

# **Trade Sustainability Impact Assessment in support of negotiations of a DCFTA between the EU and Tunisia**

Final Report

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Client: European Commission - DG TRADE

Rotterdam, 25 November 2013





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*This report was commissioned and financed by the European Commission. The views expressed herein are those of the Contractor, and do not represent an official view of the Commission.*

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# Preface

The European Commission, DG Trade awarded a contract to ECORYS, signed in December 2012, to conduct a trade sustainability impact assessment (Trade SIA) relating to the negotiations of a Deep and Comprehensive Free Trade Area (DCFTA) between the EU and Tunisia and to the negotiations of a DCFTA between the EU and Morocco. This is the Final Report for the Trade SIA of the EU-Tunisia DCFTA. A separate report is available for Trade SIA of the EU-Morocco DCFTA.

ECORYS is aware of the important role of this study in providing input for the negotiation process. The planning and scope of the study have been discussed with the EC to ensure optimal input in the negotiations on the basis of this study.

This Final Report (FR) is based on the Terms of Reference, the ECORYS proposal that was submitted to DG Trade, the Inception Report, the Interim Technical Report and the subsequent discussions with the Steering Committee, the EC Delegation in Tunisia and Civil Society as well as progressing insights as the study results emerged.

This report presents the main findings of the study, encompassing:

- A summary of the applied methodologies;
- Overall analysis of the economic, social, human rights and environmental sustainability impact;
- A summary of the consultation process and main inputs received;
- In-depth analysis of sustainability impact for a set of selected sectors and issues;
- A synthesis of the main potential economic, social and environmental impact;
- Policy recommendations and flanking measures based on the identified impacts.

We would like to thank all stakeholders who provided us with comments, questions and suggestions on our study, which has helped to improve the analysis of this Trade SIA.

The Ecorys Team  
25 November 2013

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## List of abbreviations

Abbreviation	Meaning
AA	Association Agreement
AMDH	The Moroccan Association of Human Rights
ANPE	National Agency for Environment Protection
APAL	Agency for Coastal Protection
ATP	Air transport
BOD	biochemical oxygen demand`
CASES	Carbon Dioxide Information Analysis Center
CDM	Clean Development Mechanism
CEDAW	Discrimination against Women
CGE	Computable General Equilibrium
CGEM	National Chamber of Commerce
CGTT	General Confederation of Tunisia Workers
CIS	Community Innovation Survey
CITES	Convention on International Trade in Endangered Species
CMPP	Caisse Nationale de Sécurité Sociale
CNLD	National Commission on Combating Desertification
CNSS	Caisse Nationale d'Assurance Maladie
CSD	Civil Society Dialogue
CSOs	Civil Society Organisations
CSR	Corporate Social Responsibility
CU	Customs Union
DCFTA	Deep and Comprehensive Free Trade Area
DDA	Doha Development Agenda
DG	Directorate General
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECOSOC	Economic and Social Council
EESC	European Economic and Social Committee
ENP	European Neighbourhood Policy
EPI	Environmental Performance Index
EU	European Union
FAO	Food and Agriculture Organisation
FIDH	Fédération internationale des Droits de l'Homme
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GTAP	Global Trade Analysis Project
HICP	Harmonised Index of Consumer Prices
HR	Human Rights

Abbreviation	Meaning
HRIA	Human Rights Impact Assessment
ICHD	International Centre of Human Development
ICT	Information and Communications Technology
ILO	International Labour Organisation
IMF	International Monetary Fund
INS	Tunisian Statistical Office
IPCC	Intergovernmental Panel on Climate Change
IPR	Intellectual Property Rights
ITR	Interim Technical Report
ITUC	International Trade Union Confederation
KoM	Kick-off-Meeting
LGBT	Lesbian, Gay, Bisexual and Transsexual
LME	Large Marine Ecosystem
MEA	Multilateral Environmental Agreement
MENA	Middle East North Africa
MSC	Marginal Social Cost
MSW	Municipal Solid Waste
NGO	Non-Governmental Organisation
NOx	Nitrogen oxide
NPV	Net present value
NTM	Non-tariff measures
OECD	Organisation for Economic Cooperation and Development
ONAS	National Sanitation Utility
ONEM	National Environment Observatory in Morocco
OPCAT	Optional Protocol to the Convention against Torture
OP-CEDAW	Optional Protocol to the Convention on Elimination of All Forms of Discrimination against Women
OP-ICCPR	Optional Protocol to the International Covenant on Civil and Political Rights
PM	Public Meeting
PNA	Purification of Wastewater National Programme
PNDM	Domestic Waste National Programme
PRONADGES	National Solid Waste Management Program
PRONGIDD	National Integrated and Sustainable Waste Management Program
PWD	Persons with disabilities
RoE	Rest of Emissions
ROW	Rest of the World
SAP	Strategic Action Programs
SC	Steering Committee
SIA	Sustainability Impact Assessment
SME	Small and medium enterprise
SO <sub>2</sub>	Sulphur dioxide
SPS	Sanitary and Phyto sanitary
TBT	Technical Barriers to Trade
TCE	Tariff Costs Equivalents

Abbreviation	Meaning
TRQ	Tariff Rate Quota
ToR	Terms of Reference
TSIA	Trade Sustainability Impact Assessment
TSP	Total suspended solid
UGTT	Tunisian General Labour Union
UTT	Tunisian Labour Union
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNHCR	UN High Commissioner for Refugees
US	United States
USD	United State Dollar
VA	Value added
WTO	World Trade Organisation



# Executive Summary

As part of a larger study that also includes a Trade SIA of the Deep and Comprehensive Free Trade Area (DCFTA) between the EU and Morocco, this report presents the impact of a DCFTA between the EU and Tunisia on economic, social, human rights and environmental indicators. Specifically, quoting from the Terms of Reference (ToR), this study aims to “*assess how the trade and trade-related provisions under negotiation could affect economic, social, and environmental issues in the EU and..... in Tunisia..... (by also taking into account the regional integration process and its potential impact), as well as in other relevant countries. Furthermore, it should propose measures (trade or non-trade – the so-called ‘beyond the border’ dimension/issues) to maximise the benefits of the DCFTAs and prevent or minimise potential negative impacts. It should also include a reference to the existing regional agreement such as the Agadir agreement of which [Tunisia is a] Member and other relevant regional integration agreements or arrangements.*” This Final Report presents the findings of the overall economic, social and environmental analysis (Phase 1), the four in-depth sector studies (Phase 2), as well as policy recommendations (Phase 3).

## Approach and definition of the DCFTA Scenario

Our approach is based on the two methodological elements of a Trade SIA described in the ToR and the Trade SIA handbook<sup>1</sup>: 1) economic, environmental and social assessments as such, applying both quantitative and qualitative analyses; and 2) stakeholder consultations. Under the first pillar, a state-of-the-art Computable General Equilibrium (CGE) model constitutes a key tool to assess the impact of a DCFTA. The scenario that is used to simulate the likely outcome of the negotiations (i.e. the inputs for the model) about the DCFTA assumes that trade between the EU and Tunisia will be liberalised according to the following assumptions regarding trade barriers:

- tariffs will only be reduced in agriculture, as tariffs on industrial goods are already eliminated under the Association Agreement; agriculture tariffs in Tunisia on EU imports are assumed to be reduced by 80 per cent, while tariffs in the EU on Tunisia imports will be reduced by 95 per cent;
- non-tariff measures (NTMs) in services as expressed in trade costs equivalents (TCEs) are assumed to be reduced by three per cent for Tunisian services entering the EU market, and eight per cent for EU services entering the Tunisian market;
- NTMs in goods are modelled either with a limited or ambitious level of regulatory approximation, or no approximation at all, depending on the sector. In addition, for all agricultural and manufacturing sectors benefits of trade facilitation are assumed;
- spill-over effects are also taken into account, because if Tunisia complies with EU rules and regulations due to approximation, it will also gain better access to third countries. This effect is expected to be 25 per cent of the level of approximation of the EU level (see previous bullet).

## Expected economic impact of the DCFTA

### Overall macroeconomic effects

Table 0.1 below summarises the main economic impacts for both the EU and Tunisia in the short and the long run, respectively.

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<sup>1</sup> Available at: [http://trade.ec.europa.eu/doclib/docs/2006/march/tradoc\\_127974.pdf](http://trade.ec.europa.eu/doclib/docs/2006/march/tradoc_127974.pdf).

**Table 0.1 Main macroeconomic effects of the DCFTA for the EU and Tunisia**

Variable	EU	Tunisia	EU	Tunisia
	Short Run		Long Run	
National Income, Million €	640	1,834	1,344	2,498
GDP, % change	0.0	4.1	0.0	7.4
Consumer prices, % change	0.0	2.6	0.0	2.3
Wages, less skilled % change	0.0	7.0	0.1	9.9
Wages, more skilled % change	0.0	7.6	0.1	10.5
Total Imports, % change	0.3	13.9	0.5	17.7
Total Exports, % change	0.3	17.7	0.5	20.4

In both the EU and Tunisia, national income is expected to increase as a result of the DCFTA. In the long-run, the expected gains in national income are an estimated € 1.3 billion for the EU and € 2.5 billion for Tunisia. **Given the size of the economies, the GDP gains in relative terms are close to zero for the EU, but translate into a significant seven per cent GDP increase for Tunisia.** Analysis of the effects of the four different channels of liberalisation (tariffs, services NTMs, goods NTMs and spill-over effects) shows that **reducing NTMs in goods is by far the most important contributor to the expected gains of the DCFTA**, while agricultural tariff reductions are the second most important measure.

The DCFTA **impact on trade flows is also significant for Tunisia**, with an expected increase in exports of 20 per cent and an 18 per cent increase in imports in the long-run, thus leading to an improvement in Tunisia's trade balance in relative terms.

In terms of wages, positive effects are also expected in Tunisia, with an increase of approximately 10 per cent in the long run. Although consumer prices are expected to rise by a little over two per cent due to the increased income and ensuing demand, due to the increase in wages **the purchasing power of Tunisian citizens is expected to improve considerably**. In the EU, the expected changes on trade, wages and consumer prices will be negligible.

#### Estimated third country effects

The EU-Tunisia DCFTA will also have an impact on third countries, mainly due to trade diversion. Although this effect is estimated to be negative for some third countries like Morocco and Turkey, **the effects are very small, and even zero when expressed as a percentage of GDP.**

#### Sector-specific changes in value added

Although the overall effects of the DCFTA on the GDP of the two trade partners are positive, the results per sector differ: while some sectors expand, others contract. In Tunisia, the most significant effect is expected in the **sector vegetable oils, with an increase of 223 per cent**, mainly resulting from reduced EU tariffs and a subsequent rise in exports. **Vegetables and fruit**, one of the biggest sectors in Tunisia in terms of value added and employment, **is estimated to expand by 4 to 5 per cent**. In the manufacturing sector, other machinery (+47 per cent), other transport equipment (+20 per cent) and electrical machinery (+18 per cent) see the largest increases, while in services, the largest service sector trade is also expected to expand most (+12 per cent).

**Sectors that are negatively affected are textiles, non-mineral products, petrochemicals (all three around – 15 per cent) and leather goods (-11 per cent).** However, the in-depth sector

analysis conducted on the textiles, clothing and leather goods sector indicates that the predicted negative effects in these sectors might not fully materialise (see below).

### Sector-specific changes in trade

The largest relative increase in Tunisian exports is expected for vegetable oils. **The export of most manufacturing sectors is also expected to increase significantly** (e.g. both other machinery and transport equipment increase by 62 per cent, whereas metals, fabricated metals and motor vehicles increase by 35 per cent), **while most services sectors witness a decrease in exports.** Imports are shown to increase across all sectors (with the exception of forestry products), and for many sectors this increase is between 10 to 35 per cent. The largest increase in percentage terms (+194 per cent) is expected in processed meat, but this sector accounts for a relatively small share in total Tunisian imports.

### Expected social and human rights impact of the DCFTA

The **average welfare level in Tunisia is expected to increase by approximately nine per cent** as a result of the DCFTA. The change in welfare is mainly driven by changes in wages and prices, because these indicators largely determine changes in disposable income and thus, in turn, affect poverty levels.

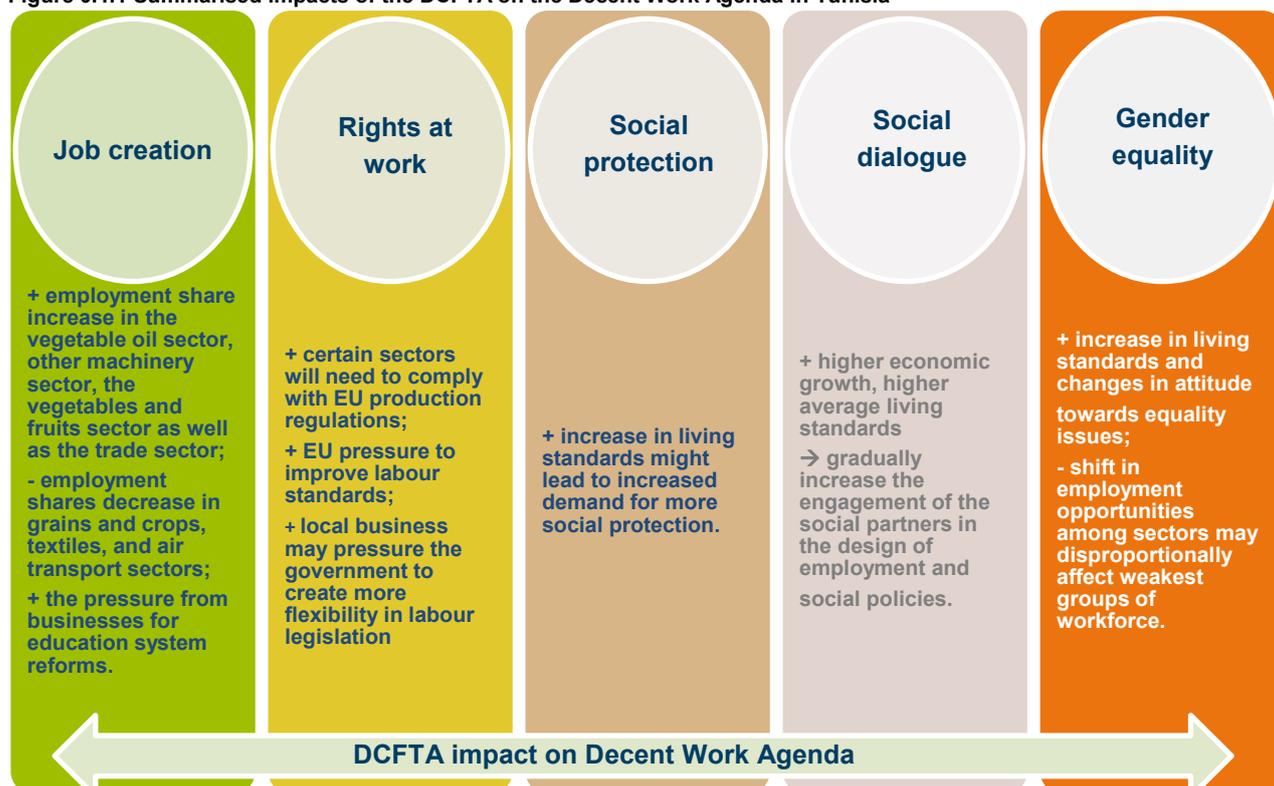
Price and wage changes predicted by the CGE model affect households differently because of differences in consumption baskets and sources of income across households. The impact on disposable income therefore also differs across different income groups. Further analysis for Tunisia shows **an increase in disposable income for all deciles of the income distribution.** The gains for the richest strata of the population are somewhat higher than for the poorest strata: 7.8 and 6.5 per cent respectively. Although these figures suggest that inequality would increase as a result of the DCFTA, this increase is only marginal.

#### **Poverty is also expected to decrease as a result of these changes in disposable income.**

People that are just above the poverty line but are unemployed are therefore most at risk as the increase in disposable income is mainly due to a rise in wages, while consumer prices go up.

The significant wage increases predicted by the model reflect the higher demand for labour, due to the increase in demand for goods and services. However, since the CGE model assumes fixed employment (i.e. only wages adjust while employment will not change), in reality this higher labour demand will lead at least in part to more hiring on the labour market as a whole, given the unemployment levels in Tunisia. **Employment is therefore expected to increase**, even though mismatches between labour supply and demand might exist. The expected reallocations of workers between sectors may however be difficult for some (especially more vulnerable) groups. With respect to labour standards, there are various forces that influence the current situation, but overall the situation is likely to improve. We have not identified any significant impact of the DCFTA with respect to social security and social dialogue. Figure 0.1 summarises the effects on the Decent Work Agenda in Tunisia.

Figure 0.1.1 Summarised impacts of the DCFTA on the Decent Work Agenda in Tunisia



With respect to human rights, the DCFTA is expected to mainly affect economic and social rights and not cultural, civil or political rights. There are various channels through which human rights are affected, e.g. increasing income may improve the right to an adequate standard of living, changes in food safety standards will affect the right to health, etc. The overall effect of the DCFTA on the human rights situation in Tunisia is likely to be small but positive.

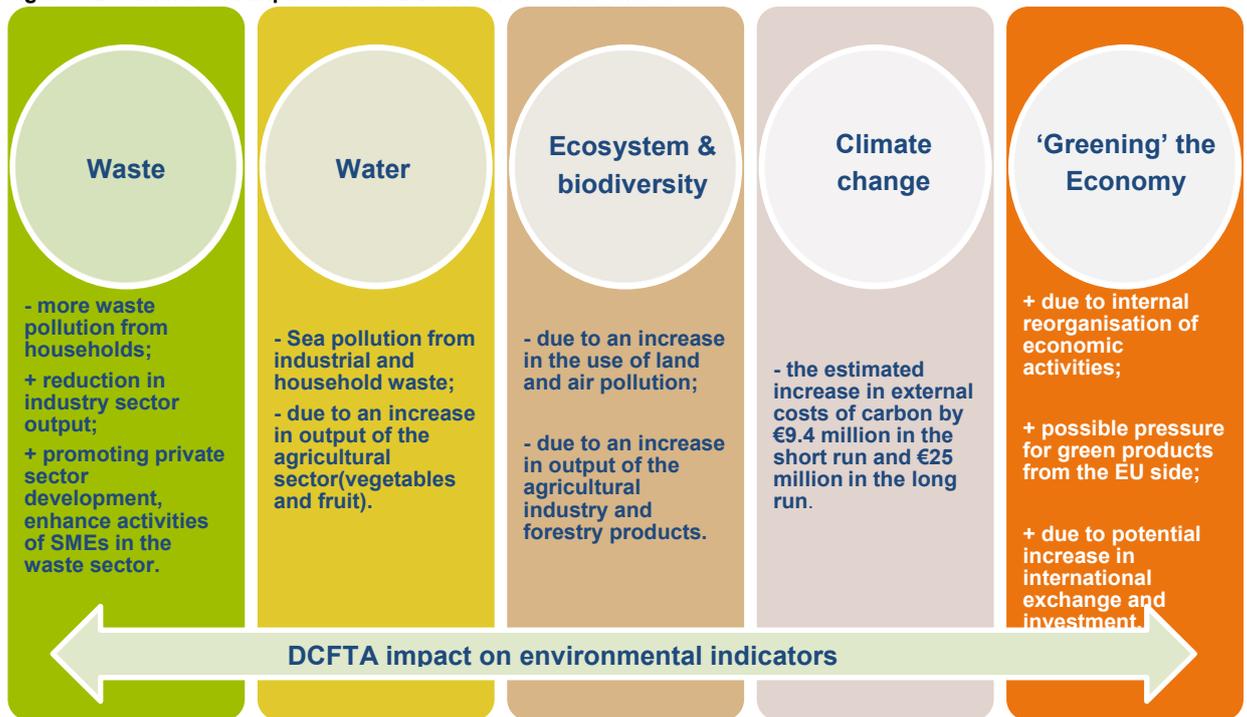
### Expected environmental impact of the DCFTA

Regarding the DCFTA impact on environmental indicators, **the DCFTA is expected to bring a combination of positive and negative environmental effects**, while the overall impact is difficult to predict with certainty.

In terms of air pollution, quantitative analysis shows that emissions of NOx and SOx decline following the implementation of the DCFTA in the short run, whereas PM emissions show a modest increase, mainly due a shift in economic activity (composition effect) from industries like primary energy, textiles, leather goods, chemicals and transport into sectors with lower air pollution intensities such as vegetables and fruit, trade and consumer services. In the long run, however, **air pollution is expected to increase** again, related to the overall growth in GDP and related production and consumption (scale effect). In monetary terms, the long-run negative effects on air pollution would lead to an increase in external costs of €40.2 million.

With respect to other types of environmental indicators, like waste, biodiversity and the green economy the impact of the DCFTA is likely to have mixed or only small effects. (see Figure 0.2 for a summary of the impacts on other indicators).

Figure 0.2 Summarised impacts of the DCFTA on the environment



### In-depth sector analysis

Four sectors or horizontal (cross cutting) issues that are of particular importance to the DCFTA have been studied in phase 2 of the study to better understand the impacts of the DCFTA: Fruits & vegetables, Textile, leather and clothing, Retail trade and Water scarcity & quality.

The **Fruits and Vegetables (F&V) sector** is a very large sector in Tunisia, both in terms of value added and employment. The expected rise in value added can be explained by an increase in exports due to increased market access opportunities (especially tariffs) and an increased domestic demand due to the expected income increase. However, as imports from the EU also increase, the trade balance for this sector slightly deteriorates (although this should be seen in the context of a strong improvement in the trade balance for the agricultural sector (incl. processed foods) as a whole). SMEs are likely to benefit, given that there are many SMEs in the sector. As the sector employs many unskilled workers, the expansion of sector may help to reduce poverty. The expected price increases in the sector will benefit the farmers, but may have some negative effects on consumers, especially on the urban poor. The main environmental effect is related to the increased demand for water resources associated with the expansion of the sector, which may further contribute to the water scarcity problem in Tunisia (see also below).

The **Textile, clothing and leather (TCL) sector** are predicted to contract as a result of the DCFTA by the CGE model. However, these results may not fully materialise as they partly stem from the general equilibrium nature of the model. As the sector is already relatively open and trades intensively with the EU, the effects of the DCFTA are likely to be relatively small for this sector. The main environmental issues related to textiles, leather sector and its use of chemicals and water in several processes, such as washing, dyeing and finishing of textiles and leathers. Further regulatory approximation in the sector as a result of the DCFTA may have some positive environmental effects. The use of chemicals falling under the REACH and Biocidal Product regulation could be expected to go down to ensure that Tunisian products can enter the EU market.

The **Retail sector** in Tunisia accounts for over 30 percent of all companies in Tunisia. This includes many small family-owned traditional shops. Since the start of the Millennium, larger, modern retailers have increased their share of the market. The DCFTA is expected to an increase in the value added of the Trade sector, which next to retail also includes wholesale and hotels and restaurants. The DCFTA mainly affects the sector through cheaper imports of consumer products, income gains which are likely to lead to more consumer spending and relaxation of foreign ownership regulations. No major social or environmental effects are expected to result from the DCFTA.

**Water scarcity and quality** are serious environmental issues for Tunisia, The annual average of water availability in Tunisia is 465 m3 per capita which is well below the water poverty threshold of 1,000 m3 per capita per year (FAO, 2009) and classifies the country in situation of absolute scarcity. Water pollution, notably chemical and bacteriological contamination is another important issue in Tunisia. The increase of the Fruits and vegetable sector is likely to further increase water scarcity, due to use of irrigation in the sector. The expansion of the sector may also negatively affect water quality, e.g. through salinization or increased use of fertilizers. On the positive side, some of the more polluting industries are expected to contract due to the DCFTA.

## Consultations with stakeholders

Consultation is a key element of the study. We have developed five main activities to involve stakeholders in the study: 1) electronic consultation and documentation. This includes a website (<http://www.trade-sia.com/Tunisia/>) and a Facebook page “tsiatunisia”, which together provide a feedback mechanism and discussion forum. In addition, we have a dedicated e-mail address and send out electronic newsletters, 2) two public meetings in the EU for EU civil society, 3) a Trade SIA Workshop in Tunisia (flanked by face-to-face meetings and interviews with relevant stakeholders), 4) attendance of other relevant conferences, workshops, meetings, etc. in the EU and Tunisia relevant to this study and 5) face-to-face or telephone interviews with key stakeholders and experts as well as a dedicated SME survey.

The main questions and inputs from stakeholders received and responded to include the following:

- suggestions for literature and stakeholders to include the analysis;
- the need to analyse the importance of mode 4 in services trade;
- the question to what extent investment policy will be included;
- the need to first conduct ex-post assessment of previous trade agreements;
- the question whether the issues of land concentration and ownership will be taken into account;
- the need to have consultations in French;
- questions on data, methods and inclusiveness of stakeholder consultations;
- the importance of employment and regional development for Tunisia and how this will be affected by the DCFTA;
- the possible negative social effects and the need for support in this area, also following current discussions on social security;
- the problem of water scarcity in the country.

## Results of the SME survey

The survey among SMEs revealed that while the majority is aware of the DCFTA preparations, they do not exactly know what the DCFTA will address. They expect that the DCFTA will solve mainly custom procedures at the border and access to raw materials, but seemed to be less aware of the effect of the DCFTA in areas like TBT, Sanitary and Phytosanitary measures (SPS) and Intellectual Property Rights (IPRs). The main benefits of the DCFTA according to the respondents was

increased export opportunities, lower import costs and the possibility to move from lower to higher value added products. Increased competition was considered as the main “cost” of the DCFTA. The survey also showed that in order to benefit from the DCFTA, many SMEs are in need of internationalisation support measures (e.g. information on markets, access to finance, etc.).

