted nearly eight months. The impact was great with massive loss of fish, damage to coral reefs, restricted fishing and problems in the operation of the desalination plants in Oman and the UAE (Richlen, Morton, Jamali, Rajan, & Anderson, 2010).

fishermen to market fish to neighbouring countries with fewer regulatory requirements in preference to selling to local processors has added further to the struggles of companies seeking to export products to major international markets (ESCWA, 2007).

The export of fish from Oman provides two important lessons on SPS compliance. It shows the serious losses that can occur when things go wrong, but it also shows how developing the capacity to meet strict SPS market requirements can sustain a highly lucrative sub-sector.

## 3.5 Tunisia - Key Export Markets and SPS Issues

The European Union still absorbs nearly three quarters of Tunisian exports, although its share has retreated recently due to socio-political crisis that hit the country at the end of 2010 and the disruptions that followed. Libya is the other main destination; actual trade flows between it and Tunisia are undoubtedly underestimated in view of the vast amount of informal cross-border trade between the two countries.

### Export of Organic Olive Oil

Tunisia is one of the world's top four exporters of organic olive oil (\$407 million)<sup>11</sup>, a fact that is largely unknown as much of its production is exported in bulk to the EU to be refined, bottled, and then marketed and re-exported from EU countries (primarily Italy and Spain). In Market Year (MY) 2016-17, Tunisian olive oil exports are estimated at 70,000 metric tons. About 70% of Tunisia's olive oil production is destined for

export, mainly in bulk, with 14% exported in bottles.

Tunisia's agricultural exports to the U.S. reached \$104 million in 2016 and consisted primarily of high-quality olive oil and dates. Tunisian olive oil receives preferential access to the U.S. market under the Generalized System of Preferences (GSP) framework, which was re-authorized by Congress in July 2015. In market year (MY) 2015-16, the U.S. imported 26,000 MT of Tunisian olive oil, down 42% from MY 2014-15, representing 8% of total U.S. olive oil imports.

### Export of Vegetables, Fruits, and Nuts (VFN)

The top five VFN exports of Tunisia are: (i) Dates, fresh/dried exported mainly to Morocco, France, Germany; (ii) Tomatoes, fresh/chilled, mainly to France, Netherlands, Libya; (iii) Vegetables, mainly to France, Italy, Libya; (iv) Oranges, fresh/dried, mainly to France, Algeria, Libya; (v) Watermelons, fresh, mainly to Italy, France, Libya.

Together these products account for 85% of total exports of the VFN sector. Diversification of exports of the VFN sector is very limited compared to Tunisia's main competitors (Morocco and Spain). Overall, the Tunisian agricultural sector cannot effectively compete with agricultural products from the EU. There are multiple factors that hinder the growth of the sector and its competitiveness.

Several studies observe a reduction of average size of citrus fruit over time and a greater parceling out, i.e. smaller and smaller pieces of land to grow citrus. This parceling out hinders the development of the citrus sector. It prevents intensification and

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<sup>11</sup> About three quarters of organic land in Tunisia is dedicated to growing olives, many of which are processed into oil. Organic olive farmers receive a price premium ranging from 10 to 20% relative to non-organic products (Twarog 2006). Other

organic crops include dates, jojoba, almonds, fruits and vegetables, honey and aromatic plants (IFOAM 2003).



mechanisation, and it hence negatively influences the profitability of the citrus exploitations. The VFN sector in general, just like the agricultural sector as a whole, continues to fragment over generations. Land fragmentation is still increasing; in 2006 73% of the parcels were less than 10 ha against 64% in 1976.<sup>12</sup>

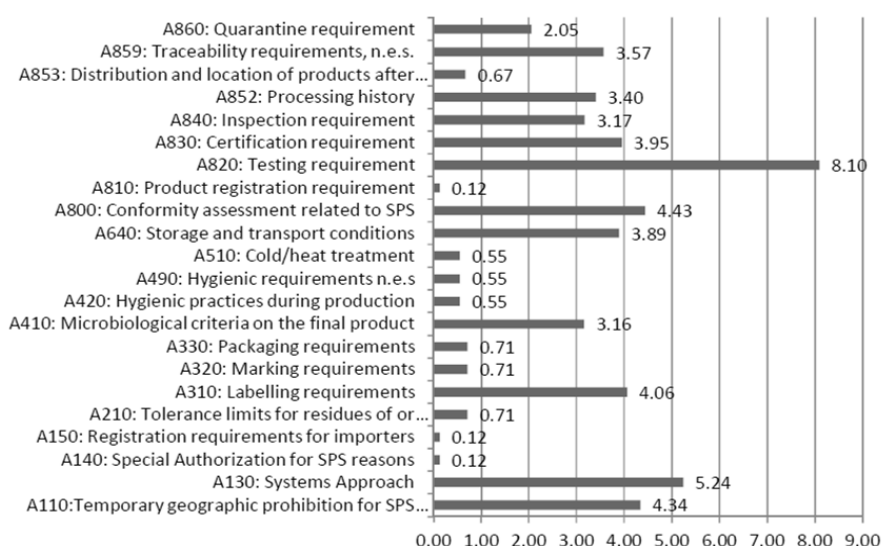
All SPS measures on products exported by Tunisia are imposed by European countries (Figure 9). The most applied SPS measures are testing requirement (8.1%), direct consignment requirement (7.4%), requirement to pass through specified port of customs (6.6%), and service charges (6.5%). In terms of measures affecting exports such as inspection requirement, and certification required by the exporting country, they represent 7.8% of all measures applied.

Ghali et al (2013) analyzed the distribution of these measures by products: 77.2% of these measures are concentrated on four product

groups - live animals and animal products (28.5%), vegetable products (12.7%), prepared foodstuffs (30%), and products of the chemical or allied industries (6%).

According to ITC 2018 a survey of 600 exporters and importers in Tunisia revealed that 80% face difficulties with non-tariff measures which generate extra costs for companies. Tunisian firms face barriers such as burdensome conformity assessment procedures, quotas and complicated rules of origin. Procedural hindrances, such as delays and high fees are the main challenges that exporters face when complying with these measures. Companies also report difficulties due to strict export requirements, such as inspection and certification for quality, as well as a lack of trade-related infrastructure. These issues need to be streamlined to raise competitiveness of Tunisian key export sectors in international markets.

**Figure 9: SPS Measures faced by Tunisia by Sub-Type (%)**



Source: Ghali et al (2013)

<sup>12</sup>Banque Africaine de Développement (2012), Distorsions aux incitations et politique agricole en Tunisie.

## 3.6 Comparative Analysis of the Five Countries

Several important points emerge from the comparative analysis of the above information about the five countries. These can be summed up as follows:

- Jordan and Oman have a very narrow export base to the EU within the agro-complex, which is dominated by seafood products. Egypt, Tunisia and Morocco have a much broader export base, yet this is also dominated by primary agricultural products.
- Over the past two decades, Jordan and Oman have shown no significant changes in the export pattern of its agro-complex to the EU
- The export diversification to the EU within the agro-complex of all countries has largely been to relatively unrelated products (exception to Oman in fish and proceed fish and for Tunisia for olive oil). This is in contrast to earlier findings by Hausmann and Klinger (2007), who concluded that countries tend to diversify to related products;

Lastly, the export patterns within the agro-complex of the five countries were investigated with regard to the stringency of NTMs in the EU (see also earlier sections) The following conclusions can be drawn:

- The hypothesis that countries would diversify their exports to the EU into products with less stringent NTMs and cease exports in products with more stringent NTM regimes seems not to hold.

Hence, compliance with NTMs does not seem to present a barrier for agro-complex exports to the EU. However, further research whether this conclusion holds for products outside the agro-complex is recommended. These results have important policy implications:

- The relative importance of EU as a destination of agro-complex exports of the five selected countries have declined over the past two decades, but is, still important. The trade relationship within the agro-complex can be further characterised by relatively high levels of extinction of export flows. Export extinction is not a healthy sign when the destination is a sizeable market like the EU with which the five countries have long-standing trading relationships;

The agricultural policy environment is clearly not sufficiently conducive to building either capacity or a more value-added orientation in the agro-complex in the five countries, judging from their disappointing agricultural policy cost rankings in 2017. Sectoral exports to a certain target region can flourish only when there is a strong policy environment that is clearly informed by the views of all relevant stakeholders.

# Conclusions and Recommendations

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This paper, examined the landscape of SPS measures and how they have affected agri-food and fish trade with mainly the EU of five heterogeneous MENA countries (Egypt, Jordan, Morocco, Oman and Tunisia). The paper uses information contained in many sources to reveal the major SPS concerns of exporters in each of these countries. Although these measures are generally not protectionist in intent, they often result in diverting trade from developing countries where production processes and certification bodies are inadequate, or where the cost of compliance to these measures is higher.

Analysis of the SPS measures reveals that animal health concerns due to disease outbreaks, food safety concerns over tolerance limits, and pest-control related concerns make up the largest share of concerns for agricultural trade. Measures applied on fish, fruits and vegetables had the highest incidences of concerns. However, the level, type and product composition of concerns vary across the selected countries.

For policy makers, a two-pronged strategy could be recommended to maintain the share of these countries in the EU markets while striving to achieve a greater share in international markets.

The first prong of this strategy involves intensifying the compliance with the requirements of EU about food safety & SPS. In enforcing food safety and SPS regulations, it is essential to provide a framework for supporting investments in complying and verifying compliance with EU food safety and SPS standards, institutional & technical capacity development, appropriate training on good practices and other technical

support related to private voluntary standards and oriented to small and medium farmers.

The second prong involves diversifying markets away from the EU and to countries with less stringent SPS requirements. It may seem an easier option and more appropriate at least in the short run. But, unfortunately, the EU decisions about imposing bans on the importation of several kinds of fruits and vegetables from the country (who tries to follow this strategy) are likely to motivate many other countries such as Russia, to impose similar bans on their imports of the same products from this particular country. Moreover, because many importing countries apply strict sanitary and quality standards policy following the EU, the failure to meet the food safety and quality control challenge means that not only the EU is closed to certain exports but other markets also.

To the extent that this two-pronged strategy is successful, the benefits for the five countries will be substantial. It will facilitate the maintenance of their access to the important EU market, while expanding and diversifying into other markets as well. Identifying the drivers of agricultural exports in alternative markets will be a useful tool to form a policy implication model of the key determinants of world agricultural exports. This point could be studied in a further paper.

Finally, the policy makers in the region are urged to act more proactively in resolving SPS hurdles across their borders. Stronger regional cooperation built on dialogue in various regional settings together with bilateral and in regional trade agreement should help achieve this goal.

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