## Policy recommendations

**Table 0.2 Recommendations for the economic pillar**

Policy measure	Potential to address	
	Within DCFTA	Outside DCFTA
Allow for phasing in of tariff reduction or regulatory approximation at sector level, especially for those sectors where the economic impact will be high.	√	
Facilitation of technical assistance and capacity building in the regulatory approximation process, based on a needs assessment.	√	√
Develop a strategy to increase the value added of exports.		√
Increase awareness of the DCFTA and its implications.		√
Provide internationalisation support to SMEs.		√
Stimulate on-going improvements in the business climate.	√	√

**Table 0.3 Recommendations for the social pillar**

Policy measure	Potential to address	
	Within DCFTA	Outside DCFTA
Allow for phasing in of tariff reduction or regulatory approximation at sector level, especially for those sectors where the social impact will be high.	√	
Support flexibility of the labour market- easing reallocation between sectors while ensuring that workers’ rights are respected in law and practice.		√
Support education and training programmes to allow easier update and upgrade of human capital, with a clear link to labour market requirements, and promote life-long learning.		√
Further develop social protection system, with attention for coverage, financial management and price levels.		√
Prevent risks of pressures to lower the labour standards due to rising international competition, e.g. by effective implementation of relevant ILO conventions, and by approximating domestic legislation to the EU acquis in the area of labour.	√	√
Effective implementation of HR treaties, with a focus on vulnerable groups (e.g. children, women, minorities, disabled, etc.).	√	√
Consider creating monitoring mechanisms of the social (including human rights) impact of the DCFTA (and	√	√

Policy measure	Potential to address	
	Within DCFTA	Outside DCFTA
more broadly EU-Tunisia relations in these areas).		
Promotion of social dialogue and civil society involvement.	√	√
Provide technical assistance in improving education as well as the institutional and regulatory environment in the social policy sphere.		√

**Table 0.4 Recommendations for the environmental pillar**

Policy measure	Potential to address	
	Within DCFTA	Outside DCFTA
Create incentives for environmentally friendly production.	√	√
Maintain / further improve incentives to improve efficient use of water in agricultural and industrial production.		√
Improve waste collection and waste management systems.		√
Consider creating mechanisms for monitoring of environmental (and social) impact of the DCFTA (and more broadly EU-Tunisia relations).	√	

# 1 Overview Methodology and Approach

This chapter provides a summary of the conceptual framework and methodology used in this study. A more detailed explanation of the methodology applied is available in the Inception Report<sup>2</sup>. In this chapter we start with an overview of our general approach to the study, followed by a more detailed description of the quantitative methods applied.

## 1.1 General approach: Three phases

The main objective of this Trade Sustainability Impact Assessment (Trade SIA) is to assess the potential economic, social (including fundamental rights) and environmental impact of a Deep and Comprehensive Free Trade Area (DCFTA) to be negotiated between the EU and the Republic of Tunisia.

The overall approach to the entire Trade SIA can be divided in three linked phases:

- Overall analysis of the sustainability impacts arising from the implementation of a future DCFTA between the EU and Tunisia;
- Sectoral Trade SIA for the DCFTA with Tunisia;
- Proposals for policy recommendations and accompanying measures.

This report presents the findings for all three phases of the study.

Our approach is based on the two methodological elements of a Trade SIA described in the Terms of Reference and the Trade SIA handbook<sup>3</sup>:

1. Economic, environmental and social assessments as such; and
2. Stakeholder consultations.

The three phases are characterised by both quantitative and qualitative analyses and *throughout* the three phases, we will engage in continuous feedback and consultation with key stakeholders to collect their input and to verify the results and complement the analysis with their feedback.

## 1.2 Six main methodological pillars

We apply a methodology based on six main pillars developed on the basis of the Terms of Reference and the Trade SIA handbook as well as our own experience from previous Trade SIAs on what works well. These six pillars are:

1. Screening and scoping analysis;
2. Scenario analysis and CGE modelling;
3. Additional quantitative and qualitative analysis;
4. Sectoral Analysis;
5. Causal Chain Analysis (CCA);
6. Dissemination and consultations with key stakeholders, including civil society.

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<sup>2</sup> The Inception Report includes, in particular, a more elaborated explanation on the quantitative approach in the overall analysis of Phase 1.

<sup>3</sup> Available at: [http://trade.ec.europa.eu/doclib/docs/2006/march/tradoc\\_127974.pdf](http://trade.ec.europa.eu/doclib/docs/2006/march/tradoc_127974.pdf).

This section briefly summarises what will be done under each of these six pillars. Table 1.1 specifies in which study phases the different methodologies are used for the analysis.

**Table 1.1 Use of pillars in different phases of the study**

Phase	Pillar 1 Screening/ scoping	Pillar 2 Scenario/ CGE	Pillar 3 Additional analysis	Pillar 4 Sectoral analysis	Pillar 5 CCA	Pillar 6 Consultation & Dissemination
Phase 0: Inception	X				X	X
Phase 1: Overall analysis	X	X	X		X	X
Phase 2: Sectoral analysis			X	X	X	X
Phase 3: Policy recommendations and flanking measures					X	X

In the following sections, each of these methodological pillars is briefly discussed.

### **Pillar 1: Screening and scoping analysis**

The screening and scoping analysis is mostly used for the identification of sectors and issues that are crucial for the impacts of a DCFTA. A preliminary screening took place in the inception phase in order to focus the methodology.

At the end of Phase 1, we selected four sectors or horizontal issues that are most relevant for further analysis in Phase 2 (see chapter 6). This selection has been done in close consultation with the Steering Committee, and is based on the following criteria:

- Criterion 1: Initial importance of a sector / issues for the economy;
- Criterion 2: Impact as a result of the DCFTA;
- Criterion 3: Social / environmental importance or impact;
- Criterion 4: Stakeholder issues of special importance;
- Criterion 5: Strategic importance of sector in the negotiations.

### **Pillar 2: Scenario analysis and CGE modelling**

Pillar 2 of the analysis covers the development of scenarios that most accurately and realistically reflects the reality of the negotiations. The developed scenarios, in turn, serve as inputs for the model that aims to reflect the most relevant representation of the reality of the negotiations so as to ensure that the model outcomes accurately reflect the real measures that will be taken as part of the DCFTA. The developed DCFTA scenario are compared to the baseline scenario of a continuation of recent trends in Tunisia (i.e. a business-as-usual scenario). The model thus compares the situation with and without the DCFTA.

The liberalisation scenario models as realistically as possible the effects of a DCFTA between the EU and Tunisia. Keep in mind, the October 2012 agreement with Morocco does – only to a limited extent – affect the Tunisian baseline trade flows, so the October 2012 deal with Morocco is also in the baseline for Tunisia (indirectly). This liberalisation scenario is presented in Table 1.2 below.

**Table 1.2 Scenario DCFTA modelling**

Element	Liberalisation
Tariff liberalisation	<ul style="list-style-type: none"> <li>• EU --&gt; Tunisia: 80% liberalisation for agricultural sectors;</li> <li>• Tunisia --&gt; EU: 95% liberalisation for agricultural sectors;</li> <li>• EU --&gt; Tunisia: 100% liberalisation for all remaining sectors;</li> <li>• Tunisia --&gt; EU: 100% liberalisation for all remaining sectors.</li> </ul>
Services liberalisation	<ul style="list-style-type: none"> <li>• EU: 3% reduction in TCEs;</li> <li>• Tunisia: 8% reduction in TCEs.</li> </ul>
Other NTMs	<p><b>EU exports to Tunisia:</b></p> <ul style="list-style-type: none"> <li>• 4% point reduction in TCE for the ambitious liberalisation scenario;</li> <li>• 2% point reduction in TCE for the limited liberalisation scenario;</li> <li>• 0% point reduction in TCE when there is no liberalisation foreseen;</li> <li>• 2% point reduction in TCE for all agriculture &amp; manufacturing sectors due to trade facilitation.</li> </ul> <p><b>Tunisia exports to EU:</b></p> <ul style="list-style-type: none"> <li>• 8% point reduction in TCE for the ambitious liberalisation scenario;</li> <li>• 4% point reduction in TCE for the limited liberalisation scenario;</li> <li>• 0% reduction in TCE when there is no liberalisation foreseen;</li> <li>• 2% point reduction in TCE for all agriculture &amp; manufacturing sectors due to trade facilitation.</li> </ul>

The model used to quantitatively assess the potential effects of the DCFTA is a Computable General Equilibrium (CGE) model. This is a dynamic and non-linear CGE model. Data used in this model are based on the most recent version 8.0 of the GTAP dataset, which contains data benchmarked to 2007, but which are projected to 2011 using actual macro-economic data. The agreed assumptions and result indicators of the CGE model are presented in Annex A.

### **Pillar 3: Additional social and environmental quantitative and qualitative analysis**

In order to complement the results of the CGE model with relevant information that is potentially not included in the CGE model, additional quantitative and qualitative social (incl. human rights) and environmental analyses will complement the outcomes of the CGE model. Below a short overview of the methodologies of the additional social and environmental analyses is presented. For a full overview, the reader is referred to Annex B and Annex C and the inception report.

#### *Social quantitative analysis*

The social impact of the DCFTA depends on the structural characteristics of the economies involved, of its population and the specific trade reform put into place. The most important transmission channels between trade and welfare are the consumption effect (related to prices of consumer goods) and the labour income effect. We will look at these two effects by combining the results of the CGE model and the analysis of household level data for Tunisia. Our focus will be on the consumption structure of different households, which determines the DCFTA impact on their welfare and resulting distributional effects. Assumptions are made for the income effects.

#### *Environmental quantitative analysis*

In assessing the environmental effect of the DCFTA, we focus on airborne pollutants and greenhouse gases. The inputs for the environmental analysis will be the CGE results, which include predictions of CO2 emissions and sector output, and data on air pollution from EMEP and EDGAR data sources. We will then calculate the external costs associated with airborne pollutants and climate change impact, based on default damage factors as derived by the ExternE method, and impact pathway approach in particular. The decomposition analysis of the emissions and, where

possible, related external costs include specifically the scale and composition factors. Technological change is not included since the CGE model does not incorporate this.

### *Qualitative analyses*

Lastly, the CGE model results will be complemented by qualitative analyses on environmental, social and human rights issues. In the social component of the study we pay particular attention to the interaction between the DCFTA and social equality issues, the effective implementation of the ILO core labour standards, and the promotion of the ILO Decent Work Agenda. The environmental analysis addresses the situation of the natural environment beyond air pollution – e.g. water pollution, waste generation and treatment, use of land and land degradation, biodiversity, etc. as well as the implementation of multilateral environmental agreements. In addition, it addresses fundamental rights issues in Tunisia.

The main elements of the approach to this qualitative analysis are:

1. Literature review;
2. Analysis of official reporting schemes inscribed on respective international conventions;
3. Interviews with key informants and stakeholders;
4. Interpretation of quantitative results especially at the sectoral level.

The *human rights analysis* is part of the social analysis. In carrying out the Human Rights (HR) impact assessment of the DCFTA with Tunisia, we base ourselves on our experience in conducting other sustainability pillars of FTAs in previous TSIA studies and the HRIA approach developed methodologically by Walker (2009). Our HRIA approach consists of three steps that are closely aligned with the Trade SIA approach of the DG Trade Handbook (2006). First, we provide an overview of the HR picture in Tunisia. Secondly, we analyse which HR aspects are relevant to the DCFTA. Then we turn to the impact of the DCFTA, where we make an assessment of the effects of the DCFTA on HR aspects, based on the economic modelling results and additional analyses.

### **Pillar 4: In-depth analysis of sectors and horizontal issues**

The aim of the sectoral and/or horizontal issues analysis is to provide deeper insights into the effects of a potential DCFTA for sectors or issues that are important for a successful conclusion of the DCFTA. Up to four sectors or horizontal issues will be selected for further study, based on the screening and scoping exercise (pillar 1) and in consultation with the Steering Committee.

For selected sectors, a more in-depth analysis has been conducted taking as a starting point the quantitative effects resulting from the CGE analysis and the additional environmental and social analyses (pillars 2 and 3). The sectoral analysis aims to complement these findings through causal chain analysis, literature review, interviews, and inputs from sector experts. Ultimately, the in-depth analysis aims to present more detailed insights into economic (including impact on Small and Medium Enterprises (SMEs)), social (such as employment and wage effects in the sector), and environmental (including the effect of an increase in transportation services) impacts resulting from the DCFTA at sector level and in relation to specific horizontal issues.

In case of a horizontal issue, we look at important elements that affect a potential DCFTA across multiple sectors. This analysis also starts with the CGE outcomes and compares them across sectors. An example of an important horizontal issue could be SPS measures or TBT measures.

### **Pillar 5: Causal chain analysis**

Causal chain analysis (CCA) is a conceptual tool used to identify the relevant cause-effect links between the trade measures proposed and the economic, social and environmental impact this trade measure may have. It is imperative for a realistic impact assessment that the CCA is applied

to significant links between trade negotiations and their impacts. We use CCA to establish the effects of the DCFTA on sustainable development and the effect of policy measures on these effects. CCA is one of the tools that is used to formulate recommendations, and specifically flanking measures, in order to increase the positive and mitigate the negative impacts of the DCFTA between the EU and Tunisia. For more details on how we apply CCA, the reader is referred to the inception report.

#### **Pillar 6: Dissemination and consultation**

Consultation is a key element of the study since the inputs of all stakeholders to the negotiation process (businesses, administration, civil society, industry etc.) are needed to identify the main issues in relation to the sustainable development effects of the DCFTA. Hence, we aim to involve these stakeholders as actively as possible in the entire course of the study. Based on extensive analysis of the stakeholder landscape, we have developed and implemented a consultation plan, which is more elaborately presented in Chapter 5.



## 2 Economic Modelling Results

In this chapter, we present and discuss the estimated effects of the potential EU-Tunisia DCFTA using a Computable General Equilibrium (CGE) model.

First, we present the general macro-economic effects at national level. We then proceed by taking a closer look at the economic results by examining the estimates at a more disaggregate, sector specific level. Finally, we present the effects on environmental and social indicators, which will be used as inputs for the additional social and environmental analyses in Chapter 3.

### 2.1 Overview macroeconomic effects

First we consider macro-economic effects for the EU, Tunisia and the rest of the world. The estimated changes in national income, GDP, consumer prices, wages and trade indicators for the short-, as well as the long-run experiments are presented in Table 2.1 below. The short-run experiment captures the direct, static effects of liberalising trade. In the long-run, investments are allowed to adjust, which adds a dynamic effect reinforcing the comparative advantages of the EU and Tunisian economies respectively.

The relative changes presented in the table and discussed further in this chapter reflect estimated effects vis-à-vis the baseline and thus show the expected economic changes due to the establishment of a DCFTA between the EU and Tunisia or *additional* gains or losses compared to the baseline. We refer to chapter 1 for a precise description of the status quo (baseline) considered.

**Table 2.1 Overview Macroeconomic Variables**

Variable/Country	EU	Tunisia	Morocco	Egypt	Turkey	Other Middle East	Other North Africa	Other Africa	Rest of World
<b>Short run</b>									
National Income, change in mln €	639.81	1,833.97	-4.23	1.87	-4.76	0.51	1.09	-5.24	-85.57
GDP, % change	0.01	4.14	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Consumer prices, % change	0.00	2.55	0.01	0.00	0.00	0.00	0.01	0.00	0.00
Wages, less skilled %	0.00	7.01	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00
Wages, more skilled %	0.00	7.56	-0.02	0.00	0.00	0.00	-0.01	0.00	0.00
Terms of trade, % change	-0.01	2.55	-0.01	0.00	0.00	0.00	-0.03	0.00	0.00
Total Imports, % change	0.03	13.91	-0.05	-0.01	-0.01	0.00	0.00	0.00	0.00
Total Exports, % change	0.03	17.68	-0.10	-0.01	-0.02	0.00	0.00	0.00	-0.01
<b>Long Run</b>									
National Income,	1,344.42	2,498.33	-3.76	0.15	-2.57	6.15	8.46	8.42	-112.73

Variable/Country	EU	Tunisia	Morocco	Egypt	Turkey	Other Middle East	Other North Africa	Other Africa	Rest of World
million €									
GDP, % change	0.01	7.44	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Consumer prices, % change	0.00	2.27	0.01	0.01	0.00	0.00	0.01	0.00	0.00
Wages, less skilled %	0.01	9.93	-0.01	0.00	0.00	0.00	0.00	0.00	0.00
Wages, more skilled %	0.01	10.50	-0.02	0.00	0.00	0.00	0.01	0.00	0.00
Terms of trade, % change	-0.01	2.13	-0.01	0.00	0.00	0.00	-0.02	0.00	0.00
Total Imports, % change	0.05	17.65	-0.04	0.00	0.00	0.00	0.02	0.00	0.00
Total Exports, % change	0.05	20.36	-0.08	0.00	0.00	0.00	0.02	0.00	0.00

Source: IIDE CGE modelling calculations.

### National income effects

As can be seen from the first row of the table, liberalising trade between the EU and Tunisia will result in national income gains for both economies. The long-run gains, presented on the ninth row, i.e. when capital and labour is allowed to reallocate between sectors, are notably bigger than the changes estimated in the short-run setting.

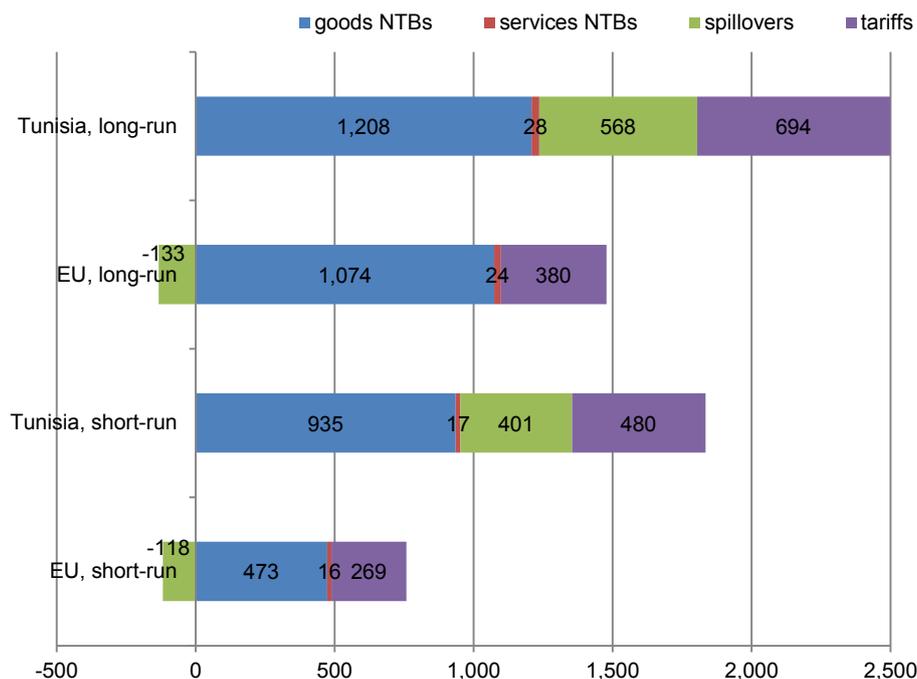
The DCFTA is expected to have a much more pronounced effect on the Tunisian economy than on the EU, as reflected by the figures in the table above. While national income in the EU is shown to increase by 640 and 1,344 million euro in the short and long run respectively, the relative effect on GDP is negligible. Furthermore, European consumer prices, wages and trade effects are negligible.

For Tunisia, the economic gains are shown to be significant. National income is estimated to increase by € 1.8 and € 2.5 billion in the short-, and long-run settings respectively. This corresponds to a GDP increase of more than 4 and 7 per cent in the short-, and long-run settings.

The difference in estimated effects between Tunisia and the EU mainly reflect the difference in relative importance of the EU and Tunisia as trading partners for each other. For Tunisia, the EU is a much more important trading partner, which implies that lowering the costs of trade will imply more pronounced changes for Tunisia.

As discussed in Chapter 1, the proposed DCFTA contains a combination of different policy measures in order to liberalise trade, i.e. lowering of agricultural tariffs, lowering of NTMs for both goods and services and concomitant spill-over effects to third countries from aligning regulations and standards. Figure 2.1 below presents the estimated changes in national income for Tunisia and the EU, but now decomposed to reveal the share of these different trade liberalisation channels in the overall effects.

**Figure 2.1 Changes in National Income million €, Divided by Trade Liberalisation Measure**



Source: IIDE CGE modelling calculations.

As previously noted, national income in the EU is estimated to increase by €640 million in the short run and about double, i.e. € 1,344 million in long run setting, when capital has reallocated across sectors. For Tunisia, the capital reallocation effect is still significant, albeit not as large as in the EU. The corresponding figures for Tunisia are € 1,834 and € 2,498 million.

As it can be seen from the figure, the lowering of NTMs in goods is by far the most important liberalising measure, accounting for half of the Tunisian gains and two-thirds of the EU gains. Agricultural tariff reductions are shown to be the second most important measure. For the EU, the harmonisation of regulations, which changes the effective trade costs, causes some trade to be diverted. This implies that the spill-over effects from reducing NTMs will have a negative contribution to national EU income. However, for Tunisia, spill-over effects also contribute importantly to the positive gains from trade liberalisation.

### Trade and terms of trade effects

As shown in Table 2.1 above, liberalising trade with the EU will also have a notable impact on Tunisian overall trade. Total imports are shown to increase by 14 and 18 per cent respectively, while the increase in exports is even bigger. Tunisian exports are estimated to increase by 18 and 20 per cent in the short and long-run.

The variable terms of trade for a country reflect how much a country's exports are worth in terms of its imports. As such, an expected improvement (i.e. positive change) in its terms of trade implies that for each unit of exports sold, the country can afford to buy more imports. Liberalising trade with the EU is estimated to increase Tunisia's terms of trade by a little over two per cent. The increase in the short run is slightly bigger than in the long run, indicating that trade prices will stabilise as the relocation of capital takes place. This increase in terms of trade is also attributable to the lowering of NTMs in the goods sectors.

### Wage and price effects

Wages for the Tunisian labour force increase significantly as a result of liberalising trade with the EU. In the short-run setting, wages increase by about seven per cent and in the long-run, the increase is around 10 per cent. The increase in incomes and demand subsequently causes Tunisian consumer prices to increase by a little over two per cent, the increase being slightly bigger in the short-term than in the long-term setting. As a result, the net effect shows that overall purchasing power for Tunisian citizens will increase significantly.

### Third country effects

Table 2.1 above shows that liberalising EU-Tunisia trade will not have any significant effect on any other country. As can be seen from the second row in the table, the estimated effect on GDP is shown to be zero for all other countries. In the short run, Turkey and Egypt will experience a marginal (0.01 per cent) decrease in trade, which will bounce back in the longer run. The Other North African countries, will experience a small decrease (-0.03 and -0.02 per cent in short and long-run respectively) in their terms of trade. The decrease (in the terms of trade situation for North African countries) is largely attributable to the lowering of goods NTMs between the EU and Tunisia, which causes their bilateral trading costs to decrease.

### EU-Tunisia Bilateral Trade Effects

In Table 2.1 above, we reported changes in overall trade for the EU and Tunisia. In this subsection, we take a closer look at what happens to the EU-Tunisian trade flows specifically. These are summarised in the table below.

**Table 2.2 Changes in EU-Tunisian bilateral trade, (in per cent)**

	short- run	long run
Tunisia exports to EU	38.3	28.8
EU exports to Tunisia	21.8	25.2

Source: IIDE CGE modelling calculations.

While the EU's aggregate trade is not expected to be affected by the DCFTA, bilateral trade with Tunisia is expected to increase considerably as bilateral trade costs are reduced due to the DCFTA. In the long run, both imports and exports to Tunisia are estimated to increase by over 25 per cent. Later on in this chapter, we will take a closer look at the most imported sectors driving the increased bilateral trade.

## 2.2 Sector specific effects

In order to learn more about the underlying changes within the economies of the EU and Tunisia, we now move on to focusing on the disaggregate, sector specific changes in value added, employment and trade as well as the resulting effects on the EU-Tunisian bilateral trading patterns.

### 2.2.1 Production and employment

#### EU

The resulting changes from trade liberalisation for the EU are marginal. All sector specific changes in production and employment are insignificant, with the exception of the vegetable oil sector. In this sector, a two per cent decrease in output is expected. However, this sector accounts for only 0.1 per cent of total EU value added and thus this change will have an insignificant impact on the EU economy as a whole. As a result of the minor impacts expected in the EU, all sector specific

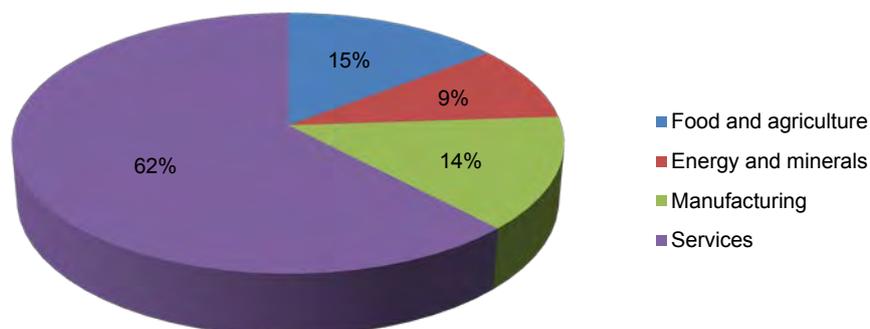
changes in the EU are presented in the Annex E and not elaborated on further here. In the following, we focus on the resulting changes across the Tunisian economy.

## Tunisia

Before analysing the changes for the Tunisian economy, we start by presenting an overview of the structure of Tunisian production and trade. Presenting the situation in the baseline for Tunisia will help to understand the relative impacts of the DCFTA on the Tunisian economy better. First, an overview of the production structure based on value added is summarised in Figure 2.2 below.

As can be seen from the figure below, the agriculture and food sector is still relatively important in Tunisia. Together with the processed food sector it constitutes around 15 per cent of total value added in the economy. Manufacturing sectors have about the same importance, with 14 per cent of value added originating from these sectors. Raw materials (mainly oil and minerals) account for 9 per cent of the value added. However, the biggest contributor to value added is the services sector, which contributes to about two-thirds of total value added in the economy.

**Figure 2.2 Overview of Tunisia's production structure**



Source: GTAP.

The patterns of employment differ from the patterns in output; this is especially the case for employment of skilled labour, as can be seen in Table 2.3 below. The primary (agricultural) sectors account for only two per cent of the total employment of skilled labour and manufacturing for around seven per cent of employment in Tunisia. Over 90 per cent of total Tunisian skilled labour is employed in the services sector, where public and other services alone account for 62 per cent of total employment. The allocation of less skilled labour is as follows: 25 per cent in the agricultural sectors, 16 per cent in manufacturing and 59 per cent in services sectors.

**Table 2.3 Sectors specific changes in Tunisian output and employment, long run setting**

Sector	Baseline share of total VA	% change in VA	Baseline share of total skilled empl.	% change in skilled empl.	Baseline share of total less skilled empl.	% change in less skilled empl.
grains and crops	0.76%	-13.91	0.05%	-14.35	1.39%	-14.29
vegetables and fruit	8.09%	4.73	0.49%	4.30	14.91%	4.43

Sector	Baseline share of total VA	% change in VA	Baseline share of total skilled empl.	% change in skilled empl.	Baseline share of total less skilled empl.	% change in less skilled empl.
other crops	0.25%	-9.93	0.02%	-10.44	0.46%	-10.35
animal products	2.27%	-4.29	0.14%	-4.75	4.19%	-4.65
forestry products	0.00%	2.68	0.00%	5.13	0.00%	5.23
fisheries	0.62%	0.33	0.01%	-0.66	0.15%	-0.57
primary energy	5.51%	-1.42	0.25%	-3.52	0.51%	-3.43
other minerals	3.89%	0.75	0.90%	0.51	2.47%	0.60
processed meats	0.44%	1.50	0.16%	-3.53	0.39%	-3.10
vegetable oils	0.15%	222.63	0.07%	182.82	0.13%	185.59
other processed foods	0.51%	-4.50	0.19%	-8.37	0.49%	-8.02
beverages and tobacco	1.43%	3.74	0.46%	-1.57	1.28%	-1.12
textiles	1.67%	-15.56	0.77%	-18.82	2.02%	-18.52
wearing apparel	2.22%	-2.40	0.96%	-6.86	2.73%	-6.42
leather goods	1.10%	-11.09	0.30%	-15.73	0.81%	-15.39
lumber, paper	1.96%	-6.70	0.52%	-11.83	1.40%	-11.45
petrochemicals	0.51%	-14.81	0.06%	-19.85	0.11%	-19.55
chemicals, rubber, plastics	2.30%	-5.56	1.15%	-10.35	2.06%	-9.94
non metallic mineral products	0.27%	-14.58	0.25%	-15.94	0.59%	-15.60
metals	0.62%	-0.97	0.30%	-5.79	0.68%	-5.34
fabricated metals	0.37%	9.82	0.30%	6.45	0.69%	7.04
motor vehicles	0.55%	-0.20	0.22%	-5.95	0.45%	-5.48
other transport equipment	0.44%	19.89	0.25%	13.06	0.52%	13.73
electrical machinery	0.98%	17.96	0.55%	10.70	0.94%	11.33
other machinery	0.87%	47.00	1.03%	42.70	1.75%	43.73
other manufactures	0.17%	3.16	0.05%	-2.47	0.17%	-1.98
utilities	2.52%	1.20	1.35%	-5.18	1.17%	-4.71
construction	5.86%	3.18	4.59%	-0.29	10.65%	0.28
trade	19.17%	12.07	7.57%	2.71	14.93%	3.43
inland transport	5.65%	-2.70	3.27%	-8.48	6.45%	-7.93
water transport	0.25%	-1.37	0.12%	-7.88	0.25%	-7.32
air transport	1.68%	-5.79	0.88%	-11.47	1.74%	-10.98
communications	2.05%	0.06	1.74%	-5.86	0.98%	-5.40
finance and insurance	4.87%	1.41	4.62%	-4.45	2.59%	-3.97
ICT other business services	4.53%	1.98	4.58%	-3.80	2.57%	-3.32
consumer services	0.03%	7.86	0.09%	7.50	0.05%	8.11
public and other services	15.46%	2.04	61.73%	0.96	17.34%	1.49

Source: IIDE CGE modelling calculations.

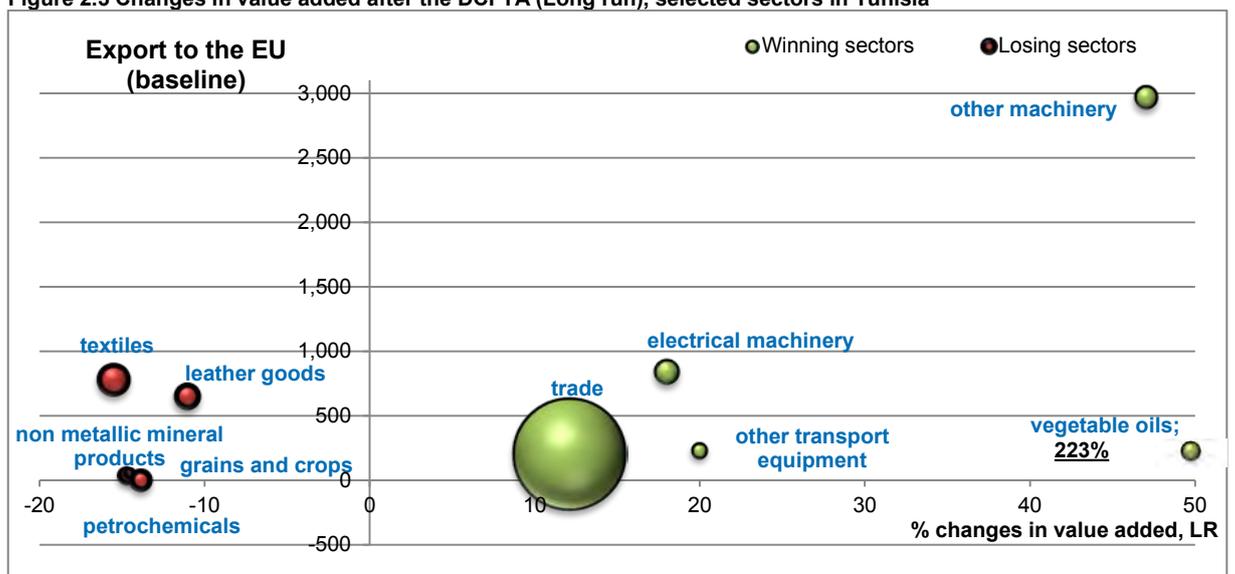
With the baseline situation for Tunisia in mind, the estimated sector specific changes in output and employment in the long- run setting for Tunisia are discussed next. These are also presented in Table 2.3 and Figures 2.3, 2.4 and 2.5. Both the table and the graphs include baseline figures, so

that the relative changes can be placed into perspective. In the graphs, the size of the bubble refers to the share of value added and employment the sector represents for Tunisia in the baseline. The vertical axis represents amount of exports in the baseline (without DCFTA) and the horizontal axis shows the expected impact from the DCFTA in the long run. Only the sectors in which the most significant changes are expected are included. Table 2.3 and the Annex E show the DCFTA effects for all sectors.

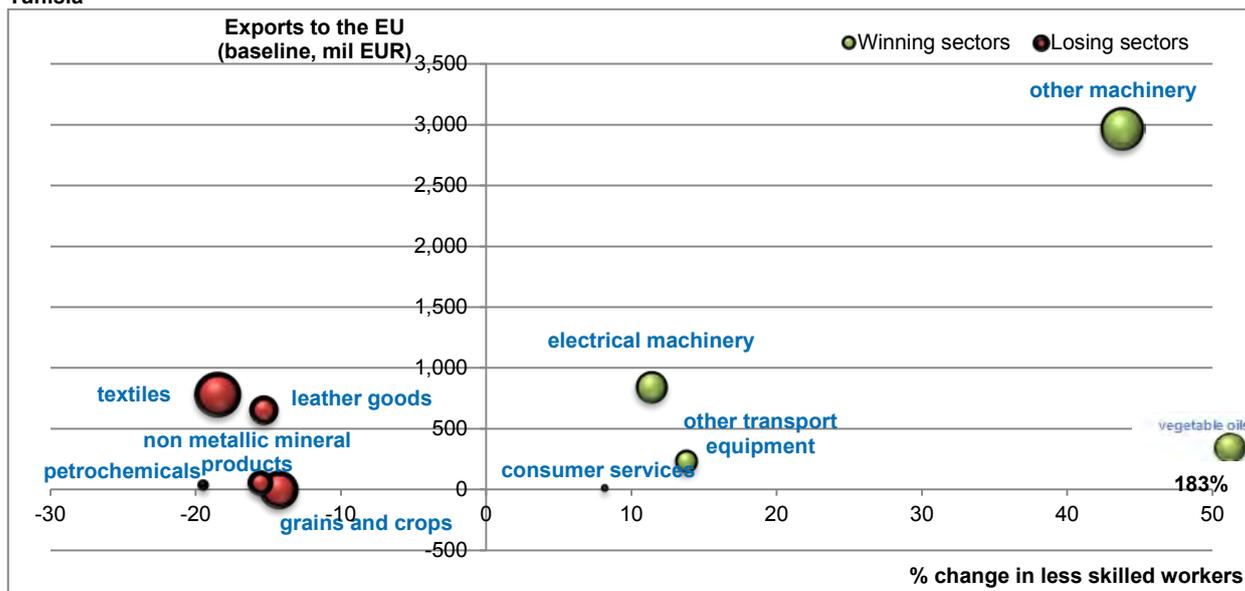
As previously noted, a large share of Tunisian production is attributable to primary production and food. It is also within these sectors that the largest relative increases in both employment and value added (VA) are expected to occur. The vegetable oils sector in Tunisia, in which exports constitute virtually all of the output, is expected to experience a significant increase of 223 per cent in value added owing to the DCFTA with the EU. The major reason for this huge change is the decrease in the EU's import duty on Tunisia's vegetable oils, which causes a rapid expansion in exports. The current level of the import duty imposed by the EU is 42.4 per cent, and the DCFTA envisages lowering it to 18.6 per cent. This makes the price of Tunisian vegetable oils in the EU significantly lower and increases the competitiveness of the oils in the EU. The EU is also expected to become the main export destination for Tunisia's vegetable oils – its share in the sector's exports of Tunisia will almost double from the current 48 per cent. Tunisia is also expected to lower its import tariffs on vegetable oils from the EU by 19 percentage points (p.p.) to 6 per cent. Nearly all vegetable oils consumed in Tunisia are imported, with the EU supplying almost 50 per cent of the sector's imports. After the trade liberalisation, vegetable oils imports in Tunisia are expected to grow by 19 per cent in the long-run and the EU will account for the bulk of the imports increase. At a national level, the vegetable oils sector amounts to only 0.15 per cent of baseline total value added, so although the relative increase is significant, the overall effect on Tunisian GDP and employment will be limited.

Vegetables and fruit, which is one of the biggest sectors in terms of value added and employment in Tunisia (eight per cent of baseline value added and 15 per cent of baseline employment of less skilled labour), is estimated to expand by four to five per cent in the long-run setting. This increase is also attributable to increased access to the EU market by the lowering of tariffs.

Figure 2.3 Changes in value added after the DCFTA (Long run), selected sectors in Tunisia



**Figure 2.4 Changes in employment (more skilled) after the DCFTA (Long run), selected sectors in Tunisia**



Within the manufacturing sectors, the industries expected to expand most rapidly in terms of value added are other machinery (+47 per cent), other transport equipment (+20 per cent) and electrical machinery (+18 per cent).

The estimated growth in value added in the other machinery sectors is primarily due to the reduction in goods NTMs. This sector operates mainly as an outsourcing platform for the EU. The EU provides 64 per cent of the sector's imports which are then mostly used as intermediates in production of final products such as other machinery. An estimated 89 per cent of the Tunisian other machinery output is exported and 93 per cent of these exports are directed to the EU. Reduced trade costs are expected to boost the sector's exports to the EU by 65 per cent. Meanwhile, imports of other machinery from the EU will grow by 26 per cent.

Tunisia's textiles and wearing apparel sectors, which together account for about 4 per cent of the total value added, are estimated to incur losses as a result of the bilateral trade liberalisation with the EU. Value added will decrease by 15.6 per cent in the textiles sector and by 2.4 per cent in the wearing apparel sector. The underlying reason for this dynamic is that the sectors, which are used for outsourcing of the EU textile and apparel industries, already benefit from low barriers to trade. Thus the DCFTA, which will significantly reduce trade costs for some other sectors, will cause the Tunisian textile and wearing apparel sectors to become relatively less competitive compared to the other industries. The number of both more skilled and less skilled workers will decrease in the two sectors as workers will shift to other sectors where wages will grow faster – primarily in the vegetable oils and other machinery sectors.

Sectors that are expected to experience substantial contractions in value added, are non-mineral products, petrochemicals (both – 15 per cent) and leather goods (-11 per cent in the long run). The lowering of NTMs in goods is shown to be the main driving force behind these changes, and the effect on employment is shown to mirror the changes taking place in production. While these changes are relatively significant in terms of percentage increases and decreases, these sectors are all relatively small in terms of output, so the overall effect on the economy will be limited.

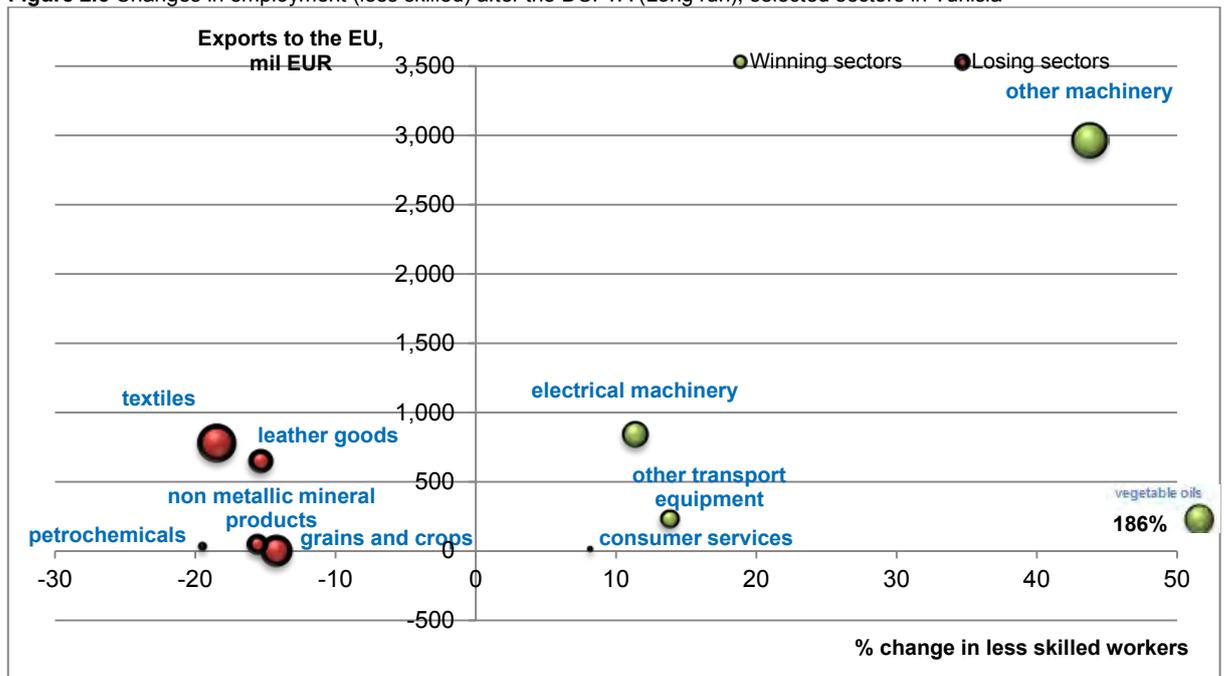
Looking at petrochemicals in Tunisia, this sector heavily depends on imports of petrochemicals from the EU. Imports of petrochemicals from the EU account for 75% of total sector's imports, and

about 78 per cent of imported petrochemicals are used as inputs in production of domestic petrochemicals. Some 22 per cent of imports are sold directly to consumers (in other words, these are processed petrochemicals like gasoline). As a result of the DCFTA, Tunisia's petrochemicals imports are expected to increase by about 122 million Euro in the long run. The results show that there is more than 20 per cent increase in private demand for imported petrochemicals, while private demand for domestically produced petrochemicals falls by about 10 per cent. Thus, the bulk of the imports increase happens in processed petrochemicals, and this has a negative effect on the domestic sector.

Some of the other sectors mentioned, although they are small in terms of production are important for Tunisian trade, so the resulting absolute changes in trading patterns will be much more notable. We will return to this later on in this chapter.

The two biggest sectors within services, i.e. trade and public and other services are both expected to expand as a result of the DCFTA, and both the lowering of goods NTMs and services NTMs are shown to be important. As can be seen from the table, the significant concentration of skilled labour in the services sectors causes the reallocation of the labour force to be somewhat more scattered and less similar to the estimated changes to VA patterns in the services sectors than in the agricultural and manufacturing sectors.

**Figure 2.5** Changes in employment (less skilled) after the DCFTA (Long run), selected sectors in Tunisia



### 2.2.2 Trade

#### Current situation

The current trading patterns between the EU and Tunisia indicate that the relationship is unbalanced, which is not surprising given the difference in sheer size of these two economies. The EU is clearly the most important trading partner for Tunisia, while it is not the case the other way around. More than 70 per cent of all Tunisian exports are destined for the EU market; less than one per cent of total extra-EU exports are destined for Tunisia.

As depicted in Table 2.4 below, the importance of the agricultural sector in production is not reflected in the current export flows from Tunisia to the EU. In fact, only four per cent of total Tunisian exports to the EU stem from food and agricultural products. We can thus conclude that agricultural products are either consumed domestically or exported to third countries. The most important exports from Tunisia to the EU include other machinery and equipment (23 per cent of total exports to the EU), footwear, textiles and clothing (30 per cent), and energy (10 per cent of exports to the EU). Meanwhile, imports from the EU are mainly attributable to other machinery (21 per cent of total EU imports from Tunisia), chemicals (23 per cent), and textiles (10 per cent). As previously pointed out, the visible two-way trade in these sectors indicates that there is important outsourcing activity taking place with inputs being imported from the EU for further processing and then re-exported from Tunisia. A possible explanation for why inputs are imported from the EU for further processing is likely to be the rules of origin of the current Euro-Mediterranean Association Agreement (see for example Brenton and Manchin, 2003a, Brenton and Manchin, 2003b).

**Table 2.4 Overview, EU and Tunisian trade**

Sector	EU's exports to Tunisia			Tunisia's exports to the EU		
	in million euros	share of total extra-EU exports	share of total exports to Tunisia	in million euros	share of total exports	share of total exports to the EU
Grains and crops	229.62	3.8%	1.8%	7.76	40.3%	0.1%
Veg, fruit, nuts, oil seeds	15.51	0.3%	0.1%	166.25	63.6%	1.3%
Other crops	33.69	0.5%	0.3%	4.80	40.4%	0.0%
Animal products	71.74	1.6%	0.6%	7.22	63.9%	0.1%
Forestry products	4.18	0.4%	0.0%	3.08	93.1%	0.0%
Fish products	21.70	2.5%	0.2%	22.32	59.0%	0.2%
Energy	0.01	0.0%	0.0%	1,263.98	97.3%	9.9%
Other minerals	41.33	0.2%	0.3%	94.38	62.8%	0.7%
Livestock and Meat Products	7.36	0.1%	0.1%	12.33	58.8%	0.1%
Vegetable oils and fats	60.78	2.1%	0.5%	156.86	48.0%	1.2%
Other processed food	208.36	0.6%	1.7%	180.26	43.4%	1.4%
Beverages and tobacco	76.09	0.3%	0.6%	12.79	30.4%	0.1%
Textiles	1,302.82	6.0%	10.4%	788.11	93.5%	6.2%
Wearing apparel	229.58	1.3%	1.8%	2,306.35	96.7%	18.1%
Leather products	356.19	2.7%	2.8%	655.92	92.4%	5.2%
Wood, paper, publishing	474.29	0.8%	3.8%	126.85	33.7%	1.0%
Petrochemicals	1,250.40	3.7%	10.0%	42.47	44.1%	0.3%
Chemicals, rubber, plastics	1,623.80	0.8%	12.9%	487.50	34.2%	3.8%
Ceramics, cement, etc.	117.74	0.6%	0.9%	55.89	32.5%	0.4%
Primary metals	692.13	1.2%	5.5%	195.21	71.5%	1.5%
Fabricated metals	315.49	0.8%	2.5%	197.42	54.7%	1.6%
Motor vehicles	786.99	0.5%	6.3%	305.70	82.3%	2.4%
Other transport	130.61	0.2%	1.0%	238.31	90.7%	1.9%
Electrical machinery	847.00	1.3%	6.7%	847.40	96.1%	6.7%
Other machinery	2,585.04	0.7%	20.6%	2,973.17	93.2%	23.4%

Sector	EU's exports to Tunisia			Tunisia's exports to the EU		
	in million euros	share of total extra-EU exports	share of total exports to Tunisia	in million euros	share of total exports	share of total exports to the EU
Other manufacturing	175.21	0.5%	1.4%	95.54	65.3%	0.8%
Utilities	13.85	0.2%	0.1%	11.85	49.8%	0.1%
Construction	213.31	0.8%	1.7%	44.27	33.8%	0.3%
Trade	77.76	0.1%	0.6%	210.75	40.9%	1.7%
Other transport	51.03	0.1%	0.4%	392.49	42.9%	3.1%
Water transport	122.16	0.5%	1.0%	58.31	48.4%	0.5%
Air transport	123.57	0.2%	1.0%	326.49	38.6%	2.6%
Communications	16.72	0.1%	0.1%	71.69	57.6%	0.6%
Finance and insurance	96.66	0.1%	0.8%	96.36	35.6%	0.8%
Business and ICT	95.90	0.1%	0.8%	135.23	42.3%	1.1%
Personal and recreational services	32.95	0.1%	0.3%	16.65	41.3%	0.1%
Public and other services	51.20	0.1%	0.4%	96.86	26.5%	0.8%
<b>Total</b>	<b>12,552.75</b>	<b>0.7%</b>	<b>100.0%</b>	<b>12,708.81</b>	<b>71.5%</b>	<b>100.0%</b>

Source: GTAP.

The sector with the highest share of total extra-EU exports to Tunisia is textiles, with six per cent of total EU exports in this sector going to Tunisia. Exports in most other sectors represent a relatively small share in total extra-EU exports.

With the exception of public services, more than 30 per cent of total exports are destined for the EU market across all sectors. In addition, there are some sectors where Tunisia is almost exclusively exporting to the EU, namely forestry products (93 per cent of total exports in this sector are destined for the EU market), energy (97 per cent), textiles (93 per cent), wearing apparel (97 per cent), leather products (92 per cent), electronics, computers (96 per cent), and other machinery and equipment (93 per cent). These figures highlight the fact that the EU is a crucial trading partner for Tunisia, and as such, any policy change affecting the trading between the two countries is likely to have an important impact on the Tunisian economy.

### Expected changes in trade flows

We now turn our attention to the expected changes to trade by analysing the estimated changes in Tunisian trade with the rest of the world. Table 2.5 below summarises both the current Tunisian trade patterns as well as the estimated percentage increases in exports and imports after concluding the DCFTA.

**Table 2.5 Sectors specific changes in Tunisian trade, long run setting**

Sector	Baseline share of total exports (in %)	% change in total exports	Baseline share of total imports (in %)	% change in total imports
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Sector	Baseline share of total exports (in %)	% change in total exports	Baseline share of total imports (in %)	% change in total imports
grains and crops	0.11	-9.45	4.06	17.93
vegetables and fruit	1.47	2.83	0.25	41.76
other crops	0.07	-19.07	0.65	9.56
animal products	0.06	-2.79	0.38	72.87
forestry products	0.02	10.60	0.05	-6.28
fisheries	0.21	2.30	0.15	32.67
primary energy	7.31	9.75	1.32	15.60
other minerals	0.85	-2.01	1.36	15.79
processed meats	0.12	-3.82	0.12	194.08
vegetable oils	1.84	238.66	1.27	19.07
other processed foods	2.34	8.85	1.87	24.17
beverages and tobacco	0.24	-0.94	0.57	28.65
textiles	4.74	-3.52	9.17	7.72
wearing apparel	13.43	0.30	1.55	25.42
leather goods	3.99	-2.47	1.98	22.67
lumber, paper	2.12	-4.46	3.09	23.64
petrochemicals	0.54	4.41	8.20	7.06
chemicals, rubber, plastics	8.03	24.23	10.85	21.28
non metallic mineral products	0.97	3.12	0.82	18.37
metals	1.54	35.12	7.72	13.59
fabricated metals	2.03	34.14	2.24	20.54
motor vehicles	2.09	36.16	5.14	21.73
other transport equipment	1.48	62.17	1.30	37.49
electrical machinery	4.96	38.42	4.86	22.99
other machinery	17.96	62.02	19.91	12.37
other manufactures	0.82	29.34	1.16	25.54
utilities	0.13	-7.25	1.20	19.76
construction	0.74	-9.65	2.09	27.27
trade	2.90	-13.19	0.75	45.99
inland transport	5.15	-7.18	0.68	33.71
water transport	0.68	0.09	1.04	3.46
air transport	4.76	-4.26	1.14	16.58
communications	0.70	-13.06	0.17	39.64
finance and insurance	1.53	-14.94	0.87	41.34
ICT other business services	1.80	-13.41	0.82	27.86
consumer services	0.23	1.41	0.35	3.87
public and other services	2.06	-21.77	0.84	40.10

Source: IIDE CGE modelling calculations.

As it is the case for EU-Tunisian bilateral trade, current Tunisian trade with the world (the second and fourth columns of the table) is concentrated in the manufacturing sectors, with other machinery being the single most important sector for both exports (18 per cent of total exports) and imports

(20 per cent of total imports). Other sectors with important shares in total trade are wearing apparel and textiles, chemicals, rubber and plastics and primary energy. While the exports of most manufacturing sectors are expected to increase significantly (e.g. both other machinery and transport equipment increase by 62 per cent, whereas metals, fabricated metals and motor vehicles increase by 35 per cent), the biggest relative increase is the almost 240 per cent increase in the export of vegetable oils. The underlying reason of this huge increase is, as previously noted, the significant lowering of EU tariffs in this sector. After the DCFTA, the EU is expected to become the main export destination for Tunisia's vegetable oils, with the EU's share of Tunisian exports in this sector expected to almost double from the current 48 per cent; almost the entire increase in the sector's output is destined for exports to the EU. However, as discussed earlier, in absolute terms this large percentage increase in the export of vegetable oils is not so dramatic: approximately 780 mln Euro in the long run, which will mean the sector's share in exports will expand from 1.8 per cent to 5.1 per cent. Nearly all vegetable oils consumed in Tunisia are imported, with the EU supplying almost 50 per cent of the sector's imports. After the trade liberalisation, vegetable oils imports in Tunisia will grow by 19 per cent in the long-run setting (to 318 mln Euro), and the EU will account for the bulk of this increase.

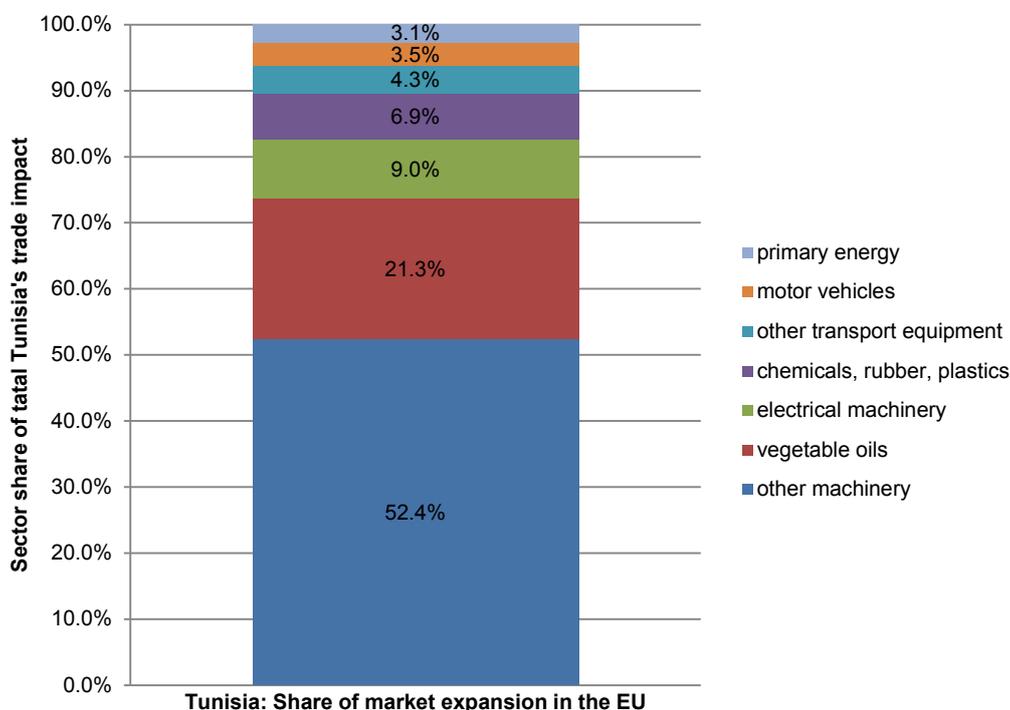
Imports are shown to increase across all sectors (with the exception of forestry products), and for many sectors this increase is in the two-digit range. Processed meat stands out as a sector that will experience the highest growth of imports in Tunisia: Total imports of the commodity are expected to rise by 194 per cent as a result of the DCFTA with the EU in the long run. Bilateral imports will grow even more dramatically – by 516 per cent in the long run. Tariffs reduction (by 36.7 p.p. to 26.3 per cent) accounts for about 39 per cent of the imports surge, and goods NTMs reduction for 51 per cent. Processed meat is primarily a final demand commodity in Tunisia, thus increasing imports will bring about higher competition in the country's meat market. However, as the baseline share of imports in the total processed meat consumption is rather low (3.6 per cent), the imports increase will not have a large effect on sector dynamics on the whole. Even with tripling of the imports volume, domestic processed meat will continue to dominate Tunisia's market. Value added in the sector will slightly grow (by 1.5 per cent in the long run), while 3.5 per cent of more skilled workers and 3.1 per cent of less skilled workers may be laid-off in order to increase productivity and make domestic products more competitive. In the baseline, this sector is accountable for the employment of 0.2 per cent of the more skilled labour force and 0.4 per cent of the less skilled labour force.

Another example of a sector with a high current protection from import, where a large impact from the DCFTA is thus expected, is grain and crops. The DCFTA with the EU envisages reduction of the sector's import tariff from 69 per cent to 30.2 per cent, which will allow EU grain producers to increase their exports to Tunisia by 45 per cent (overall imports of grain and crops will increase by 18 per cent). Imported grain is mainly consumed domestically; imports account for about 50 per cent of the grain consumption in Tunisia and around one third of imports currently comes from the EU. The Tunisian grain and crops sector is relatively more intensive in the use of less skilled labour than the grain and crops sector of the EU, which employs a higher share of more skilled labour and capital in its production structure. Tunisian grain producers will have to deal with rising production costs as rising demand for less skilled labour in other sectors will increase the wages for less skilled labour, while the import prices of grain will fall. This will negatively affect their competitiveness, and as a result, the sector's value added and employment is expected to fall by 14 per cent in the long run.

As previously pointed out, Tunisian exports to the EU are expected to increase by close to 29 per cent in the long-run. In order to understand the magnitude of sector specific trade impact of an EU-Tunisia DCFTA better, we calculate a measure which was previously used in by Copenhagen Economics (2007). The measure consists of multiplying the market share of the sector in Tunisia by

the change in its EU market size. This calculation depicts what sectors are estimated to contribute the most to the increase in the EU imports from Tunisia and as such also experience the biggest trade impacts. The sector specific allocations of these changes are depicted in Figure 2.6 below.

**Figure 2.6 Sectoral decomposition of the estimated DCFTA related expansion of Tunisia's exports to the EU in the long-run**

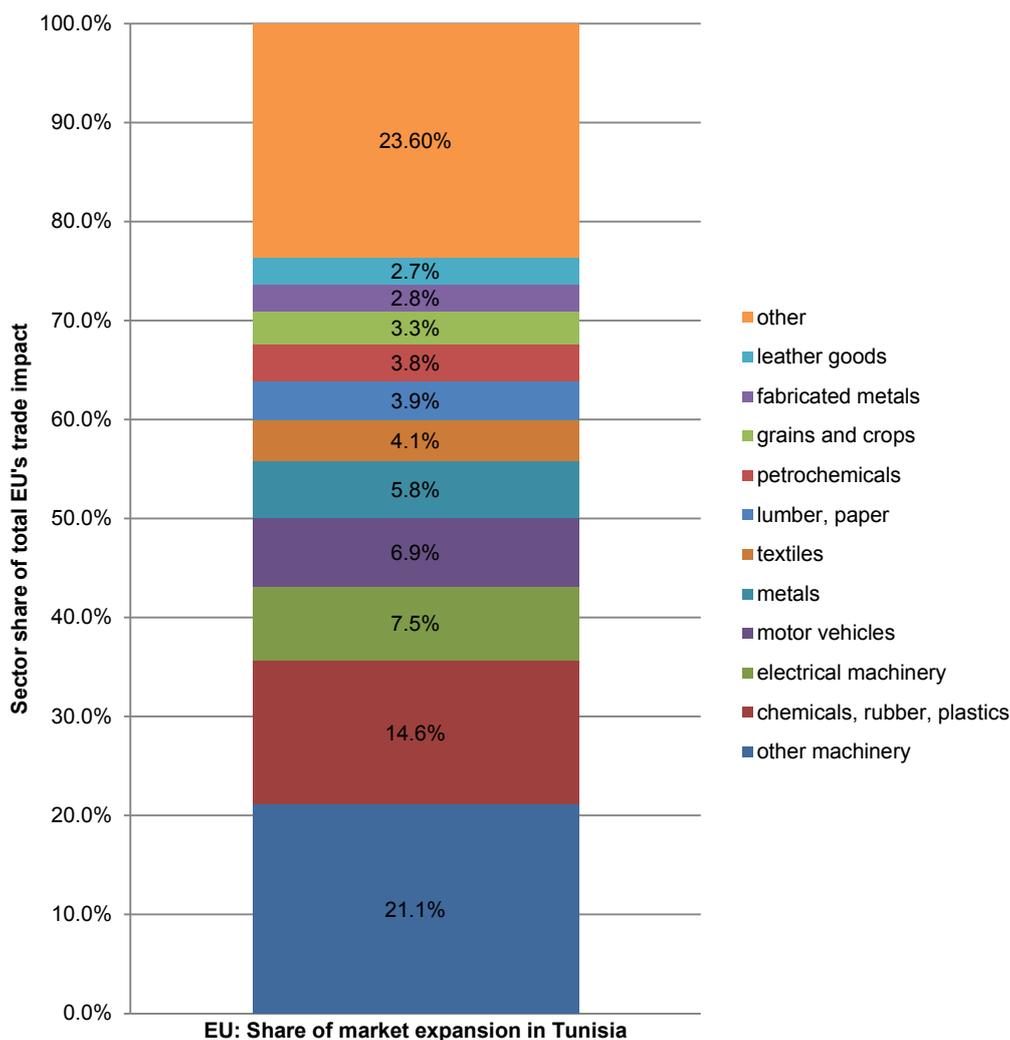


Source: IIDE CGE modelling calculations.

As can be seen from the figure, more than half of the increase in bilateral exports can be attributed to the increase in exports of other machinery products. This is followed by vegetable oils (with 21 per cent) and other manufacturing sectors (9 per cent).

For the EU (see Figure 2.7), other machinery is again the most important sector (21.1 per cent), followed by chemicals, rubber and plastics and other manufacturing sectors. Grains and crops, discussed above, accounts for 2.8 per cent of the increase in the EU exports of the EU.

**Figure 2.7 Sectoral decomposition of the estimated DCFTA related expansion of EU's exports to Tunisia in the long-run**



Source: IIDE CGE modelling calculations.

## 2.3 Environmental indicators in the CGE model

Next, we examine the estimated effects of a DCFTA on the environment by analysing the resulting effects on land use and CO<sub>2</sub> emissions. The estimated changes in land use in Tunisia and the EU, as well as the changes in CO<sub>2</sub>-emissions for Tunisia, the EU and the world in the long-run setting are presented in Table 2.6 below.

**Table 2.6 Environmental variables, long run experiment, emissions in million metric tonnes (MT) CO<sub>2</sub>**

	Change in emissions	Change in land use intensity, %
European Union Million MTCO <sub>2</sub>	0,5	
Tunisia Million MT CO <sub>2</sub>	1,3	
European Union %	0.0	0.0
Tunisia %	5.0	1.4
World, %	0.0	

Source: IIDE CGE modelling calculations.

As production patterns change, due to liberalising bilateral EU-Tunisia trade, a small increase in the emissions of CO<sub>2</sub> takes place (first column of the table). Tunisia's emissions will increase by 1.3 million MT, which represents an increase of 5 per cent compared to the status quo situation (situation without DCFTA). The expected increase in EU CO<sub>2</sub> emissions is negligible (in relative terms). In relative terms, the total increase is shown to be negligible at the global level as well.

As it can be seen from the second column, land use in the EU is shown to be unaffected, while the resulting changes in Tunisian production causes an increase in land use of 1.4 per cent.

## 2.4 Social indicators in the CGE model

Some of the estimated variables from the CGE analysis which are of special interest for the social impact assessment discussed later in this report are presented in the table below.

**Table 2.7 Social Indicators, long run setting, changes in percent**

	Wage Change		Labour displacement	
	less skilled workers	more skilled workers	less skilled workers	more skilled workers
European Union	0.01	-0.02	0.07	0.04
Tunisia	9.93	10.50	10.66	7.57

Source: IIDE CGE modelling calculations.

The first column shows the estimated changes in wages for the less skilled labour force. As previously pointed out, EU wages remain unchanged (in relative terms), while the Tunisian workers will experience a wage increase of up to 10 per cent.

The last two columns, containing labour displacement indicators, illustrate how much movement is estimated to take place between sectors within the EU and in Tunisia. Labour displacement is measured as the share of the labour force that will relocate as production patterns change as a result of the DCFTA. As could be expected, practically no labour relocation is taking place in the EU as a result of the Agreement, since the relative changes are too small to trigger any major shifts in employment. For Tunisia however, close to 11 per cent of the less skilled and eight per cent of the more skilled labour are estimated to change sectors in the longer run. The short-run estimates are similar. Liberalising trade with the EU puts pressure on the Tunisian economy to adjust production to the sectors with comparative advantage. The estimated significant wage increases point to the fact that the main reason for changing sectors is workers' opportunities to earn higher wages and to find new job opportunities in other sectors, i.e. the expanding sectors will be pulling in labour from other sectors. The expanding sectors could be characterised by a comparative advantage vis-à-vis the EU.

## 2.5 Synthesis and implications of the CGE results

The purpose of this chapter was to present and discuss the estimated effects of liberalising trade between the EU and Tunisia, using a CGE model. The model has incorporated trade liberalisation assumptions with regards to the NTMs for goods and services and tariff liberalisations. Based on simulation results from the model we analysed the estimated effects of concluding a DCFTA in a short and in a long run setting.

Given that for Tunisia the EU is one of the most important trade partners, while this is not the case the other way around, the DCFTA induced changes can be expected to be quite important for the Tunisian economy, while almost insignificant for the EU. This was confirmed by the modelling results. For Tunisia, the potential gains are expected to be significant. In the long run setting, the DCFTA implies an increase of over 7 per cent in GDP. Approximately half of these overall income gains can be attributed to lowering NTMs in goods trade between the two economies. Liberalising NTMs in services and tariff liberalisations contribute less to overall income gains.

Among the expected changes in the agricultural and food sectors, some sectors have high *a priori* levels of tariffs, and as such these sectors will see a big increase in both output, exports and bilateral trade. This is especially the case for vegetable oils, grains and crops and processed meat sectors.

Currently, EU- Tunisian trade is concentrated in manufacturing sectors, and trading patterns reveal a high share of European outsourcing, especially for the other machinery sector. Production and trade will increase significantly in this sector as a result of liberalising trade, while the textiles and apparel sector will see its comparative advantage decrease and, as a result production and exports in this sector are expected to decrease accordingly.

Tunisian wages are estimated to increase by up to 10 per cent, while consumer prices will increase by around two per cent, which on the aggregate will increase purchasing power of Tunisian consumers.

However, the estimates revealed notable levels of labour displacement in Tunisia (eight per cent for more skilled labour and 11 per cent for less skilled workers), which warrants the introduction of appropriate flanking measures and action to ease the short term losses and pains of restructuring of Tunisian production.

The estimated effects on environmental variables are very small. Global CO<sub>2</sub> emissions are unchanged, and Tunisian land use will increase by around 1 per cent.



## 3 Additional Social Analysis

This chapter contains the additional social I analysis, using a mix of quantitative and qualitative techniques. Sections 3.1 to 3.4 contain the results of the social analysis, where section 3.5 pays specific attention to the Human Rights impact. Throughout the chapter, we first present the current situation and then analyse the impact of the DCFTA.

### 3.1 Social status quo

With respect to the current social situation in Tunisia, we start by looking at some quantitative indicators (income, inequality and poverty), followed by an assessment of the current situation with respect to the ILO's Decent Work Agenda, more specifically its four pillars: 1) Creating jobs; 2) Guaranteeing rights at work; 3) Extending social protection; and 4) Promoting social dialogue. Finally, we address gender equality, as a cross-cutting objective.

#### 3.1.1 *Income, inequality and poverty levels in Tunisia*

According to the World Bank, Tunisia classifies as an upper middle income country. Average income per capita is reported at about USD 4,000 in 2011 current prices. Income development over time has kept up with the MENA region but is falling behind the overall trend for upper middle income countries. An explanation for this may be that economic growth in Tunisia falls behind large and fast growing economies in the upper middle income range such as China, Russia and Brazil as well as some of the EU Member States which joined the EU in 2004 and 2007..

Income inequality in Tunisia as measured by the Gini coefficient is fairly average, ranking at position 61 in the world according to the CIA Factbook. The World Bank reports a Gini coefficient of 36.1 for 2010. This index is scored on a 0-100 interval. A value closer to 0 (zero) indicates lower income inequality, while values closer to 100 indicate higher income inequality. Within the MENA region, Jordan has a similar income inequality (35.4), whereas inequality in Egypt is slightly lower (30.8 in 2008). Based on the Gini coefficient incomes are less equally distributed in Morocco (40.9 in 2007). Compared to the EU-27 average Gini coefficient (30.7 in 2011), income inequality is relatively high in most of the MENA region, including Tunisia.<sup>4</sup>

Explicit indicators of the extent and depth of poverty in Tunisia for 2010 give the following picture:

- The percentage of population below the national poverty line is 15.5 per cent as reported by the World Bank;
- Extreme poverty in Tunisia stands at 4.3 per cent of population that have to live on less than USD 2 a day (at 2005 international prices). Of this group, about one fourth (1.1 per cent) can spend less than USD 1.25 a day. In terms of extreme poverty, figures for Tunisia are very comparable to for example Turkey.

From a broader socio-economic perspective, enrolment in primary education as well as life expectancy at birth are above the regional average rthe region: the primary school enrolment rate in Tunisia is 99.4%, for Middle East North Africa (MENA) 93.1%; life expectancy for males and females in Tunisia are 72.9 and 76.7 years respectively, for MENA 70.1 and 74.

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<sup>4</sup> Source: Eurostat data for EU-27; World Bank figures for MENA countries.

Employment is an important factor reducing the risk and depth of poverty. The vegetables and fruit, trade and public and other services sectors provide the highest shares of total employment for less skilled workers. At shares of 15 per cent for the first two and 17 per cent for the last mentioned sector, these sectors are all expected to benefit from the DCFTA in terms of employment.

The estimated rate of labour reallocation for less skilled workers induced by the DCFTA is relatively high. About 10-11 per cent of less skilled labour will shift among sectors. The reallocation pattern implies displacement of labour and generation of new vacancies. The increase in dynamics of labour market flows creates both opportunities for the currently unemployed and a threat to those potentially vulnerable to lose their jobs.

The overall impact of the DCFTA in terms of unemployment among less skilled workers is not explicitly estimated by the CGE, but it is likely to be beneficial. The shifts in sector structure may help to get the labour market out of the currently low level of dynamics. Further positive impacts are likely due to the expected economic growth and the employment generated by sectors that employ relatively many less skilled workers.

### 3.1.2 *Decent work in Tunisia*

#### **Employment and job creation**

The labour market in Tunisia is still characterised by limited job creation, job growth in predominantly low-skill sectors, declining wages and increased precariousness of employment contracts. As labour participation and employment rates in the formal economy are low, unemployment levels are high. The difficult situation on the Tunisian labour market was one of the key factors that triggered the uprising in the Arab world in spring 2011.

#### *Supply side factors*

The situation on the labour market in Tunisia partially results from supply side factors such as population growth and a significant skills mismatch between labour demand and supply.

With respect to population growth, recent trends may improve the situation, as population growth is slowing down in Tunisia, like in other Maghreb countries. Population growth slowed down rapidly from 1,9 per cent in 1985 to 1 per cent in 2008, because of substantial improvements in female health and education, a lack of affordable housing and of high youth unemployment.<sup>5</sup> As a result, the increase of working-age population slowed down significantly from 3,1 per cent during the 1980s to 2 per cent over the period 2005-2008. It is expected that the growth of the working age population will slow down even further, thereby reducing pressures on the labour market and continuing to contribute to reduce to unemployment. For the time being however, the large young population continues to pressure on the Tunisian labour market. The number of new jobs created has not been enough to absorb all new entrants on the labour market. In the period 2000-2008 on average 81,000 new people entered the labour market whereas only 75,000 jobs were created, although it should be noted that this disequilibrium used to be even higher in the 1990s.

Next to demographic pressures, excess labour supply follows from the mismatch between jobs created and the skills of the labour force.<sup>6</sup> Tunisia has the highest literacy rates in the Maghreb and witnessed a large influx of skilled workers on the labour market over the last decades.<sup>7</sup> This influx

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<sup>5</sup> Cf. Carnegie 2012.

<sup>6</sup> Cf. ILO 2011.

<sup>7</sup> Cf. Carnegie 2012.

was mainly due to the large increase in university graduates from 3,618 in 1984 to 65,630 in 2009.<sup>8</sup> Since in Tunisia new jobs tend to be mainly created in the low-skilled sector, there exists a mismatch between the skills offered by (young) jobseekers and those in demand by employers.

### Key labour market data

The Arab uprising in Spring 2011 as well as the global economic crisis had a profound impact on the labour market in Tunisia. Whereas the global crisis initially affected the labour market to only a limited extent,<sup>9</sup> the situation worsened with the outbreak of the revolution and the war in Libya.

Employment opportunities are under pressure in sectors experiencing negative growth rates. These sectors include key exporting sectors, in particular manufacturing (textiles, clothing, machinery and electrical components) as well as the tourist sector. These sectors were mainly affected in the beginning of the global economic crisis, resulting in an increase in unemployment from 12.4 per cent in 2008 to 13.3 per cent in 2009.<sup>10</sup> The Revolution and the aftermath of the revolution worsened the development of these sectors as, for example, tourism receipts decreased by 37 per cent during the first ten months of 2011.<sup>11</sup> In addition, it is estimated that the war in Libya, an important trade partner, reduced economic growth by 36 per cent.<sup>12</sup> The prolongation of the global economic crisis, in particular, in Europe is likely to affect the tourist sector and exports in the upcoming years.

Figures reported by the World Bank show that the service sector accounted for almost half of total employment in the Tunisian economy in 2010, at 49 per cent of total employment. The industrial sector provides 33 per cent of total employment, while agriculture is also still a relatively large sector, accounting for 18 per cent of employment.<sup>13</sup>

These aggregate figures suggest that the economy of Tunisia is in transition from a traditional agriculture oriented structure to a modern industrialised economy. Dynamics of employment creation over recent years does not necessarily reflect this aggregate pattern, however, as it is illustrated below.

As in other Maghreb countries, the share of informal employment is high in Tunisia. According to a survey of informal employment in Tunisia number of informal workers to be 961 thousand persons in 2010, or 37% of workers in the private sector.<sup>14</sup> For the majority, their informal job were the main source of income. Almost 40 per cent of the surveyed workers was self-employed. The majority are young people (under 40 years) and men. 30 per cent have professional qualifications. This survey reveals that most informal workers are employed in the agriculture sector with a rate of 30.6%, followed by the business sector, auto mechanics and the household goods industry.

Before the economic crisis, formal jobs had been mainly created in low skilled sectors. The agriculture and trade sector were responsible for about 60 per cent of the job creation over the period 2004-2007. Workers in these sectors often have less than secondary level education. Sectors where skilled workers are required, like health care, the mechanical and electrical industry and education, produced far less jobs over that same period.

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<sup>8</sup> ILO 2011.

<sup>9</sup> Cf. ILO 2011.

<sup>10</sup> Cf. ILO 2011.

<sup>11</sup> African Development Bank (2012), p. 14.

<sup>12</sup> Ibid.

<sup>13</sup> These figures differ somewhat from the figures mentioned in section 2.2.1, which indicate an even higher share of employment in the services sector. This can be explained by the use of different data sources.

<sup>14</sup> Source: Survey of informal workers in Tunisia, Global Fairness initiative, ISTIS and TAMSS, June 2013.

Most graduate students are employed by the public sector. The government absorbs approximately half of the graduates from social sciences, exact sciences, medicine, and pharmacy.<sup>15</sup> The private sector hires only about one third of the graduates from economics management, law and advanced technicians. These latter categories are exactly those in which unemployment is highest: 46 per cent of graduates from economics, management, and law, and about 40 per cent of advanced technicians are unemployed.

Unemployment is therefore to a very large extent a problem among those with tertiary education and those with higher education. The unemployment rate for those with a university degree rose from 14 per cent in 2005 to about 22 per cent in 2009. Unemployment among the non-educated and those with only primary schooling on the contrary, decreased since 2005.

Youth unemployment reached 31.2 per cent in 2008, whereas youth unemployment constituted 72 per cent of total unemployment.<sup>16</sup>

According to the ILO (2011), the lack of job opportunities partially causes the observed low participation rates. Young people in particular postpone their labour market entry by remaining longer in education, emigrate, wait for better employment prospects or withdraw entirely from the labour market as discouraged jobseekers.

Over the period of 2000-2010 labour participation initially deteriorated slightly from 47.6 per cent in 2000 to 46.5 per cent in 2004 and increased only in recent years to 47.4 per cent in 2010. Labour participation varies between different groups of workers.

**Table 3.1 Labour participation rate in Tunisia**

	2000	2004	2010
<b>Participation rate (%)</b> <sup>17</sup>	47.6	46.5	47.4
Male	71.6	69	69.7
Female	23.7	24.1	25.3

Particularly striking are the structural low levels of female participation throughout the period. Low female participation rates are caused by a number of factors that vary from longer stays in the educational system to social norms that prohibit them from entering the labour market.

### *Policies*

Tunisia's annual expenditure on labour market policies amounts to 1 per cent of its GDP, which is comparable to the EU average.<sup>18</sup> Before the revolution there were even several job creation schemes including public provision of financial incentives for hiring young people and training and mentoring young entrepreneurs.<sup>19</sup> These programmes include the *Prise en Charge par l'Etat de 50 per cent des salaires* that was introduced in 2004 and resembles a wage subsidy covering 50 per cent of the wages of young university graduates in the private sector for one year. In addition, entrepreneurship was promoted by the government through the *Programme d'accompagnement des promoteurs des petit entreprises* since 2002 and the *Système initiation administrative a la creation des entreprises* since 2009, which are aimed at the provision of business management skills to young people.

<sup>15</sup> Cf. AFDB 2012.

<sup>16</sup> Carnegie 2012.

<sup>17</sup> Source: ILO KILM 7<sup>th</sup> edition, for persons aged 15+. ILO estimates.

<sup>18</sup> Carnegie Endowment (2012).

<sup>19</sup> See for an overview of policies for the promotion of youth employment.

In light of increasing levels of youth unemployment, the Tunisian government introduced the emergency programme Amal (Arabic for “hope”) in 2011. This programme foresaw a fixed monthly allowance, health insurance and reduced fares on public transport for half-time work in the civil service. 142,000 beneficiaries participated in the scheme. The Tunisian government also started with a permanent job-creation scheme for the (semi) public sector.

It remains to be seen how exactly the revolution and the democratisation process under way impacts future employment policies. Since the situation on the Tunisian labour market was one of the main contributing factors to the uprising in 2011, it should be of prime importance for the new government to tackle these particular issues.<sup>20</sup>

In the future, jobs may also be created in new sectors by private companies, such as green energy (solar power). On 23 May 2012 Tunisia signed several international agreements that cover areas like business integrity to international investment and green growth. Through the intensification of cooperation with the OECD, Tunisia committed itself to ensuring greater multilateral cooperation, more transparency and greater business integrity. With their commitment to a Declaration on Green Growth, Tunisia seeks to achieve environmentally and socially sustainable economic growth.<sup>21</sup>

### Rights at work

The 1996 Labour Code aimed at the establishment of a more flexible labour market through the introduction of fixed-term employment contracts and other non-standard forms of employment.

There exists much evidence that these measures significantly increased precarious (non-standard) forms of employment. A large proportion of all jobs created since the introduction of the Labour Code in 1996 have been of a temporary nature across all economic sectors. According to the trade union UGTT,<sup>22</sup> in 2009 the textile industry employed between 44 per cent and 68 per cent of all its workers on temporary contracts. Another 11% worked as a trainee or intern in the sector. Only about 13 per cent of workers in the textile industry were employed through indefinite contracts. Also, 58 per cent of all staff in the tourism sector were employed on the basis of temporary contracts.

When compared to international standards however, Tunisian labour legislation is rather restrictive.<sup>23</sup> Legislation is particularly restrictive when it comes to the rules on hiring and firing of staff. The Labour Code includes the possibility of dismissal for economic and technologic reasons, but its application remained limited because of the high transaction costs for companies related to uncertain administrative and legal procedures. Given these rigidities, the total number of layoffs reached only 0.3 per cent of total employment in Tunisia between 2002 and 2008, against 10 per cent for OECD countries.

Tunisian labour legislation also offers workers protection through a minimum guaranteed wage system in the industrial sector and the agricultural sector. In practice, however, there has been a downward pressure on wages, mostly as a result of wage-moderation strategies implemented as part of the IMF's structural adjustment programme from 1986 onwards.

A study on informal workers shown that almost all surveyed informal workers (97.6%) lack a labour contracts.<sup>24</sup>

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<sup>20</sup> See for an introduction: ADB (2012).

<sup>21</sup> cf. OECD (2012) “Tunisia and Morocco join multilateral business integrity and green growth instruments.” Newsroom: <http://www.oecd.org/newsroom/tunisiaandmoroccojoinmultilateralbusinessintegrityandgreengrowthinstruments.htm>.

<sup>22</sup> op cit. ILO 2011, p. 45.

<sup>23</sup> Cf. AFDB (2012).

<sup>24</sup> Source: Survey of informal workers in Tunisia, Global Fairness initiative,, ISTIS and TAMSS, June 2013.

Concerning the ratification and enforcement of ILO Conventions with relevance to the Decent Work agenda, this has been elaborated upon in section 3.5. Tunisia ratified all of the ILO's fundamental conventions.<sup>25</sup> (see also Annex E).

During 2011-2012 ILO's Committee of Expert on the Application of Conventions and Recommendations (CEACR) adopted comments and/ or direct requests to the Tunisian Government that concerned all fundamental conventions.<sup>26</sup>

In 2012 the CEACR's observations on the application of conventions No. 29 and 105 on elimination of forced labour concerned the trafficking of persons and the undertaking of purely military duties when carrying out military service. Here the Government of Tunisia was asked to take necessary action.

During that year the CEACR also issued observations on the conventions No. 87 and 98 on freedom of association and the right to collective bargaining. The Government of Tunisia was reminded of the fact that has not yet provided a response to the complaints of the ITUC on trade union practices in Tunisia. In addition, the CEACR urged the Tunisian Government to allow minors having reached the minimum statutory age for employment (16 years) to become a trade union member without prior approval from the parents or carers. Finally, the CEACR addressed the current lack of equal treatment of foreign and national workers in guaranteeing freedom of association.

In addition, the CEACR issued in 2012 various direct requests in the field of conventions No. 138 and 182 on elimination of child labour. The CEACR requested the Government of Tunisia to intensify its efforts to increase the number of children attending school as a main means to eliminate child labour. The Committee also called for a solid legal definition of "light work" that children are supposed to undertake as well as to legally arrange appearances of children in artistic performances. Furthermore the Committee requested further action to clearly protect children in Tunisia against pornography and paedophilia via internet.

Finally, the Committee issued both an observation and a direct request with regard to conventions No. 100 and 111 on non-discrimination. The Committee requested the Government of Tunisia to ensure equal remuneration for equal work in legislative reforms and in collective agreements. It also stated that constitutional guarantees on non-discrimination are insufficient as they should lead to measures like policies, awareness-raising campaigns and studies.

### **Social protection**

The Tunisian social security system is rated in the World Social Security Report (2010) as "comprehensive".<sup>27</sup> This rating follows mainly from the fact that the system provides protection against a wide array of risks including unemployment. The system in Tunisia includes statutory programmes on:

- Sickness;
- Maternity;
- Old age;
- Invalidity;
- Survivors;
- Family allowances;

<sup>25</sup> See also: <http://webfusion.ilo.org/public/db/standards/normes/appl/appl-ratif8conv.cfm?lang=EN>.

<sup>26</sup> [http://www.ilo.org/dyn/normlex/en/f?p=1000:13201:0:NO:13201:P13201\\_COUNTRY\\_ID:102986](http://www.ilo.org/dyn/normlex/en/f?p=1000:13201:0:NO:13201:P13201_COUNTRY_ID:102986).

<sup>27</sup> ILO (2010). World Social Security Report.

- Employment injury;
- Unemployment.

The Tunisian social security system consists of both social insurance schemes for workers and social assistance for the inactive and workers ineligible for social insurance schemes.<sup>28</sup>

Social insurance schemes are managed by three national institutions:

1. The Tunisian National Social Security Fund (*Caisse Nationale de Sécurité Sociale*, CNSS – founded in 1960) is responsible for insurance benefits for old age, disability, survivor pensions, and death and family allowances for workers (as well as unemployment support for workers in the private sector);
2. The National Pension and Social Providence Fund (*Caisse Nationale de Retraite et de Prévoyance Sociale*, CNRPS – founded in 1975) manages social protection in the public sector;
3. The Tunisian National Health Insurance Fund (*Caisse Nationale d'Assurance Maladie* CNAM - founded in 2004) manages a unified scheme for workers in the private and public sectors in the areas of health, maternity benefits, and insurance for occupational accidents and diseases.

Benefits offered by the social assistance scheme include cash benefits, free or low-cost health care, housing subsidies as well as unemployment support. The Ministry of Social Affairs directly manages the social assistance funds, with the exception of unemployment benefits. Sources of funding include taxation, social protection institutions (CNSS) and private donations.

The effectiveness of the social assistance is generally limited because of the lack of transparency in the provision of benefits, for example clientelistic behaviour by benefit providers when distributing benefits to particular groups only, and insufficient targeting of social programmes to particular groups in need.<sup>29</sup> A survey among informal workers in Tunisia showed that 80% do not know anything about social security and only 12% are aware of the procedures and steps to join the social security program, one of the main obstacles for formality.<sup>30</sup> The functioning of social insurance moreover is challenged by financial issues, especially the lack of an effective coverage rate to generate sufficient contributions to cover benefit-expenditures.

### Social dialogue

Basic trade union rights are guaranteed by the Tunisian Labour Code<sup>31</sup>. Workers have the right to establish or join a trade union and prior authorisation from the government is not required to create a union. The right to strike is also guaranteed. At the same time, the Labour Code limits the accessibility to trade unions for foreign workers. In addition, workers who participated in an unlawful strike can face prison sentences of three to eight months. Wages and working conditions are set in triennial negotiations between unions and employers after general guidelines are laid out through national tripartite consultations.

Under the rule of Bourguiba and Ben Ali, trade unions were never able to operate freely as trade unions were continuously violently suppressed.<sup>32</sup> Social dialogue was herewith imposed by the rulers to citizens through union representatives.

A social agreement was signed on 14 January 2013 by the trade union UGTT and the employer organisation UTICA and supported by the Ministry of Social Affairs in presence of the ILO Director General Guy Rider. The agreement may imply an important step towards social piece after the Arab

<sup>28</sup> See for an extensive description: ILO 2011.

<sup>29</sup> Cf. ILO (2011).

<sup>30</sup> Source: Survey of informal workers in Tunisia, Global Fairness initiative., ISTIS and TAMSS, June 2013.

<sup>31</sup> <http://survey.ituc-csi.org/Tunisia.html?lang=en#tabs-3>.

<sup>32</sup> ILO (2011), p. 94.

Spring as it covers industrial relations, social protection and employment and vocational training policy. The agreement moreover stresses the importance of social dialogue for the transition towards democracy and social justice.

At the same time, trade union operations are still obstructed and sometimes even dangerous. The ITUC found, for example, that the trade union UGTT was the target of a violent assault by Islamist militias. In addition, trade union members are more often the victims of smear campaigns, prosecutions and violence.

### 3.1.3 Gender equality

Tunisia has solid arrangements in place that protect women's rights and provide them with equal access to education and health care. Gender equality in Tunisia is arranged through the Human Status Code (Decree of August 1956). Since the country also ratified and enforces the Convention on the Elimination of All Forms of Discrimination Against Women, Tunisia counts as one of the most advanced countries in Africa in guaranteeing women's rights.<sup>33</sup> The position of women in society enabled that since 1999 female university enrolment exceeded male enrolment. On the labour market however, female labour participation is much lower than male participation. Women are also more likely to be unemployed than men.

The ITUC noted moreover, that the new UGTT executive doesn't include any women, even though women make up 47 per cent of the organisation's membership, 60 per cent in education and up to 70 per cent in the textile industry. The UGTT has promised to establish quotas for women's representation in its different structures. In March, the ITUC launch the Arab Women's Trade Union Network in Tunis, a communications network for the exchange of information and expert knowledge.

## 3.2 The scope for DCFTA role and potential impact on decent work and equality

It is challenging to identify potential impacts of the DCFTA on decent work and equality in Tunisia. Based on the outcomes of the CGE model and the qualitative account of the existing social situation it is possible to identify neutral to positive impact of the DCFTA.

## 3.3 Potential impacts

### Job creation

The CGE model is not able to predict changes in overall employment. It assumes fixed employment (i.e. employment will not change) and only wages adjust. In reality this is unlikely to be the case. The significant wage increase expected as a result of the DCFTA according to the model indicates that demand for labour increases. Given that there is still large unemployment in Tunisia, it is likely that this increased demand for labour will result in job creation, and the wage increases may therefore be less significant than predicted by the model.

At sectoral level we can say something about employment effects, as also presented in chapter 2. The DCFTA has very positive implications for employment in the vegetable oil sector and other machinery sector. And although in percentage change, the increase is smaller, given the large share of the vegetables and fruit sector as well as the trade sector in the share of unskilled labour, the increase of employment in these sector is relevant to note.

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<sup>33</sup> Cf. African Economic Outlook 2012.

The CGE model showed that employment opportunities grains and crops, textiles, and air transport sectors will decrease for both skilled and unskilled labour as a result of the DCFTA.

Business may also exert increased pressure on the government to reform the education system and retraining programmes, given the existing mismatch between skills demand and supply, which may have implications on the extent to which opportunities provided by the DCFTA may be reaped. This may in the long-run lead to further job creation.

### **Rights at work**

For certain sectors subject to the current negotiations, the DCFTA will force Tunisian producers to comply with the EU product and production regulations. While some of these standards relate to the quality of products, others also directly affect working conditions (e.g. restrictions on use of dangerous chemical substances).

The inclusion of a trade and sustainable development chapter in the DCFTA (as was the case in recently negotiated trade agreements) will help to prevent a race to the bottom in the area of rights at work. The DCFTA with Tunisia is also likely to create a monitoring mechanism that includes civil society, including trade unions and business representatives.

In addition, the DCFTA may encourage improvement of labour standards thus complementing the cooperation in the social field as established in the Association Agreement and in the new European Neighbourhood Policy Action Plan for the years 2013-2017.. Some pressure to improve labour standards may also arise from EU-based companies that intend to do business with Tunisian companies.

Finally, despite the existence of flexible labour contracts, local business may pressure the government to create more flexibility in labour legislation, e.g. to reduce hiring and firing contracts. This may contribute to job creation needed to anticipate on new business opportunities arising from the DCFTA.

### **Social protection**

In the area of social protection, potential impacts from the DCFTA will be very indirect. The coverage of social protection schemes may be expanded because of an increase in incomes and a corresponding change in societal preferences. The higher average living standards resulting from the DCFTA may lead to increased demand for more social security provided by a more efficient and broader social security system. The DCFTA impact on social protection may also be linked with potential impacts that the agreement may have on the existence and size of the informal economy and either its increase or decrease.

The Association Agreement already includes a chapter on the EU-Tunisian cooperation in the social field, therewith covering several elements of the decent work agenda. Relevant priority projects in this area are intended to improve the social protection system. In addition, the AA provides the legal basis for the implementation of limited social security coordination with the EU. Articles 65 to 68 of the AA refer to improving the portability of rights to pensions and annuities in respect of old age survivor status, industrial accident or occupational disease as well as of invalidity resulting from industrial accident or occupational disease. In order to implement these provisions, a decision of the EU – Tunisia Association Council is necessary. This is currently being negotiated and could be adopted by the Association Council by the end of 2014.

The ability to expand social protection will however also depend on, changes in fiscal revenues that follow from the DCFTA (e.g. the balance on tariff revenue losses due to tariff elimination and

additional tax collection due to economic growth), as this affects the level of funds and administrative capacity to implement such a system. The CGE model does not predict changes in fiscal revenues, and therefore the net effect is uncertain.

At the same time, business may exert pressure on the government not to increase (indirect) wage costs too much in order to remain competitive on the international and EU market. This pressure may stimulate the Tunisian government to target social security schemes more accurately and hence increase the efficiency of the schemes.

### **Social dialogue**

Several of the potential impacts of the DCFTA assume a functioning social dialogue. Recent steps in this direction such as the Social Agreement, provide an indication for the correctness of this assumption. In addition, the Arab Spring caused increased pressure to reorganise Maghreb societies more in line with democratic principles, including a social dialogue. Finally, social dialogue in Tunisia is not entirely new. Even though its functioning might not be entirely optimal, it is acknowledged to contribute to societal emancipation.

Enhanced social dialogue following from Tunisia – EU cooperation in the social field as concluded in the Association Agreement may also be reinforced by the DCFTA. Local social partners may therewith become more connected to their EU counterparts. If the DCFTA with Tunisia would follow the same pattern as other recently negotiated EU trade agreements, it will include the establishment of a monitoring mechanism also involving civil society. This would give the social partners a role in a dialogue on the agreement, its impacts and policy responses.

The impact of the DCFTA on enhanced social dialogue may also stem from its impact on higher economic growth, higher average living standards and hence gradually increasing societal interest in stronger engagement of the social partners in the design of employment and social policies, in conducting the overall reform process, in consultation of legislative proposals, in assessing impacts resulting from trade policy and dialogue about restructuring and flanking measures. Yet, the strength of these impacts is probably small and social dialogue continues to be influenced by factors not related to the DCFTA.

### **Gender equality**

If at all, gender equality issues will also be influenced only indirectly by the DCFTA. The resulting increase in living standards and changes in attitudes towards equality issues among Tunisian constituencies may yield more societal equality. Such changes may be reinforced by international conventions that support equality and condemn discrimination.

On the negative side however, shifts in employment opportunities among sectors may disproportionately affect weakest groups of the workforce: Women are often among these groups that receive unequal treatment and chances, especially if they also have low skills or belong to ethnic minorities. Even though worsening of the current situation is not very likely, it is difficult to provide an estimate for the future.

## **3.4 Analysis of poverty and income inequality effects of the DCFTA**

### **3.4.1 Introduction**

The results from the CGE model include an estimate of the impact of the DCFTA on income levels in Tunisia in the short run and in the long run. The equivalent variation indicator of the DCFTA impacts estimates an average welfare increase of 6.7 per cent in the short run and 9.1 per cent in

the long run. These welfare changes to an important extent reflect the impact of price and wage changes, which taken together point in the same direction. Though the average consumer prices increase by 2.6 per cent in the short run and 2.3 per cent in the long run, the increase in wages more than compensates for the price increase. For less skilled labour, wages increase by 7 in the short run and 9.9 per cent in the long run. Wages for more skilled labour rise as well due to the DCFTA, at 7.6 per cent and 10.5 per cent in the short and in the long run respectively.

Despite the overall gains for welfare, the CGE model cannot indicate whether the impact differs across various income groups and what is the impact on the incidence and depth of poverty. Price and wage changes predicted by the CGE model affect households differently because of differences in consumption baskets and sources of income across households. To analyse these social effects, we supplement the CGE results with information on expenditure levels and distribution across product group at the individual or household level from the 2010 Tunisian household expenditure survey.

### 3.4.2 Approach and assumptions

Generally speaking, we can identify the following channels through which the DCFTA affects individual and household welfare levels:

1. Changes in purchasing power due to changed consumption prices. This reflects the household as a consumption unit;
2. Changes in in-kind income from subsistence farming due to changes in food prices. This reflects the household as a self-sufficient unit for part of its consumption;
3. Changes in cash income from surplus farming due to changes in food prices. This reflects the household as a production unit;
4. Changes in cash income due to changes in wages. This reflects household supply on the labour market.

The way we can deal with each of these channels is determined by the information available from the household survey data:

1. The welfare impact of the price effect on consumption can be analysed. We have matched the sectors of the CGE model analysis to the 12 aggregate sectors in the household survey to address price changes and their impacts on welfare;
2. We do not have sufficient and comparable information on in-kind income to address the subsistence farming channel in consumption. We will address this aspect indirectly by providing a range of impacts using different assumptions on the incidence of price and wage effects;
3. The survey focuses on the sources and distribution of consumption expenditures. Sources of income, and their relative levels, are not included. We address this aspect qualitatively, in terms of how it may affect outcomes and for which groups;
4. In line with the focus of the survey, we do not have information on wage income by households. We have addressed this aspect explicitly by assigning wage changes according to level of education, assuming education levels translate into skill differences. For this purpose, we have matched the education levels to skill levels. The CGE model is not able to predict employment changes. Since unemployment levels are quite high in Tunisia, part of the wage income effect is likely to materialise as a change in employment levels, and part as an increase in wage levels.

To address the impact of the above channels on welfare, we follow the methodology outlined in Annex B. The Annex also describes the data and variables used, the assumptions made, and the correspondence tables that match sectors and skill levels. The measure of welfare that we use is based on a translation of price and wage effects into a money metric of welfare. The overall effect on welfare can thus be interpreted as an equivalent variation in income levels. This allows us to

analyse the impact of the DCFTA in terms of changes in disposable income to households, and assess social effects in terms of income inequality and poverty.

We distinguish several social indicators in the quantitative analysis. The indicators are further explained in the Annex B. They include:

- Poverty headcounts, to measure the incidence of poverty both in absolute and relative terms. Extreme poverty is also addressed by a separate headcount;
- Dispersion of poverty, to address the incidence of population being just below or above the poverty line;
- Poverty gap, to reflect the depth of poverty for those that are below the poverty line;
- The Gini coefficient that provides a measure of income inequality;
- The decile dispersions ratio to reflect the impact on income inequality between the 10% richest and 10% poorest households.

Poverty headcounts are provided separately for specific groups of the population in terms of sex, age, education level and geographical region. In our calculations, we use expenditure data presented as per person averages at the household level. We extrapolate these data to individual person expenditures such that we can analyse poverty indicators according to the person-level breakdown characteristics. Results at the household level are separately reported in Annex B and outcomes are generally robust in terms of direction and order of magnitude.

### 3.4.3 Quantitative analysis of social effects of the DCFTA

#### Impact on disposable income levels

The impact of the DCFTA on disposable household income provides an indication of welfare impacts for different income groups. Here, the effects of price changes and wage changes are combined into an overall welfare impact, comparable in interpretation to an equivalent variation. Average disposable income grows by 4.4 per cent in the short run and by 7.3 per cent in the long run. Median income effects are comparable, at 4.3 per cent and 7.2 per cent, respectively. These average welfare impacts are comparable to the equivalent variation estimated by the CGE model, though somewhat lower.

The impact on disposable income differs across different income groups, but shows an increase for all deciles of the income distribution. The increase in average income increases from the poorest to the richest decile. Average income for households in the poorest decile increases by 3.8 per cent in the short run. The long run effect is higher at 6.5 per cent. For the richest decile, the rise in average income is 4.9 per cent in the short and 7.8 per cent in the long run. The pattern for median incomes per decile is roughly comparable, though differences across deciles are smaller. From the differences in impacts across income groups, we could conclude that the DCFTA may lead to small increase in income inequality. Judging from the impact on the decile dispersion ratio, this impact is likely to be small. The ratio of incomes between the richest decile and the poorest decile only increases marginally from 11.95 in the baseline to 12.08 in the short run and 12.10 in the long run.

The table below provides an overview of the overall impact of the DCFTA for the selection of poverty and inequality indicators.<sup>34</sup> Indicators are calculated based on the person level rather than

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<sup>34</sup> The baseline figures for the poverty headcount and the Gini coefficient differ somewhat from those reported by the World Bank, but are comparable. Also, we were not able to exactly reproduce the values reported by the INS itself on the basis of the survey data (see INS, 2012). This is due to the fact that we could not replicate the correction factors for investment and durable goods expenditure and correction of expenditure levels for price differences. This may lead to an overestimation of poverty and income inequality in our figures. It is not likely to impair the analysis of DCFTA effects, though. The figures for

the household level. The impact is presented for the combined price and wage effects as far as we could explicitly analyse these on the basis of the available household survey data. The table furthermore includes the social indicators when only incorporating the consumption price effect or the wage income effect on disposable incomes. As such, we generate a range of effects to address potential sensitivity of the outcomes to the assumptions that we need to make. This ensures careful interpretation of the findings given the limitations to our analysis, which relies on assumptions regarding wage effects and cannot explicitly include in-kind consumption as source of income and income from surplus household production. Moreover, it helps to address specific effects on welfare that do not follow from the CGE, neither from the household data, such as changes in employment status.

Annex B presents separate tables for calculations at the person level and (where possible) the household level. Results are comparable and we confine discussion to the outcomes at the person level.<sup>35</sup>

### Poverty indicators

Poverty incidence can be expressed in terms of the poverty rate. The absolute poverty rate is the percentage of population with income or expenditure levels below the official poverty line as defined by the Tunisian Statistical Office (INS). The impact of the DCFTA on prices and wage levels combined leads to a fall in poverty incidence by about 1.4 percentage points to 15.1 per cent of population in the short run. The long run effect is higher as poverty falls to 13.9 per cent of population, mainly due to a stronger wage increase. The consumption price effect on its own leads to an increase in poverty of about 1.5 – 1.7 percentage points, as it is shown in the table. This implies that those who are or become unemployed in a situation around the poverty line are most directly vulnerable to fall below that line into poverty. The lower deciles of the income distribution could therefore be more vulnerable to lose from the DCFTA. On the other hand, if we look only at the wage effect, poverty declines. In line with the increase in real wages predicted by the CGE, the wage impact dominates, also around the poverty line. The impact on the extreme poverty rate follows the same pattern. It declines from 5.2 per cent to 4.7 per cent in the short run and onward to 4.3 per cent in the long run, because the wage increase more than offsets the price level increases.

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the Gini coefficient and absolute poverty in 2010 reported by INS are indeed a bit lower than ours: 32.7 for the Gini and 15.5 for the poverty rate.

<sup>35</sup> The decile dispersion ratio is an exception. It has only been calculated at the household level.

**Table 3.2 Social indicators at the person level: baseline and DCFTA effects**

	Baseline	Short run (total)	Short run: Price effect	Short run: Wage effect	Long run (total)	Long run: Price effect	Long run: Wage effect
<i>Poverty rate (headcount)</i>							
Absolute poverty line	16.5	15.1	18.2	13.8	13.9	18.2	12.7
Relative poverty line	17.9	18.1	18.0	17.9	18.1	18.0	17.9
Extreme absolute poverty line	5.2	4.7	5.7	4.2	4.3	5.8	3.9
<i>Poverty gap</i>							
Absolute poverty line	26.0	25.0	26.0	25.0	25.0	26.0	25.0
<i>Inequality indicators</i>							
Decile dispersion ratio (at household level)	12.0	12.1	-	-	12.1	-	-
Gini coefficient	37.8	38.0	38.0	37.9	38.0	38.0	37.9
<i>Dispersion of poverty headcount around poverty line</i>							
80% of the absolute line	9.4	8.5	10.1	7.7	7.9	10.1	7.1
120% of the absolute line	26.3	24.0	28.0	22.4	22.7	28.0	21.0
80% of the relative line	10.7	10.9	10.8	10.7	10.9	10.8	10.7
120% of the relative line	25.7	25.9	25.9	25.7	26.0	25.9	25.7
<i>Poverty headcount by sex (absolute poverty)</i>							
Male	16.1	14.7	17.7	13.5	13.6	17.8	12.4
Female	17.9	16.4	19.6	14.8	15.0	19.7	13.7
<i>Poverty headcount by age (absolute poverty)</i>							
0-14	23.3	21.5	25.3	19.7	20.0	25.4	18.4
15-24	16.9	15.6	18.6	14.1	14.3	18.6	12.8
25-44	14.6	13.2	16.2	11.9	12.1	16.2	11.1
45-64	12.4	11.3	13.7	10.3	10.4	13.7	9.4
65+	13.2	11.7	14.5	10.5	10.6	14.5	9.7
<i>Poverty headcount by education (absolute poverty)</i>							
None (1)	23.2	21.6	25.3	20.0	20.2	25.3	18.7
Koranic School (2)	8.9	7.3	10.4	6.9	6.9	10.4	6.0
Primary/Basic (3)	17.2	15.5	18.8	14.1	14.2	18.9	12.9

	Baseline	Short run (total)	Short run: Price effect	Short run: Wage effect	Long run (total)	Long run: Price effect	Long run: Wage effect
Secondary School (4)	7.8	7.1	8.6	6.0	6.1	8.7	5.5
Professional training (5)	7.2	5.9	8.4	4.6	5.5	8.4	4.6
Higher education (6)	3.7	3.4	4.5	3.0	3.0	4.5	2.6
Illiteracy Class (7)	15.5	14.0	17.0	13.5	13.5	17.0	11.5
<i>Poverty headcount by place of residence (absolute poverty)</i>							
City (grandes villes)	9.8	8.5	10.9	7.3	7.4	11.0	6.7
Medium (moyennes communes) (peri-urban)	15.2	13.7	16.8	12.3	12.4	16.8	11.4
Rural (zones non-communal)	22.1	20.7	24.1	19.3	19.4	24.1	17.8
<i>Poverty headcount by geographical region (absolute poverty)</i>							
Grand Tunis (1)	9.7	8.3	10.4	6.9	7.0	10.5	6.3
Nord Est (2)	11.3	10.1	12.6	8.6	8.8	12.7	7.7
Nord Ouest (3)	23.9	22.3	26.1	20.6	20.8	26.1	19.4
Centre Est (4)	7.3	6.5	8.2	5.6	5.8	8.3	5.3
Centre Ouest (5)	30.7	28.9	33.9	27.0	27.1	33.9	25.6
Sud Est (6)	16.3	14.9	18.2	14.0	14.0	18.2	12.0
Sud Ouest (7)	19.8	18.0	21.2	16.6	16.9	21.3	15.3

The findings for price and wage effects on absolute poverty provide some indication that low income households that can partly offset negative price effects on welfare by in-kind consumption or even surplus sales from household production are less vulnerable to the downsides of the DCFTA and may experience a relatively high increase in disposable income. A further indication for this possibility is that producer prices in most agricultural sectors increase. Hence, depending on employment status and household production possibilities, poverty incidence may improve by more or less than reported.

Although the CGE by construction cannot address both wage and aggregate employment changes simultaneously, the DCFTA is likely to reduce unemployment given the considerable real wage increase predicted by the CGE under the assumption of full employment. Potential for a reduction of unemployment for less skilled workers is not lower than for more skilled workers. The relatively higher employment share of less skilled workers in sectors where employment is expected to rise due to the DCFTA (such as trade, vegetables and fruit) is promising. Moreover, the employment growth predicted in public and other services is relatively low, but due to its share of total employment this still represents a considerable job creation. Employment growth would come at the expense of wage increases, though. This in itself may somewhat reduce the positive wage effect and increase the weight of the consumption price effect of the DCFTA in determining individual welfare impacts. Also, the high rate of job displacement between sectors for less skilled workers implies both a higher risk of getting unemployed and a higher probability of finding a job. At least in the short run, this can lead to unemployment spells affecting the income position of the households involved.

The relative poverty remains almost unchanged after the DCFTA with a slight tendency to increase. This indicator reflects differences in income distribution and poverty at the same time, as it defines the poverty line at 50 per cent of the median income. The median disposable income itself changes due to the DCFTA, as discussed earlier in this section.

The sensitivity of these findings to the definition of the poverty line can be checked using the dispersion of poverty incidence between 80 per cent - 120 per cent of the poverty line. The table shows that more than half of the poor are below 80 per cent of the absolute poverty line. The share of population below this line also declines, in line with the absolute poverty rate. Another 10 per cent of population are in between the absolute poverty line and 120 per cent of this income level. The impact of the DCFTA on the share below 120 per cent is very comparable to the absolute poverty rate. It appears that most of the decline, especially in the long run, is taking place below 80 per cent of the absolute line. Still, the group just above the poverty line, who are at risk of poverty, also declines due to the DCFTA. The impact on relative poverty is comparable across this bandwidth around the poverty line.

Next to the incidence of poverty, the depth of poverty is an important indicator. The poverty gap tells how far the income or expenditures of the poor falls below the poverty line on average. The results show that expenditure levels of the average poor person are 26 per cent below the poverty line. This figure is not affected by the DCFTA. It is important to note that we strictly separate incidence and depth of poverty. The findings thus indicate that those that still fall below the poverty line once the DCFTA has been implemented are on average just as far off that line as before.

### **Income inequality**

As it was briefly discussed before, the DCFTA appears to increase average disposable incomes more for richer deciles. This is reflected in an increase in the decile dispersion ratio. The effect is small, though. The Gini coefficient is another often used indicator of the extent of income inequality. The score is hardly affected by the DCFTA - neither in the short run, nor in the long run. These

results do not point at a high risk that DCFTA gains are very unequally distributed. As the CGE results show, wages increase a bit more for workers with higher skill levels. We would expect that this drives the difference in disposable income growth across income groups. However, the Gini coefficient actually falls if only the wage effect is included, though the effect is marginal.

### Poverty indicators: vulnerable groups

The household survey data also allow identification of the most vulnerable population groups in Tunisia in terms of poverty incidence. We report absolute poverty rates by sex, age, education levels, regional type and geographical region.

Poverty occurs particularly frequently among:

- children (reflecting household size of poor households);
- those with no or very little educational attainment;
- people living in rural areas and in particular in the Western regions of the country.

Women are more vulnerable than men, as the percentage of poor women is about a factor 1.1 of poverty among men.

The impact of the DCFTA on poverty among these groups is much in line with the overall pattern described below. Poverty declines across the board. The slightly higher wage increase for more skilled workers, combined with the assumptions that we have made in matching skill and education levels imply that poverty declines relatively more for those with higher levels of educational attainment.

### Main conclusions

Our simulations using household survey data and CGE results suggest mostly positive impacts of the DCFTA on key social outcomes.<sup>36</sup> The DCFTA is expected to boost average real income levels across all income groups. Poverty headcounts tend to fall, although in individual cases job displacement may result in unemployment and increased risk of poverty. The depth of poverty for those below the line does not change in case the DCFTA is implemented.

Poorer strata of the population may benefit a bit less from the DCFTA due to a slightly lower wage income increase, as reflected in the decile dispersion ratio and relative poverty headcount. However, Gini coefficient estimates do not suggest a major change in overall income inequality.

In interpreting these results it is important to recall that our analysis compares two hypothetical scenarios: the situation with and without a DCFTA. There is clearly a scope for policy action of Tunisian authorities in addition to the DCFTA mitigating any potential negative effects and promoting inclusive growth in general and for vulnerable groups in particular.

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<sup>36</sup> As with any other modelling approach the above results should be interpreted cautiously. In particular, positive impacts of the DCFTA may be underestimated due to the model limitations and specifically its lack of accounting for elasticity of consumption and labour mobility (*Alain de Janvry, and Elisabeth Sadoulet (2008) Methodological Note: Estimating the Effects of the Food Price Surge on the Welfare of the Poor, mimeo, UC Berkeley*). Data limitations prevent us from consistently incorporating producer price and wage effects, leaving only a partial solution based on assumptions. Other limitations are homogenous growth of wages across sectors, rooted in the CGE model specification, and the need to match household survey sectors with GTAP sectors. While these limitations may affect estimates of absolute values of some indicators, they do not undermine general conclusion about direction of DCFTA consumption price and wage income effects and their scale.

## 3.5 Human rights analysis

### 3.5.1 Introduction

In line with the actions on external policy explained in detail in the EC Communication from 19 October 2010, "Strategy for the effective implementation of the Charter of Fundamental Rights by the European Union"<sup>37</sup>, the Trade SIA of the proposed DCFTA between the EU and Tunisia needs to take into account the human rights (HR) issues, to analyse the effects that the DCFTA might bring with it for the people in these two blocs.

Methodologically, the human rights elements of this impact assessment are based on the EC Communication 'Operational Guidance on Fundamental Rights in Commission Impact Assessments',<sup>38</sup> Human Rights Impact Assessment (HRIA) work done by Simon Walker<sup>39</sup>, and experience in the analysis of human rights impacts in previous TSIA.<sup>40</sup> Our HRIA approach for this report consists of three steps that are closely aligned with the TSIA approach of the DG Trade Handbook (2006):<sup>41</sup>

- **Step 1:** Provide a concise overview of the HR landscape in Tunisia;
- **Step 2:** Based on the HR landscape, pre-select the HR elements that are most likely affected by the DCFTA;
- **Step 3:** Based on the policy (modelling) scenarios and additional analysis, look at the potential impacts from the DCFTA for the stylised HR aspects.

In line with the EU's Impact Assessment guidelines, Step 1 constitutes the baseline for human rights, while Steps 2 and 3 compare the potential DCFTA outcomes for human rights to this baseline.

### 3.5.2 Step 1: Overview of the Human Rights landscape in Tunisia

The Republic of Tunisia is a constitutional republic in North Africa (see Figure 3.1), with a population of approximately 10.8 million.<sup>42</sup> The state is an electoral democracy. The 2013 UNDP Human Development Report ranks Tunisia 94 out of 187 countries,<sup>43</sup> which characterises it as having high level of human development.<sup>44</sup> In the 2013 rating of Freedom House, an independent watchdog organisation dedicated to the expansion of freedom around the world, it falls in the category 'partly free state', its scores on civil liberties and on political rights improved after the revolution, from 5 to 4 and from 7 to 3 respectively (based on a scale where seven is the worst and one the best).<sup>45</sup> The 2012 Corruption Perception Index surveyed by Transparency International ranks Tunisia 75 out of 176 countries.<sup>46</sup>

<sup>37</sup> EC Communication "Strategy for the effective implementation of the Charter of Fundamental Rights by the European Union", COM(2010) 573 final, available at: [http://ec.europa.eu/justice/news/intro/doc/com\\_2010\\_573\\_en.pdf](http://ec.europa.eu/justice/news/intro/doc/com_2010_573_en.pdf) [accessed 20 November 2012].

<sup>38</sup> SEC(2011) 567 final, available at: [http://ec.europa.eu/governance/impact/key\\_docs/docs/sec\\_2011\\_0567\\_en.pdf](http://ec.europa.eu/governance/impact/key_docs/docs/sec_2011_0567_en.pdf) [accessed 20 November 2012].

<sup>39</sup> Walker, S. (2009). *The Future of Human Rights Impact Assessments of Trade Agreements*, Intersentia.

<sup>40</sup> See human rights sections in Ecorys TSIA studies for DCFTAs between the EU and selected Eastern Partnership countries, available at [tsia.ecorys.com](http://tsia.ecorys.com).

<sup>41</sup> EC (2006). *Handbook for Trade Sustainability Impact Assessment*, External Trade, available at: [http://trade.ec.europa.eu/doclib/docs/2006/march/tradoc\\_127974.pdf](http://trade.ec.europa.eu/doclib/docs/2006/march/tradoc_127974.pdf) [accessed 20 November 2012].

<sup>42</sup> Tunisia Demographics Profile 2013, available at: [http://www.indexmundi.com/tunisia/demographics\\_profile.html](http://www.indexmundi.com/tunisia/demographics_profile.html) [accessed 28 April 2013].

<sup>43</sup> UN Development Programme, *Human Development Report 2013 - The Rise of the South: Human Progress in a Diverse World*, 19 March 2013, ISBN 978-92-1-126340-4, available at: <http://www.refworld.org/docid/514850672.html> [accessed 28 April 2013].

<sup>44</sup> Ibid.

<sup>45</sup> Freedom House, *Freedom in the World 2013 - Tunisia*, 1 February 2013, available at: <http://www.refworld.org/docid/5113b8afc.html> [accessed 27 April 2013].

<sup>46</sup> Ibid.

Figure 3.1 Map of Tunisia



Source: www.nationsonline.org.

Since the political situation in the country has changed in January 2011, Tunisia has undergone many changes in its human rights situation. Many positive developments have been made, but some of the issues are still present or have even tended to deteriorate lately as will be elaborated below.

One of the most positive steps made is the ratification of several key international human rights treaties and their protocols, including: the International Convention for the Protection of All Persons from Enforced Disappearance, Optional Protocol to the International Covenant on Civil and Political Rights (OP- ICCPR), First Optional Protocol to the International Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (OP-CAT) and Rome Statute of the International Criminal Court.<sup>47</sup> Moreover, Tunisia's government withdrew reservations to the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW).

Next to this, new national legislation has been adopted on a number of important human rights issues. The Penal Code has been amended with respect to provisions on torture, putting them in line with international standards. New laws on freedom of expression, freedom of association and freedom of assembly have been passed. Defamation, although still considered a criminal act, is not punished by imprisonment.<sup>48</sup> Restrictions on forming or belonging to an association were removed

<sup>47</sup> See full list of ratifications of the human rights treaties by Tunisia in Annex D.

<sup>48</sup> Human Rights Watch, *World Report 2012 - Tunisia*, 22 January 2012, available at: <http://www.refworld.org/docid/4f2007bf50.html> [accessed 28 April 2013].

and providing services to an unrecognised association' was eliminated from being a crime.<sup>49</sup> A National Constituent Assembly was elected with a mandate to draft and agree a new Constitution, which is in drafting process since 2011.<sup>50</sup> The second and most recent draft of the constitution released on 14 December 2012 is reported to include improvements of the provisions regarding the freedom of expression and women's rights. Provisions that still raise concerns relate to the judicial immunity of the President, respect for international conventions ratified by Tunisia, ambiguous language used in respect of the independence of the judiciary and a discriminatory provision that a non-Muslim cannot become the head of state.<sup>51</sup>

Other positive developments include the amnesty of February 2011 when political prisoners and prisoners of conscience detained before the uprising were released.<sup>52</sup> The Department of State Security (DSS), an organisation responsible for numerous human rights violations under the dictatorial Ben Ali regime, was abolished.<sup>53</sup> Many non-governmental organisations, civil society organisations, and political parties could be registered and have been granted more freedom. Elections in 2011 have been reported as 'a dramatic improvement in electoral freedoms and practices'.<sup>54</sup>

Since 2011 Tunisia cooperates with the UN human rights mechanisms. The UN Special Rapporteur on torture and the UN Special Rapporteur on the promotion and protection of human rights and fundamental freedoms while countering terrorism visited Tunisia in May 2012. The UN Special Rapporteur on the situation of Human Rights Defenders and the Special Rapporteur on Human Rights Defenders of the African Commission on Human and Peoples' Rights jointly visited Tunisia in October 2012.

In spite of all the positive developments, until now, some considerable concerns continue to exist with respect to the reforms of the judiciary, independence of the media and full enjoyment of the right to freedom of expression, use of torture and other ill-treatment, and a thorough and transparent investigation into crimes committed by the fundamentalist groups.<sup>55</sup> National legislation needs to be put fully in line with the standards laid down in the international documents on human rights ratified by Tunisia. Using the words of the Special Rapporteur on the situation of human rights defenders, Margret Sekaggya, the drafting process of the new Constitution is in this sense 'a true test' for Tunisia and its future as a democratic state.<sup>56</sup>

Table 3.3 below summarises main human rights issues present in Tunisia.

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<sup>49</sup> Amnesty International, *Amnesty International Annual Report 2012 - Tunisia*, 24 May 2012, available at: <http://www.refworld.org/docid/4fbc3906c.html> [accessed 28 April 2013].

<sup>50</sup> Article 19 Press Release, *Tunisia: Report finds draft constitution fails to protect fundamental human rights*, 9 November 2012, available at: <http://www.article19.org/resources.php/resource/3510/en/tunisia:-report-finds-draft-constitution-fails-to-protect-fundamental-human-rights> [accessed 28 April 2013].

<sup>51</sup> Human Rights Watch, *Tunisia: Draft Constitution Still Slights Rights*, 23 January 2013, available at: <http://www.refworld.org/docid/510262212.html> [accessed 28 April 2013].

<sup>52</sup> Amnesty International, *Amnesty International Annual Report 2012 - Tunisia*, 24 May 2012, available at: <http://www.refworld.org/docid/4fbc3906c.html> [accessed 28 April 2013].

<sup>53</sup> *Ibid.*

<sup>54</sup> Freedom House, *Freedom in the World 2013 - Tunisia*, 1 February 2013, available at: <http://www.refworld.org/docid/5113b8afc.html> [accessed 27 April 2013].

<sup>55</sup> Human Rights Watch, *World Report 2013 - Tunisia*, 31 January 2013, available at: <http://www.refworld.org/docid/510fb4cc2.html> [accessed 27 April 2013].

<sup>56</sup> UN Human Rights Council, *Report of the Special Rapporteur on the situation of human rights defenders: Addendum, Mission to Tunisia*, 25 January 2013, A/HRC/22/47/Add.2, available at: <http://www.refworld.org/docid/511ca8b82.html> [accessed 27 April 2013].

**Table 3.3 Main human rights issues in Tunisia**

Human Rights issue	Insights
Civil And Political Rights	
<i>Impunity (accountability for past crimes)</i>	<p>In spite of the fact that the interim government has made some positive steps in investigating the crimes committed in the period of the uprising, in December 2010 and January 2011, many of the crimes committed during that period and in the Ben Ali era remain unpunished.<sup>57</sup> The special National Fact-Finding Commission was set up, Ben Ali was sentenced in absentia to life imprisonment, and a number of senior officials were sentenced to several years in prison.<sup>58</sup> However, as reported by Amnesty International, the investigations failed to identify direct perpetrators and due to the inadequate legal framework, senior officials were not prosecuted for command responsibility for crimes that their subordinates committed.<sup>59</sup> Investigations did not create justice for the victims and their families. Moreover, many families reportedly did not receive proper compensation.<sup>60</sup></p> <p>Current violations on torture and other ill-treatment committed by the security forces are reported to not have been properly investigated and offenders were not prosecuted. (e.g. the demonstration in Siliana on 9 April 2012).<sup>61</sup></p>
<i>Right to fair trial</i>	<p>The second draft of the Constitution generally provides for the right to fair trial. However, it does not specify the guarantees stipulated in Art. 14 of the ICCPR, which include the right to a presumption of innocence, the right to have confidential access to an independent lawyer immediately after arrest.<sup>62</sup></p> <p>The main obstacle to the efficiency of the judiciary is reported to be the lack of independence.<sup>63</sup></p> <p>Although Tunisian laws provide for an independent judiciary, the executive branch's influence over the judicial procedures persists. The Minister of Justice has been reportedly directly supervising the judiciary, appointing, transferring, promoting and removing judges.<sup>64</sup> Little progress has been made in adopting the reforms of the judiciary, particularly including the legislation on the establishment of an independent temporary judicial council that would supervise the judiciary.<sup>65</sup> This was reflected in the practice that cases involving political opponents and freedom of expression were lengthy and resulted in harsh verdicts, while crimes of religious extremists were not prosecuted.<sup>66</sup></p>

<sup>57</sup> Amnesty International Public Statement, Tunisia: Two years since the uprising, justice must be done and be seen to be done, 14 January 2013, available at: <http://www.amnesty.org/en/library/asset/MDE30/002/2013/en/2788b8d3-9ef1-4f35-91ce-b07db7ac093c/mde300022013en.html> [accessed 28 April 2013].

<sup>58</sup> *Ibid.*

<sup>59</sup> Amnesty International, *One step forward, two steps back? One year since Tunisia's landmark elections*, 23 October 2012, MDE 30/010/2012, available at: <http://www.refworld.org/docid/508e559d2.html> [accessed 29 April 2013].

<sup>60</sup> *Ibid.*

<sup>61</sup> Amnesty International, *Tunisia: One year on, no accountability for repressed protest*, 9 April 2013, MDE 30/004/2013, available at: <http://www.refworld.org/docid/5177e2b74.html> [accessed 28 April 2013].

<sup>62</sup> Amnesty International Public Statement, Tunisia's new Constitution must fully protect human rights for all, 11 January 2013, available at: <http://amnesty.org/en/library/asset/MDE30/001/2013/en/671e8f92-269a-460f-8215-f63af1974838/mde300012013en.pdf> [accessed 29 April 2013].

<sup>63</sup> UN Human Rights Council, *Report of the Special Rapporteur on the situation of human rights defenders: Addendum, Mission to Tunisia*, 25 January 2013, A/HRC/22/47/Add.2, available at: <http://www.refworld.org/docid/511ca8b82.html> [accessed 27 April 2013].

<sup>64</sup> Magharebia, all Africa, *Tunisia: Human Rights Body Decries Sacking of Tunisia Judges*, 29 October 2012, available at: <http://allafrica.com/stories/201210300363.html> [accessed 28 April 2013].

<sup>65</sup> Human Rights Watch, Country News, *Tunisia: Slow Reform Pace Undermines Rights*, 6 February 2013, available at: <http://www.hrw.org/news/2013/02/06/tunisia-slow-reform-pace-undermines-rights> [accessed 28 April 2013].

<sup>66</sup> United States Department of State, *2012 Country Reports on Human Rights Practices - Tunisia*, 19 April 2013, available at: <http://www.refworld.org/docid/517e6dc218.html> [accessed 30 April 2013].

Human Rights issue	Insights
<i>Torture and other ill-treatment</i>	Although on a much lower scale than in previous years, arbitrary arrests and beatings by the police during demonstrations, when arrested or in detention centres have been reported. <sup>67 68</sup> Security forces continue to practice torture and other ill-treatment because they are not held accountable for these crimes and they believe they can operate with impunity. <sup>69</sup> In his visit to Tunisia in May 2011 the UN Rapporteur on Torture expressed concern that torture and other ill-treatment continue and remain unpunished. <sup>70</sup> Even though the laws have been changed, they are not fully in line with international standards on human rights. For example, the limitation period of 15 years on torture crimes is not acceptable. According to international law, crimes on torture do not expire and perpetrators should be tried and receive punishment no matter when it was committed. <sup>71</sup> After the revolution, Tunisians have more freedom in their right to demonstrate than in the past. However, the excessive use of force by the police is alarming. <sup>72 73</sup> Recent actions of security forces put pressure on the government to make a case for systemic reform within the police, <sup>74</sup> follow transparent investigations on police abuses, <sup>75</sup> and introduce control techniques aimed at minimising the use of force. <sup>76</sup>
<i>Death penalty</i>	The death penalty has not been abolished, though no new death sentences and no executions were reported. <sup>77</sup>
<i>Prison conditions</i>	Major concerns expressed about prison conditions include overcrowding, inadequate and insufficient levels of health services available for the inmates due to limitations in capacity and supplies, lack of necessary equipment for the security of prison staff, violence among inmates, poor infrastructure, and sanitation. The U.S. Department of State Annual Report notes discrepancies in imprisonment term in the records of the prison and the court verdicts. <sup>78</sup>
<i>Freedom of expression and media</i>	Laws on the media have reportedly not been fully implemented. <sup>79</sup> Although an independent authority needed to be appointed to regulate broadcast media, the government continued to appoint the heads of public media from their allies. <sup>80</sup>

<sup>67</sup> Amnesty International, *Amnesty International Annual Report 2012 - Tunisia*, 24 May 2012, available at: <http://www.refworld.org/docid/4f3e3906c.html> [accessed 28 April 2013].

<sup>68</sup> The International Federation for Human Rights (FIDH), Tunisia (2010-2011), Situation of Human Rights Defenders, 24 January 2012, available at: <http://www.fidh.org/TUNISIA-2010-2011> [accessed 30 April 2013].

<sup>69</sup> United States Department of State, 2012 Country Reports on Human Rights Practices - Tunisia, 19 April 2013, available at: <http://www.refworld.org/docid/517e6dc218.html> [accessed 30 April 2013].

<sup>70</sup> UN Human Rights Council, Report of the Special Rapporteur on torture and other cruel, inhuman or degrading treatment or punishment, Jun E. Mendez: Addendum, Mission to Tunisia from 15 to 22 May 2011, 2 February 2012, A/HRC/19/61/Add.1, available at: <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/G12/103/22/PDF/G1210322.pdf?OpenElement> [accessed 27 April 2013].

<sup>71</sup> Amnesty International, One step forward, two steps back? One year since Tunisia's landmark elections, 23 October 2012, MDE 30/010/2012, available at: <http://www.refworld.org/docid/508e559d2.html> [accessed 29 April 2013].

<sup>72</sup> UN News Service, UN rights chief urges Tunisia to stop use of excessive force against demonstrators in Siliana, 30 November 2012, available at: <http://www.refworld.org/docid/50bdfb952.html> [accessed 28 April 2013].

<sup>73</sup> The Arabic Network for Human Rights Information, Tunisian police officers react to protests with excessive force, 3 December 2012, available at: <http://www.anhri.net/en/?p=10367> [accessed 28 April 2013].

<sup>74</sup> UN Human Rights Council, Report of the Special Rapporteur on the situation of human rights defenders: Addendum, Mission to Tunisia, 25 January 2013, A/HRC/22/47/Add.2, available at: <http://www.refworld.org/docid/511ca8b82.html> [accessed 27 April 2013].

<sup>75</sup> United States Department of State, 2012 Country Reports on Human Rights Practices - Tunisia, 19 April 2013, available at: <http://www.refworld.org/docid/517e6dc218.html> [accessed 30 April 2013].

<sup>76</sup> Freedom House, Freedom in the World 2013 - Tunisia, 1 February 2013, available at: <http://www.refworld.org/docid/5113b8afc.html> [accessed 27 April 2013].

<sup>77</sup> Amnesty International, *Amnesty International Annual Report 2012 - Tunisia*, 24 May 2012, available at: <http://www.refworld.org/docid/4f3e3906c.html> [accessed 28 April 2013].

<sup>78</sup> United States Department of State, 2012 Country Reports on Human Rights Practices - Tunisia, 19 April 2013, available at: <http://www.refworld.org/docid/517e6dc218.html> [accessed 30 April 2013].

<sup>79</sup> Human Rights Watch, World Report 2013 - Tunisia, 31 January 2013, available at: <http://www.refworld.org/docid/510fb4cc2.html> [accessed 27 April 2013].

<sup>80</sup> Committee to Protect Journalists, Attacks on the Press in 2012 - Tunisia, 14 February 2013, available at: <http://www.refworld.org/docid/512b79c6c.html> [accessed 28 April 2013].

Human Rights issue	Insights
	<p>Escalation in the rates of the assault on the freedom of the press and the freedom of expression has been reported by the Arabic Network for Human Rights Information.<sup>81</sup> Penal Code of Tunisia contains provisions that criminalise publication, distribution or sale of information, words or actions that disrupts public order and public morals or attacks the sacred values (Art. 121(3), Art. 226).<sup>82</sup> Freedom of expression tends to be restrained when it concerns religion.<sup>83</sup> Criminalised defamation is another concern that puts the freedom of expression under pressure.<sup>84 85</sup></p>
<i>Freedom of association</i>	<p>The High Commissioner for human rights has noted some positive developments in the registration of associations.<sup>86</sup> Many new organisations began operating in Tunisia after January 2011. No formal registration process is required to register an organisation. However, their existence is also not protected by a legal framework.<sup>87</sup> Some UN human rights bodies, like the CRC, the CEDAW, the CEPD, expressed concern in the last universal periodic review that the Tunisian government did not work closely with the organisations specialising in the promotion and protection of the respective rights in drafting the new Constitution.<sup>88</sup></p> <p>New labour organisations have been established. However, this had limited effect on the government policies and practice in this issue. In practice, right to form trade unions and their operation have been impeded (see also <i>Worker's rights</i> section).</p>
<i>Freedom of religion</i>	<p>The Draft Constitution provides for freedom of religious expression but does not give equality to peoples of all religions. For example, non-Muslims would not be allowed to become president and the right to change one's faith is not explicitly protected.<sup>89</sup> Muslims who convert into a different religion face social exclusion (condemnation).<sup>90</sup> Several attacks on Christian churches were reported. Some cases of discrimination against women in the niqab were also reported.<sup>91</sup> Recent attacks by fundamentalist groups are based on religion and are not properly investigated by the authorities, which puts under question the freedom of religion.<sup>92</sup></p>
<i>Rights of the persons</i>	Most recent concluding observations of the CRPD point out the fact that international

- <sup>81</sup> The Arabic Network for Human Rights Information, Press Release, Tunisia: notable escalation in the rates of the assault on the freedom of the press and the freedom of expression and belief, 28 January 2013, available at: <http://www.anhri.net/en/?p=11437> [accessed 28 April 2013].
- <sup>82</sup> Amnesty International, One step forward, two steps back? One year since Tunisia's landmark elections, 23 October 2012, MDE 30/010/2012, available at: <http://www.refworld.org/docid/508e559d2.html> [accessed 29 April 2013].
- <sup>83</sup> United States Department of State, *2012 Country Reports on Human Rights Practices - Tunisia*, 19 April 2013, available at: <http://www.refworld.org/docid/517e6dc218.html> [accessed 30 April 2013].
- <sup>84</sup> Impunity Watch of the Syracuse College of Law, *Another Tunisian Charged with Criminal Defamation*, Justin Dorman, 23 March 2013, available at: <http://impunitywatch.com/another-tunisian-charged-with-criminal-defamation/> [accessed 30 April 2013].
- <sup>85</sup> Human Rights Watch, *Tunisia: Repeal Criminal Defamation Law*, 20 March 2013, available at: <http://www.refworld.org/docid/514c55a32.html> [accessed 30 April 2013].
- <sup>86</sup> UN Human Rights Council, Compilation prepared by the Office of the High Commissioner for Human Rights, in accordance with paragraph 5 of the annex to Human Rights Council Resolution 16/21, 16 March 2012, p.11, A/HRC/WG.6/13/TUN/2, available at: <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/G12/117/91/PDF/G1211791.pdf?OpenElement> [accessed 1 May 2013].
- <sup>87</sup> Freedom House, *Freedom in the World 2013 - Tunisia*, 1 February 2013, available at: <http://www.refworld.org/docid/5113b8afc.html> [accessed 27 April 2013].
- <sup>88</sup> UN Human Rights Council, Compilation prepared by the Office of the High Commissioner for Human Rights, in accordance with paragraph 5 of the annex to Human Rights Council Resolution 16/21, 16 March 2012, A/HRC/WG.6/13/TUN/2, available at: <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/G12/117/91/PDF/G1211791.pdf?OpenElement> [accessed 1 May 2013].
- <sup>89</sup> Freedom House, *Freedom in the World 2013 - Tunisia*, 1 February 2013, available at: <http://www.refworld.org/docid/5113b8afc.html> [accessed 27 April 2013].
- <sup>90</sup> United States Department of State, *2011 Report on International Religious Freedom - Tunisia*, 30 July 2012, available at: <http://www.refworld.org/docid/5021057ac.html> [accessed 28 April 2013].
- <sup>91</sup> United States Department of State, *2011 Report on International Religious Freedom - Tunisia*, 30 July 2012, available at: <http://www.refworld.org/docid/5021057ac.html> [accessed 28 April 2013].
- <sup>92</sup> United States Department of State, *2011 Report on International Religious Freedom - Tunisia*, 30 July 2012, available at: <http://www.refworld.org/docid/5021057ac.html> [accessed 28 April 2013].

Human Rights issue	Insights
with disabilities	standards on rights of persons with disabilities (PWD) need to be properly implemented in the national law, most importantly the definition of persons with disabilities needs to be in line with the definition in the Convention. <sup>93</sup> Until now, most critical issues include discriminative practice against PWD, particularly children with disabilities, <sup>94</sup> violence against children with disabilities, <sup>95</sup> prevalent practice of institutionalisation of PWD, absence of social services enabling life in the community, high rate of specialised educational institutions, insufficient opportunities for PWD in employment (e.g. legislation provides for at least 1 percent of jobs reserved for PWD in public and private sectors, however in practice this law has not been widely enforced) <sup>96</sup> denied right to vote for persons with mental disabilities, even under tutorship. <sup>97</sup>
Women's Rights	<p>There have been some relevant improvements in the situation regarding women's rights. The requirement of parity between women and men in elections was adopted. Although not fully implemented (out of 217 seats in the Constituent Assembly only 49 are taken by women), it is a positive development. Reservations to CEDAW were lifted. However a general declaration that reforms should not conflict with Chapter I of the Constitution was still maintained (can also be interpreted as should not be in conflict with Islam (Art.1 of Chapter I of the Tunisian Constitution)<sup>98</sup>. Issues that refer to the lifted reservations<sup>99</sup> are still raising concern in practice – particularly the fact that the national legislation still discriminates against women in inheritance and custody of children.<sup>100</sup></p> <p>Despite the improvements achieved in the field of women's rights over the past years, discrimination against women still exists in practice. Unemployment is highest among women and when jobs are cut, mostly women are asked to leave their job first.<sup>101</sup> Salaries remain unequal in the private sector.<sup>102</sup> Single mothers and their children are discriminated and face hostility in society.<sup>103</sup> Sexual harassment is reported to be an</p>

<sup>93</sup> CRPD/C/TUN/CO/1, UN Committee on the Rights of Persons with Disabilities, 5<sup>th</sup> session, 11-15 April 2011, Concluding observations of the Committee on the Rights of Persons with Disabilities, Tunisia, 13 My 2011, available at: <http://www.ohchr.org/EN/HRBodies/CRPD/Pages/Session5.aspx> [accessed 29 April 2013].

<sup>94</sup> As also noted in the most recent CRC concluding observations (June 2010). See, UN Committee on the Rights of the Child (CRC), *Consideration of reports submitted by States parties under article 44 of the Convention: concluding observations of the Committee on the Rights of the Child: Tunisia*, 16 June 2010, CRC/C/TUN/CO/3, available at: <http://www.refworld.org/docid/4c32e1232.html> [accessed 30 April 2013].

<sup>95</sup> CRPD/C/TUN/CO/1, UN Committee on the Rights of Persons with Disabilities, 5<sup>th</sup> session, 11-15 April 2011, Concluding observations of the Committee on the Rights of Persons with Disabilities, Tunisia, 13 My 2011, available at: <http://www.ohchr.org/EN/HRBodies/CRPD/Pages/Session5.aspx> [accessed 29 April 2013].

<sup>96</sup> United States Department of State, *2012 Trafficking in Persons Report - Tunisia*, 19 June 2012, available at: <http://www.refworld.org/docid/4fe30c893c.html> [accessed 28 April 2013].

<sup>97</sup> The Atlas Council, *The CRPD Country Report on Tunisia*, Independent information for the 4<sup>th</sup> session of the Committee on the Rights of Persons with Disabilities, October 2010, available at: <http://www.ohchr.org/EN/HRBodies/CRPD/Pages/Session5.aspx> [accessed 28 April 2013].

<sup>98</sup> The Constitution of Tunisia, available at: <http://confinder.richmond.edu/admin/docs/Tunisiacconstitution.pdf> [accessed 28 April 2013].

<sup>99</sup> CEDAW, full text of the Convention, available at: <http://www.un.org/womenwatch/daw/cedaw/text/econvention.htm> [accessed 28 April 2013].

<sup>100</sup> Amnesty International, *Amnesty International Annual Report 2012 - Tunisia*, 24 May 2012, available at: <http://www.refworld.org/docid/4f3e3906c.html> [accessed 28 April 2013].

<sup>101</sup> Office of the United Nations High Commissioner for Human Rights, *Report of the OHCHR Assessment Mission to Tunisia*, 26 January – 2 February 2011, available at: [http://www.ohchr.org/Documents/Countries/TN/OHCHR\\_Assessment\\_Mission\\_to\\_Tunisia.pdf](http://www.ohchr.org/Documents/Countries/TN/OHCHR_Assessment_Mission_to_Tunisia.pdf) [accessed 29 April 2013].

<sup>102</sup> United States Department of State, *2012 Trafficking in Persons Report - Tunisia*, 19 June 2012, available at: <http://www.refworld.org/docid/4fe30c893c.html> [accessed 28 April 2013].

<sup>103</sup> UN Committee on the Rights of the Child (CRC), *Consideration of reports submitted by States parties under article 44 of the Convention: concluding observations of the Committee on the Rights of the Child: Tunisia*, 16 June 2010, CRC/C/TUN/CO/3, available at: <http://www.refworld.org/docid/4c32e1232.html> [accessed 30 April 2013].

Human Rights issue	Insights
	<p>issue, although there is no data available to measure its gravity.<sup>104</sup> Civil society groups criticised the law on harassment as being too vague. Women rarely hold managerial positions.<sup>105</sup> Although Tunisia laws specifically criminalise rape, including spousal rape, victims are often discouraged to submit claims.<sup>106</sup> Domestic violence is reported to take place. The government and the UN Entity for Gender Equality and the Empowerment of Women, as reported by the U.S. Department of State, found that approximately 50 percent of women suffered from physical or verbal abuse.<sup>107</sup> There is no government programme that provides support services to the victims of domestic violence. Human trafficking, female domestic workers, the position of rural women and women from other disadvantaged groups (refugees, migrant workers) provide concern for the rights of women.</p> <p>Although the new Constitution contains provisions on the complimentary role of women, the gender equality principle is still not fully reflected in the document. As reported by the UN Working Group on the issue of discrimination against women in law and practice, it does not refer to the international human rights obligations. The Constitution does not specify the women's civil, political, economic, social and cultural rights and does not provide for the right to remedy. Also, it does not specify the spheres of life (private and public) in which the right to equality is guaranteed.<sup>108</sup></p>
Children's Rights	<p>The UN Committee on the Rights of the Child expresses concern about the existing discrimination against children born out of wedlock, discrimination against girls and children born out of wedlock in matters relating to inheritance, gender discrimination resulting in the prevention of the appreciation of the principle of the best interest of the child with respect to guardianship. Next to this, it has concerns about the existing practice of corporal punishment at home, in care institutions and in schools and domestic violence in general. Tunisia is reportedly providing insufficient support services for children suffering from domestic violence.<sup>109</sup> Infant mortality rates are twice higher in the rural areas, which is the result of insufficient quality of health services in these areas.</p> <p>The gap between the rural and urban areas is still reported as substantial which leads to the disparities with respect to availability and access to children's services in rural and urban areas, persistent regional and urban-rural disparities in education, higher dropout and repetition rates in basic education in rural areas, low rate of enrolment in early childhood education because many poor families in rural areas are excluded from these services due to the fact that the private sector is a service provider of preschool education.<sup>110</sup> There is evidence of child labour.<sup>111</sup> Children are reported to work in agriculture in rural areas and as vendors in towns, especially during summer</p>

<sup>104</sup> United States Department of State, *2011 Country Reports on Human Rights Practices - Tunisia*, 24 May 2012, available at: <http://www.refworld.org/docid/4fc75a54c.html> [accessed 28 April 2013].

<sup>105</sup> *Ibid.*

<sup>106</sup> *Ibid.*

<sup>107</sup> *Ibid.*

<sup>108</sup> UN News Service, *Tunisia must adopt stronger measures to combat gender discrimination - UN experts*, 14 January 2013, available at: <http://www.refworld.org/docid/50f66b7a2.html> [accessed 28 April 2013].

<sup>109</sup> UN Committee on the Rights of the Child (CRC), Consideration of reports submitted by States parties under article 44 of the Convention: concluding observations of the Committee on the Rights of the Child: Tunisia, 16 June 2010, CRC/C/TUN/CO/3, available at: <http://www.refworld.org/docid/4c32e1232.html> [accessed 30 April 2013].

<sup>110</sup> UN Committee on the Rights of the Child (CRC), Consideration of reports submitted by States parties under article 44 of the Convention: concluding observations of the Committee on the Rights of the Child: Tunisia, 16 June 2010, CRC/C/TUN/CO/3, available at: <http://www.refworld.org/docid/4c32e1232.html> [accessed 30 April 2013].

<sup>111</sup> UNICEF Newline, Najwa Mekki, UNICEF aims to place further emphasis on children's issues in Tunisia, 17 February 2011, available at: [http://www.unicef.org/infobycountry/Tunisia\\_57693.html](http://www.unicef.org/infobycountry/Tunisia_57693.html) [accessed 29 April 2013].

Human Rights issue	Insights
	school vacation periods. Child labour was found to exist in the informal sector, where children worked in small shops, in handicrafts, selling flowers and small items on the streets. <sup>112</sup> Child domestic work is reported as common when children are treated in the conditions of forced labour with no time off, without work contracts, facing physical and sexual abuse and being confined to employer's homes. <sup>113</sup>
<i>Lesbian Gay Bisexual Transgender (LGBT) rights</i>	LGBT minority continues to face discrimination. No positive developments have been made in protecting their rights. <sup>114</sup>
<i>Human trafficking</i>	The U.S. Department of State reports Tunisia as 'a source, destination, and possible transit country for men, women, and children subjected to forced labour and sex trafficking'. <sup>115</sup> Tunisian women are reportedly forced to work in entertainment industries, providing sexual services and as prostitutes. The government does not fully comply with the international legislation on human trafficking but is making efforts to do so. A National Commission to combat Trafficking in Persons was set up and anti-trafficking legislation is pending. One of the main concerns is that the government does not identify human trafficking as a problem separate from smuggling and little has been done to investigate and prosecute trafficking offences and to convict offenders.
<i>Minority rights and rights of indigenous peoples</i>	Discriminative activity has been reported in respect to the Amazighs <sup>116</sup> . The World Amazigh Congress (CMA) expressed concern over the position of the Amazigh language and culture in Tunisia, particularly education in their native language, ban over the Amazigh first names and no representation in the Amazigh language in the public media. <sup>117</sup>
<i>Refugees and migrants</i>	Following the violence that erupted in Libya, Tunisia has been confronted with the new role of a host country for migrants and refugees. <sup>118</sup> Many refugees from Libya, Eritrea, Somalia and Sudan are stranded in the Shousha camp at the border with Libya. <sup>119 120</sup> International organisations have helped Tunisia to handle this role but there is no established system to provide protection to refugees. <sup>121</sup> The Tunisian government started to draft legislation on the right to asylum, but it continues to follow 'a security-oriented approach to migration issues'. <sup>122</sup>

<sup>112</sup> United States Department of State, 2012 Trafficking in Persons Report - Tunisia, 19 June 2012, available at: <http://www.refworld.org/docid/4fe30c893c.html> [accessed 28 April 2013].

<sup>113</sup> United States Department of State, 2012 Trafficking in Persons Report - Tunisia, 19 June 2012, available at: <http://www.refworld.org/docid/4fe30c893c.html> [accessed 28 April 2013].

<sup>114</sup> HRW reports that Minister of Human Rights and Transitional Justice Samir Dilou mentioned in a TV interview that homosexuality was a 'perversion' that needed to be 'treated medically'. Human Rights Watch, World Report 2013 - Tunisia, 31 January 2013, available at: <http://www.refworld.org/docid/510fb4cc2.html> [accessed 27 April 2013].

<sup>115</sup> United States Department of State, 2012 Trafficking in Persons Report - Tunisia, 19 June 2012, available at: <http://www.refworld.org/docid/4fe30c893c.html> [accessed 28 April 2013].

<sup>116</sup> The Amazighs (Berber people) are the ethnic minority living in the countries of North Africa like Tunisia, Morocco, Algeria, Mauritania.

<sup>117</sup> Human Rights Council, Summary prepared by the Office of the High Commissioner for Human Rights in accordance with paragraph 5 of the annex to Human Rights Council resolution 16/21, Tunisia, 9 March 2012, A/HRC/WG.6/13/TUN/3, available at: <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/G12/117/91/PDF/G1211791.pdf?OpenElement> [accessed 30 April 2013].

<sup>118</sup> Euro-Mediterranean Human Rights Network (EMHRN), *Asylum and Migration in the Maghreb - Country Fact Sheet: Tunisia*, December 2012, ISBN: 978-87-91224-99-7, available at: <http://www.refworld.org/docid/514d78422.html> [accessed 29 April 2013].

<sup>119</sup> Amnesty International, *Amnesty International Annual Report 2012 - Tunisia*, 24 May 2012, available at: <http://www.refworld.org/docid/4fbc880ad0.html> [accessed 28 April 2013].

<sup>120</sup> UNHCR, Global Report 2011: Tunisia, available at: <http://www.unhcr.org/4fc880ad0.html> [accessed 29 April 2013].

<sup>121</sup> United States Department of State, 2012 Country Reports on Human Rights Practices - Tunisia, 19 April 2013, available at: <http://www.refworld.org/docid/517e6dc218.html> [accessed 30 April 2013].

<sup>122</sup> Euro-Mediterranean Human Rights Network (EMHRN), *Asylum and Migration in the Maghreb - Country Fact Sheet: Tunisia*, December 2012, ISBN: 978-87-91224-99-7, available at: <http://www.refworld.org/docid/514d78422.html> [accessed 29 April 2013].

Human Rights issue	Insights
	<p>Tunisia did not ratify the International Convention on Protection of the Rights of All Migrant Workers, ILO Conventions No. 97 and No. 143 on migrant workers but did ratify the African Union Convention on the right of refugees.</p> <p>The 1959 Constitution prohibits the extradition of political refugees but asylum seekers and refugees do not enjoy any specific rights. Only 40 per cent of UNHCR-recognised refugees received an official legal status in Tunisia. The other 60 per cent are considered to be 'semi-legal' and are only temporarily tolerated by the Tunisian government.</p> <p>The current draft of the Constitution does not include any provision providing for the rights of the asylum seekers and the rights of persons being transferred to a country where they would be at risk of persecution.<sup>123</sup> The UNHCR, for example, considers the forced extradition of former Libyan Prime Minister al-Mahmoudi back to Libya in June 2012 to be a violation of the 1951 Convention on Refugees, to which Tunisia is a party.<sup>124</sup></p>
<i>Failure to investigate and prosecute attacks by fundamentalist groups</i>	Several attacks by fundamentalist groups that happened throughout the year were not followed up by the police. <sup>125</sup> In spite of the fact that complaints were filed shortly after the attacks, no investigations into these incidents followed. <sup>126</sup>
Economic, social and cultural rights	
<i>Right to health</i>	Child mortality rates in the rural areas are reportedly twice higher than in the urban areas. Health services available in the rural areas are insufficient for disadvantaged groups like women, children, and poor families.
<i>Worker's rights</i>	<p>New labour organisations – the Tunisian Labour Union (UTT) and the General Confederation of Tunisia Workers (CGTT) – were established. Together with the already existing General Union of Tunisian Workers (UGTT), these organisations have been calling for labour reforms, for the improvement of work conditions and better pay which resulted in protests and strikes. Regrettably, little attention was paid to this issue by the government.<sup>127</sup> The requirement for the strike notification stipulated in the laws was reported by the ILO as conflicting with international standards and diminishing the freedoms of association.<sup>128</sup></p> <p>Forced labour is generally prohibited, although some girls were reportedly working as domestic servants and many children are reportedly performing agricultural work in rural areas and work as vendors in towns.<sup>129</sup> (see also <i>Human Trafficking</i> section above)</p>

<sup>123</sup> Amnesty International Public Statement, Tunisia's new Constitution must fully protect human rights for all, 11 January 2013, available at: <http://amnesty.org/en/library/asset/MDE30/001/2013/en/671e8f92-269a-460f-8215-f63af1974838/mde300012013en.pdf> [accessed 29 April 2013].

<sup>124</sup> United States Department of State, *2012 Country Reports on Human Rights Practices - Tunisia*, 19 April 2013, available at: <http://www.refworld.org/docid/517e6dc218.html> [accessed 30 April 2013].

<sup>125</sup> *Ibid.*

<sup>126</sup> The Arabic Network for Human Rights Information, Press Releases, *Tunisia: The government must conduct serious investigation in the repeated assaults committed by the radical Islamists*, 25 March 2013, available at: <http://www.anhri.net/en/?p=12070> [accessed 28 April 2013].

<sup>127</sup> Freedom House, *Freedom in the World 2013 - Tunisia*, 1 February 2013, available at: <http://www.refworld.org/docid/5113b8afc.html> [accessed 27 April 2013].

<sup>128</sup> – ILO, *Tunisia: A New Social Contract for Fair and Equitable Growth*, 2011, p. 94, available at: [http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms\\_164544.pdf](http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_164544.pdf) [accessed 28 June 2013].

<sup>129</sup> *Ibid.*

Human Rights issue	Insights
	Workers with temporary contracts were reported as not having the same protection as employees with permanent work contracts. <sup>130</sup>
<i>Right to education</i>	Most marginalised girls cannot attend school. The adult illiteracy is high. Disparities in access to education between different social groups exist, particularly violating the right to education of the vulnerable groups like women, children, youth and marginalised communities. <sup>131</sup>
<i>Right to an adequate standard of living</i>	While extreme poverty rate is quite low (4.3 per cent), around 15 per cent of the population of Tunisia live below the national poverty line (see detailed statistics in the section on social analysis). Living conditions in the slums in major cities, in rural areas are still reported as poor. <sup>132</sup> Disparities in access to education, adequate health system, employment and adequate living conditions have not been efficiently addressed. <sup>133</sup>

### 3.5.3 Step 2: Pre-selection of HR elements that are most likely affected by the DCFTA

For the next step, Step 2, we identify the human rights that are most likely candidates to be influenced by the DCFTA. That does not mean all other rights are not relevant, but they are not the focus of this trade impact analysis, as the impact of the DCFTA on these rights will be much more indirect, for example because changes in societal preferences may occur due to changes in income.

We need to mention that the human rights that are relevant for the DCFTA can be relevant in different ways. First of all, addressing certain HR issues mentioned would make Tunisian society (and economy) more resilient against potential negative impacts of a DCFTA – thus mitigating them. Second, certain measures would be addressed (legally) within the framework of the DCFTA and are thus picked up directly - not as a necessary or expected output, but as an input. Below in Table 3.4 we present the human rights issues likely to be affected by the DCFTA and explain why.

**Table 3.4 Linking the relevant HR elements to the EU-Tunisia DCFTA**

HR issue	Why relevant for DCFTA?	Affected by DCFTA?
<p><b>General human rights record:</b></p> <ul style="list-style-type: none"> <li>• <b>Ratifications of international HR treaties;</b></li> <li>• <b>Implementation of the</b></li> </ul>	<p>The general HR record is an important indicator for the attitude of the Tunisian government and the country towards the rights of individuals. The better the record, the more potential a DCFTA will have and the lower the downside risks with HR being protected for those that may lose out. See Annex D for an overview of ratification of HR treaties.</p> <p>The ratification of international HR treaties is important to protect citizens</p>	<b>Yes</b>

<sup>130</sup> United States Department of State, *2012 Trafficking in Persons Report - Tunisia*, 19 June 2012, available at: <http://www.refworld.org/docid/4fe30c893c.html> [accessed 28 April 2013].

<sup>131</sup> Human Rights Council, Summary prepared by the Office of the High Commissioner for Human Rights in accordance with paragraph 5 of the annex to Human Rights Council resolution 16/21, Tunisia, 9 March 2012, A/HRC/WG.6/13/TUN/3, available at: <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/G12/117/91/PDF/G1211791.pdf?OpenElement> [accessed 30 April 2013].

<sup>132</sup> Ibid.

<sup>133</sup> Human Rights Council, Summary prepared by the Office of the High Commissioner for Human Rights in accordance with paragraph 5 of the annex to Human Rights Council resolution 16/21, Tunisia, 9 March 2012, A/HRC/WG.6/13/TUN/3, available at: <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/G12/117/91/PDF/G1211791.pdf?OpenElement> [accessed 30 April 2013].

HR issue	Why relevant for DCFTA?	Affected by DCFTA?
<p><b>international HR treaties into national legislation;</b></p> <ul style="list-style-type: none"> <li><b>Corruption level</b></li> </ul>	<p>against the risks associated with potential pressure on working rights or other rights, so ratification of these treaties is important for the context of the DCFTA. Also – and maybe even more than ratification – the implementation matters for the <i>de facto</i> degree of HR protection, especially against potential negative effects of the DCFTA.</p> <p>Some of the gains from trade may end up – illegally – in the wrong pockets due to corruption. Continued strengthening of the Law on Procurement<sup>134</sup> is an important tool to prevent this, potentially ensuring that the expected gains from the DCFTA benefit Tunisian people in a broad sense.</p>	
<b>Civil and political rights</b>		
<i>Impunity (accountability for past crimes)</i>	Accountability for past crimes will not likely be directly influenced by the DCFTA. For a more indirect link to the DCFTA through the general HR situation, see above.	No
<i>Right to fair trial</i>	Right to fair trial is not likely to be affected by the DCFTA. For a more indirect link to the DCFTA through the general HR situation, see above.	No
<i>Torture and other ill-treatment</i>	Torture and other ill-treatment are not likely to be affected by the DCFTA. For a more indirect link to the DCFTA through the general HR situation, see above.	No
<i>Death penalty</i>	Death penalty is not likely to be affected by the DCFTA. For a more indirect link to the DCFTA through the general HR situation, see above.	No
<i>Prison conditions</i>	Prison conditions are not likely to be affected by the DCFTA, unless the DCFTA affects the government budget. For a more indirect link to the DCFTA through the general HR situation, see above.	No
<i>Freedom of expression and media</i>	Freedom of expression and the media is not directly linked to the DCFTA. However, indirectly through strengthening the civil society it could be linked.	No
<b>Freedom of association, Civil society</b>	<p>The role of civil society organisations is important in helping to improve the HR situation in Tunisia. Civil society should assist the government in the process of HR protection from any negative effects that the DCFTA may cause and to enhance the positive effects, e.g. through a monitoring role.</p> <p>Another important element is that civil society increases the buy-in and participation in the DCFTA by increasing societal representation, making the DCFTA more inclusive. In the trade and sustainable development chapter, the role of civil society to monitor the implementation of the DCFTA is likely to be included.</p>	<b>Yes</b>
<i>Freedom of religion</i>	Freedom of religion is not likely to be affected by the DCFTA. For a more indirect link to the DCFTA through the general HR situation, see above.	No
<b>Rights of the persons with disabilities</b>	Potentially the DCFTA may affect indirectly the rights of persons with disabilities for social protection in the form of work placement.	<b>Yes</b>
<b>Women's Rights</b>	One of the main ways to promote growth and development – also in relation to the DCFTA – is to close the gender gap. This gap in Tunisia is high and deeply rooted, showing itself in many manifestations in Tunisian society.	<b>Yes</b>

<sup>134</sup> European Bank for Reconstruction and Development, 2012 SEMED Public Procurement Assessment, Country Profile: Tunisia, 15 April 2013, available at: [http://semmed.ppl.ebrd.com/materials/eng\\_cp\\_tunisia.pdf](http://semmed.ppl.ebrd.com/materials/eng_cp_tunisia.pdf) [accessed 20 May 2013].

HR issue	Why relevant for DCFTA?	Affected by DCFTA?
	The DCFTA will affect sectors in the Tunisian economy differently and could thus affect women's rights – especially employment perspectives.	
<b>Children's Rights</b>	The DCFTA may strengthen mechanisms against forced labour and child exploitation (see Annex D) for ratification of relevant ILO conventions). In addition, it may affect the causes for forced labour and child labour as presented below table 3.5.	<b>Yes</b>
<b>LGBT rights</b>	LGBT rights are not likely to be directly affected by the DCFTA. However, through possible discrimination at the workplace, the DCFTA and the LGBT rights may be linked.	<b>Yes</b>
<b>Human trafficking</b>	The social conditions in the DCFTA could help Tunisia fight human trafficking. The DCFTA could potentially provide an additional enforcement mechanism and through its contribution to an increase in national income provide additional resources for the Tunisian government to increase spending on education and health care. Better social conditions, including better access to education and health care could affect human trafficking in a downward manner.	<b>Yes</b>
<b>Minority rights and rights of indigenous peoples</b>	Inclusive growth and distribution of the gains from the DCFTA for minorities could depend – in part – on more access to higher education – something the local government should look at. In previous DCFTAs it is found that education levels are important factors in determining how the gains are spread. Minorities with limited access to higher education would have more difficulty benefiting. Rights of the minorities in the workplace are already an issue in Tunisia.	<b>Yes</b>
<b>Refugees and migrants</b>	Rights of the refugees and the migrants in the workplace, their right to work is directly affected by the DCFTA since with its introduction their rights may be affected to respond to opening of new markets as well as stronger international competition.	<b>Yes</b>
<i>Failure to investigate &amp; prosecute attacks by fundamentalist groups</i>	Accountability for crimes committed by fundamentalist groups is not likely to be affected by the DCFTA. For a more indirect link to the DCFTA through the general HR situation, see above.	No
<b>Economic, social and cultural rights</b>		
<b>Right to health</b>	Regulatory approximation as part of the DCFTA will result in the application of EU SPS (including food safety) standards in Tunisia – this will affect health conditions. Also, budgetary consequences of the DCFTA could affect funding availability for hospitals and other health-related public services.	<b>Yes</b>
<b>Worker's rights</b>	<p>Worker's rights are directly linked to the DCFTA, since the right to work, basic safeguards of the rights to work (minimum wage, hours of work, holidays, etc) as well as the right to adequate work conditions are directly affected by the enhanced trade relations between the EU and Tunisia.</p> <p>Certain vulnerable groups like children, women, LGBT persons, migrants, refugees, workers with temporary contracts may also be influenced by the changes that the DCFTA is bringing to Tunisia.</p> <p>Freedom of association would affect, for example, the trade unions who</p>	<b>Yes</b>

HR issue	Why relevant for DCFTA?	Affected by DCFTA?
	<p>could provide a stronger voice as well as social base to discuss and create support for changes in labour laws and conditions.</p> <p>The DCFTA also affects the Tunisian economy at sector level, likely leading to the reallocation of labour. This could put pressure on labour and work conditions. Also foreign competition in some sectors may do so without properly enshrined protection mechanisms. On the other hand, more emphasis on Corporate Social Responsibility may lead to potential improvements in labour and work conditions.</p>	
<b>Right to education</b>	Right to education is affected by the DCFTA through the access to education by children, use of women workforce while many women in rural areas are illiterate and do not fully understand their rights – their rights may be abused. Also, budgetary consequences of the DCFTA could affect funding availability for education.	<b>Yes</b>
<b>Right to adequate standard of living</b>	Standard of living is affected by the DCFTA – both in general for society as a whole and for specific groups and regions.	<b>Yes</b>

### 3.5.4 Step 3: Screening for main HR impacts from the EU-Tunisia DCFTA

Ex-ante screening for the main potential HR effects of the EU-Tunisia DCFTA is performed to identify those trade measures in the DCFTA that are most likely to have significant impacts on the enjoyment of human rights and therefore warrant a closer assessment. For this report, the HR screening is based on two pieces of information:

- First, the CGE model provides the overall estimated economic and social impact of the DCFTA (see Chapter 2);
- Second, the more detailed social analysis sheds more light on more detailed social level impacts.

Table 3.5 presents the potential economic and social effects of the DCFTA and how these may in turn affect the different aspects of the HR situation in Tunisia as described in the previous sections. The basis of the assessment is the HRIA methodology as developed by Simon Walker.<sup>135</sup>

**Table 3.5 Potential HR impacts from the EU-Tunisia DCFTA**

Categories of impact of DCFTA on HR overall	Potential Human Rights effects	Significance: HR stress; direction of change compared to baseline; nature, magnitude, geographical extent, duration and reversibility of expected changes
Trade law complements HR law	The EU approaches FTAs as part of a constitutional framework to support democracy, political stability and respect for HR, hence the name DCFTA. This implies that human rights are also taken into account, alongside the pure trade-related provisions. In that sense we expect therefore a positive effect of the DCFTA on human rights.	A small positive effect of the ‘DC’ element of the FTA is expected because of the constitutional framework the EC employs in these negotiations. The geographical extent runs across the country. The chance for reversibility of this change is low as it will be enshrined

<sup>135</sup> Walker, S. (2009). The Future of Human Rights Impact Assessments of Trade Agreements, Intersentia.

Categories of impact of DCFTA on HR overall	Potential Human Rights effects	Significance: HR stress; direction of change compared to baseline; nature, magnitude, geographical extent, duration and reversibility of expected changes
		in the DCFTA as well as – in part – in Tunisian national law.
<i>Expected effect: small positive effect of trade law on implementation of and adherence to human rights law – especially labour law where the DCFTA will enhance mechanisms to monitor and enforce.</i>		
DCFTA promotes growth and resources for realisation of HR	<p>The CGE model predicts growth in national income for Tunisia (€ 2.5 bn in the long run), growth in Tunisian total exports (20.4 per cent in the long run) and in Tunisian exports to the EU (25.2 per cent in the long run). Especially the reduction of NTMs in food (SPS) and manufactured products (TBT) contribute to these effects. Also a decrease in poverty is expected.</p> <p>We have no information on the effects of the DCFTA on net fiscal revenues: one the one hand, they are likely to increase as a result of increased income, while on the other hand, revenues from tariffs will decline.</p> <p>Wages are expected to rise by 10.5 per cent and 9.9 per cent for the high- and low-skilled workers respectively, while overall consumer price levels are foreseen to increase by 2.3 per cent. So on average the DCFTA has the effect of improving living standards of those living in poverty (human right to an adequate standard of living, the right to adequate food), also in the short-run. If fiscal revenues would increase, it could be positive for the people's right to education and health – as these public facilities can be better funded. Of course this will depend to a large extent on national policy and not so much on the DCFTA itself.</p>	This may be a medium to strong positive effect of the DCFTA due to the strength of the macro-economic income and export growth effects as well as increases in average disposable incomes. The poverty alleviation would apply especially for the agricultural sector if SPS barriers are really reduced and also to some manufacturing sectors if TBT barriers are addressed adequately. Potential improvement in the right to education and health may apply to all of Tunisia. The effects are predicted to be long-run effects so duration is long-term and reversibility is low – provided appropriate national policies and structures are developed (e.g. tax system, education and health strategies and budgets, etc.).
<i>Expected effect: positive effect of DCFTA on resources for the government in the long run<sup>136</sup> when the incomes from higher tax revenues due to more economic activity because of the DCFTA are expected to outweigh short term losses in tariff revenues. In the short-run the effect on the government budget is undetermined. Positive is also that disposable incomes for all strata of the population are expected to go up, reducing poverty (see Table 3.2). Reducing poverty may lead to less pressure on families to resort to child and forced labour in sectors where this practice occurs at present (see below this table).</i>		
DCFTA can breach HR in practice	More trade openness following the DCFTA is expected to lead to higher average wages, but also to more competition, which may especially affect those domestic sectors unable to compete due to competitive disadvantages. Labour displacement (movement of people between sectors) is expected to be considerable. Prices are predicted to go up because of the DCFTA, mainly due to increased demand as a result of higher income. The combined wage-	This may be an issue, depending on how the DCFTA is flanked by mitigating policy measures. For example, vulnerable groups may need protection from competition and cultural heritage needs to be protected. Prices seem to add to HR stress overall but are outweighed by wage increases.

<sup>136</sup> The long run is defined – as explained earlier – as the time needed for dynamic investment effects to work through the economy, while in the short-run, investments are assumed fixed.

Categories of impact of DCFTA on HR overall	Potential Human Rights effects	Significance: HR stress; direction of change compared to baseline; nature, magnitude, geographical extent, duration and reversibility of expected changes
	<p>competition-price effect is not conclusive at a more disaggregated level as it depends on how the sector-specific wage changes are spread around the average and where the highest cost increases accrue. Industries and companies not able to compete may be tempted to give in to erosion of HR and labour standard, which will affect especially vulnerable regions and groups. Although in the long run, labour mobility and increases in labour demand may mitigate such effects, those losing out from the DCFTA in the short run could remain and become further marginalised if their skill sets, age, personal circumstances or location do not allow for easy transitions to other sectors posing local risks to HR protection.</p> <p>Civil society engagement has not led to further insights on this specific issue.</p> <p>The CGE model shows that wages on average are going up in Tunisia by 10.5/9.9 per cent in the long run for skilled/unskilled workers. This implies that workers leave sectors for better wages in other sectors, or put differently declining sectors contract because they cannot compete anymore and can no longer offer competitive wages and therefore workers choose to leave that sector – this – in turn – implies that HR of those workers are not violated. This is also the case for Tunisia in the short run. Two caveats here are that the CGE model assumes: labour mobility between sectors (which may in reality be much harder than the model suggests) and no informal economy (which in practice does exist leading to less strong increases in wages than assumed, as sectors will first 'absorb' labour from the informal sector before shortages will lead to wage increases), thus potentially putting more pressure on the human right to work than the model would suggest.</p>	<p>Sector-specific deviations are possible. In the agricultural sector, where an informal economy may be present, the effects may also be less favourable. The geographical extent of this measure is very broad. Competition may touch upon all sectors in society and affect both internationally oriented and domestic ones. Market forces introduce efficiency, not only in private but also in (semi-) public sectors. The pull-effect on average dominates as it is shown by rising wages, which implies that workers move away from declining sectors to growing sectors because they can earn higher wages in the growing sectors – at least according to the model. Labour mobility and absence of the informal economy are two assumptions however, potentially giving rise to HR violations.</p>
<p><i>Expected effect: for the very large majority of the population the HR situation is expected to improve as poverty is expected to fall (Table 3.2). However – though not possible to quantify given the quantitative information available – in previous trade agreements some parts of the population – notably the vulnerable elements in society – may see poverty increase. This would constitute a small negative effect due to a breach in HR in practice from the DCFTA. Also, a reduction in poverty that is expected for the majority of the population could lead to reductions in forced and child labour as presented below this table.</i></p>		
DCFTA can limit government capacity to	As indicated earlier, the impact of the DCFTA on net fiscal revenues is not clear. If total government revenue would increase as a result of the DCFTA, which is not unlikely given the high rise in income and given that the	The magnitude of the effect of the DCFTA is not clear. The geographical coverage is nationwide.

Categories of impact of DCFTA on HR overall	Potential Human Rights effects	Significance: HR stress; direction of change compared to baseline; nature, magnitude, geographical extent, duration and reversibility of expected changes
promote HR	CGE predicts the decrease in tariffs to positively contribute to national income. This could in turn imply that there are more funds available for ensuring people's rights to – for example – education and health (assuming no political stability issues stand in the way, although this will depend on the policy choices of the Tunisian government). If the DCFTA would include provisions to set up a monitoring mechanism (see policy recommendations), the DCFTA could encourage the government to pay due attention to human rights and labour rights.	
<i>Expected effect: See 'DCFTA promotes growth and resources for realisation of HR'</i>		
DCFTA can lead to 'race-to-the-bottom' in HR protection to remain competitive	The DC-part in the FTA emphasises the social and HR aspects of the DCFTA – ensuring labour standards are adhered to and even improved as part of the DCFTA. Indeed, competition increases, also on the labour market and vulnerable groups and regions may be tempted to give in to erosion of HR and labour standards. In the long run, these effects may be mitigated by labour mobility and dynamic investment effects. Tunisia has not ratified the Optional Protocol to the International Covenant on Economic, Social and Cultural Rights and the International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families which would have provided a stronger legal environment to combat this potential race-to-the-bottom. Implementation remains in any case a challenge.	Changes compared to the baseline are small and seem to indicate wages are going up significantly – this however does not state how labour conditions are affected. The geographical coverage is nationwide, but especially strong in geographical areas and for vulnerable groups where competitive pressures are larger.
<i>Expected effect: In some sectors the effect of the DCFTA may be that due to competition pressure on labour standards increases – this may affect in particular specific regions or vulnerable groups. These effects could be that firms may try to reduce their costs of production by employing cheaper labour, lower the quality of work at the workplace or try to avoid giving the workers the rights they are entitled to. Due to the already ratified ILO conventions this effects is expected to be small only. Moreover, this causal chain may be further interrupted by a focus on implementation of the conventions as well – possibly as part of the trade and sustainable development chapter in the DCFTA.</i>		
DCFTA limits the use of trade measures to improve enjoyment of HR abroad	The CGE model includes and suggests there is evidence of another effect here: the MFN spill-over effect – allowing Tunisian exporters access to other countries as well when standards are upped to EU-level. This gives another positive boost to incomes and employment possibilities in Tunisia, improving the right to an adequate standard of living. This is an incentive for Tunisia to accept the DCFTA package, with benefits in the HR field alongside it. From the analysis there is no evidence that the EU-Tunisia DCFTA has negative impacts on any third country.	Small effect in a positive way due to the fact that the DCFTA is used to a small extent to put pressure on Tunisia to adhere to HR standards. Catching up a relative lag with countries that get better market access to the EU market and due to getting higher market access to third markets as well, which leads to faster growth, income gains and employment possibilities.

Categories of impact of DCFTA on HR overall	Potential Human Rights effects	Significance: HR stress; direction of change compared to baseline; nature, magnitude, geographical extent, duration and reversibility of expected changes
<i>Expected effect: None, the DCFTA has no clear negative impacts on third countries.</i>		
Enforcement of DCFTA stronger than enforcement of HR law – DCFTA a higher priority	The DCFTA approach seems to – overall – support HR law (especially through the ‘DC’ addition) and thus enforcement of DCFTA should help enforcing HR law. We have found no evidence of specific sectoral HR effects that could imply stronger DCFTA enforcement than enforcement of HR law (for HR impact at sector level, see chapters 7 to 10).	This impact may be small since DCFTA and HR law seem to work in the same direction. The difference comes when some workers or citizens lose from the DCFTA while the large majority gains.
<i>Expected effect: Due to the inclusion of regulatory approximation and standards in the DCFTA, as well as inclusion of a trade and sustainable development chapter, a potential positive impact in terms of enforcement of HR law (including labour law) is expected because the DCFTA is a stronger means to enforce this.</i>		
DCFTA fails to respect right to take part in conduct of public affairs	FTAs typically find it challenging to engage civil society into the process of negotiating and implementing. That is a risk also here, especially since in Tunisia the civil society landscape is not very strong and much still has to settle following the Arab Spring. With the DCFTA leading to more efficiency – this being one of the goals of the DCFTA – other considerations might play a subordinate role – which might in particular affect those less vocal like minorities, small-scale domestic producers of produce, or women in employment. Attention ought to be paid by the DCFTA negotiators to be as inclusive as possible, and this TSIA study takes special precautions to ensure participation. Nonetheless participation is a crucial fundamental right that cannot be taken for granted and should be stressed and promoted beyond this TSIA (e.g. the in the M&E of the agreement) as well.	Medium potential negative impact if the process that started since February is not properly monitored and inclusion pushed – if they are, the expected impact is positive. Caution is needed here as especially the vulnerable groups (e.g. minorities, small-scale domestic producers, women) may suffer if not properly represented and / or listened to. This effect would apply to the whole country. The effects may be temporary and thus reversible on other issues.
<i>Expected effect: The DCFTA aims to be inclusive to civil society. However, the de facto effect will depend on whether the two sides at the negotiating table, both in general and as negotiators in particular, act inclusively. So the impact could be significant in terms of number of organisations that could participate if allowed, especially in post-revolution Tunisia. The impact could also be profoundly negative if civil society in Tunisia feels it is not taken seriously.</i>		
Trade ‘values’ threaten human rights ‘values’	Where trade values emphasise ‘efficiency’, HR values emphasise ‘human dignity’. This DCFTA is expected to be beneficial for the country and for most people. Economic efficiency is the driving force behind those gains, but such efficiency (net effect) says little about (in)equality and distribution and generally, less focus is given to human dignity as such (understandably so, since it is a trade agreement after all). Some people may lose out and from an HR point of view that is unacceptable as each and every individual has fundamental rights. For those affected negatively, alternative options need to be found, which is primarily	This may be an issue as the DCFTA may (unintentionally) disadvantage certain people, especially in the short-run (e.g. declining versus growing sectors, labour displacement, lower wages in the short run). This may be an issue for Tunisia in general.

Categories of impact of DCFTA on HR overall	Potential Human Rights effects	Significance: HR stress; direction of change compared to baseline; nature, magnitude, geographical extent, duration and reversibility of expected changes
	the Tunisian Government's responsibility. The few against the many is not an acceptable trade-off in HR. In this DCFTA, it could be worth looking at sectors that show employment decline and growth (the latter, for example, being: vegetable oils, electrical machinery, and vegetables and fruits). When certain sectors lose out certain flanking measures may be needed.	
<p><i>Expected effect: Trade values are based on a different framework than human rights values. The DCFTA is expected to strengthen trade values. This is expected to improve a lot of HR aspects, but not for all. It is the latter – with HR values looking at human rights for each individual that are absolute – that could mean that for some their HR values are threatened. For the majority, this is clearly not the case.</i></p>		

### Further explanation: an example of causal chain analysis of the potential impact of the DCFTA on Child Labour

As mentioned above, there is evidence of child labour in Tunisia.<sup>137</sup> Children are reported to work in agriculture in rural areas and as vendors in towns, especially during summer school vacation periods. Child labour was found to exist in the informal sector, where children worked in small shops, in handicrafts, selling flowers and small items on the streets.<sup>138</sup>

When looking at the causes of child labour, we find in the literature that parental illiteracy, overpopulation, poverty, urbanisation, unemployment of elders and orphans qualify. Illiterate parents do not recognize the importance of education for their children and put them to work at a young age. Overpopulation combined with limited resources forces children to work to feed all mouths. Poverty forces parents to send in children to add to family income and survive. Urbanisation leads to large unemployment rates in rapidly growing cities, causing children to work (especially in export industries in the developing world like, for example, textiles). Children earn much lower salaries than elders. Unemployment of elders is therefore linked to child employment. Finally, orphans have a much higher chance of ending up in child labour because they have to take care of themselves since no one else does.

Looking at the impact of the DCFTA on child labour, we need to look at the identified causes for child labour and see how each of them are affected by the DCFTA in order to be able to infer more general conclusions.

Cause for child labour	Expected DCFTA impact	Direction and size of the effect
Parental illiteracy	If government spends its additional tax revenue on education and reducing illiteracy, this cause may be addressed to some extent.	Potential positive and significant effect of the DCFTA – as parents-children link is very strong.
Overpopulation	No impact of the DCFTA expected	None
Poverty	Expected to go down because of the DCFTA (wages are expected to rise much	Potential positive and significant effect of the DCFTA – as poverty

<sup>137</sup> UNICEF Newline, Najwa Mekki, UNICEF aims to place further emphasis on children's issues in Tunisia, 17 February 2011, available at: [http://www.unicef.org/infobycountry/Tunisia\\_57693.html](http://www.unicef.org/infobycountry/Tunisia_57693.html) [accessed 29 April 2013].

<sup>138</sup> United States Department of State, 2012 Trafficking in Persons Report - Tunisia, 19 June 2012, available at: <http://www.refworld.org/docid/4fe30c893c.html> [accessed 28 April 2013].

	faster than prices).	goes down.
Urbanisation	Expected to accelerate slightly due to a more positive (relative) impact of the DCFTA on urban areas than on rural areas. <sup>139</sup>	Potential small negative effect of the DCFTA.
Unemployment of elders	Expected to go down if flanked by proper domestic policies.	Conditional upon proper domestic policies, unemployment of elders may be reduced because of the DCFTA.
Orphans	No impact of the DCFTA expected.	None

Looking at the above Table, we expect that – if proper flanking measures are taken – the DCFTA may have the effect of reducing child labour.

<sup>139</sup> Based on the experience that urban areas usually benefit more than rural ones because they are more internationally connected- in this case we also see sectors that based in urban areas benefit more and in addition, poverty declines more.



## 4 Additional environmental analysis

In this chapter, we consider environmental issues and environmental policy in Tunisia, and look at the ways in which a DCFTA could induce changes in these issues or policies. In the first step, the current state of the environment and environmental policy in Tunisia is described, introducing the key issues and developments to be considered. The second step consists of a pre-analysis of how the DCFTA could affect the state of the environment in Tunisia, both in general and for each of the identified issues. In the third step, we look at the likely impacts of the DCFTA for the environmental aspects described.

In the analysis of each of the issues and the impacts of the DCFTA on these, quantitative and qualitative analyses are combined insofar possible. The quantitative analysis of air pollution and CO<sub>2</sub> emissions is most detailed in this respect and most clearly linked to the results of the CGE model (presented in Chapter 2).

### 4.1 Current environmental profile of Tunisia

#### 4.1.1 Introduction

Tunisia, with an area of 162,155km<sup>2</sup>, is bordered by the Mediterranean to the north and east, by Libya to the south and Algeria to the west. The climate is Mediterranean in the north, with dry and hot summers and cool wet winters; semi-arid in the centre and east, with relatively high temperatures and modest rainfall; while an arid desert climate with volatile temperature and very low rainfall prevails in the south (Tunisian Ministry of Environment and Land Planning, 2001; Van Acoleyen and Baouendi, 2011). With mountains, steppes, deserts and oases in addition to maritime areas, Tunisia is home to a great geological and morphological diversity as well as a variety of soils.<sup>140</sup> One of the country's main environmental challenges is water scarcity (Emerson, et al., 2012). Irregular rainfall, wind and sparse vegetation cover in some areas are natural causes for land degradation.

#### Main environmental issues and trends

The Yale University Environmental Performance Index (EPI) ranks Tunisia as no. 99 out of 132 assessed countries – among 'weak performers', in the same category as Serbia, Sudan and Morocco (Emerson, et al., 2012). According to the indicators assessed there, Tunisia performs well in the 'Environmental Health' index, which assesses the effects of air and water on human health and the environmental burden of disease. In the 'Ecosystem Vitality' index, however, the scores are lower. The main contributors to the overall low score in ecosystem vitality are **forests** and **water resources**, mainly due to the low scores in growing stock in forests and the high degree of water use compared to availability; the Tunis International Centre for Environmental Technologies (2009) reports that in the 2000s water exploitation was 106 per cent of available renewable groundwater resources. Both forest and water resources indicators also show a **negative trend**. Under-average performance combined with a positive trend is reported for **ecosystem effects of air pollution**, **biodiversity & habitat**, and **fisheries**.

The ENPI Environment Benefits report commissioned by the EC identified similar environmental challenges for Tunisia, adding **climate change adaptation & mitigation** to the picture (Van

<sup>140</sup> Tunisian Ministry of Environment. *Environment in Tunisia* [online]. Available at: <[http://www.environnement.gov.tn/index.php?option=com\\_content&task=view&id=75&Itemid=94&lang=english](http://www.environnement.gov.tn/index.php?option=com_content&task=view&id=75&Itemid=94&lang=english)>.

Acoleyen and Baouendi, 2011). In addition, sustainable enterprise development and a process of **greening the economy** are notable developments in Tunisia. This effort of tackling environmental issues directly in the production process (as opposed to equally important measures directed at ecosystems or reducing impacts from pollution) is both driven by government policies and the private sector itself, especially through foreign direct investment (EIM Business & Policy Research / Oxford Research, 2012). After an outline of Tunisian environmental policy, this report will mainly be structured along these issues, first giving an overview of the current situation and then assessing the impacts of the DCFTA on each of them.

### Environmental policy

Tunisia has a relatively long history of environmental legislation, dating from before the country's independence in 1956 (European Commission, 2006). Since then, a number of codes and laws relating to environmental protection have been passed, e.g. the Forest Code (1966, revised in 1988), the Water Code (1975) and the Town-Planning Code (1979, revised in 1994). In 1988, the National Agency for Environment Protection (ANPE) was established, the first public institution in charge of the environment. Three years later, a dedicated ministry for the environment was created which is now called Ministry of Environment and Sustainable Development (Tunisian Ministry of Environment). While this Ministry has the principal responsibility for the conception and implementation of the national environmental policies, its implementing agency is the formerly mentioned ANPE (European Commission, 2006).

The Government's main priorities are set out in the economic and social development plans which not only set the strategic guidelines and the priority policies, but also form the basis of the State's investment budget (European Commission). The most recent plan is the 12<sup>th</sup> Development Plan ranging from 2010-2014. In this plan, the Government renews its commitment to sustainable development principles which are mirrored, *inter alia*, in the aim to integrate environmental considerations in all economic activities. Other policy priorities mentioned are the preservation of natural resources, the promotion of renewable energies, climate change adaptation as well as pollution prevention (Republic of Tunisia, 2010).

Tunisia has ratified over 50 international conventions and treaties, including the major international environmental agreements, such as:

- The Ramsar Convention, 1971;
- MARPOL, 1973;
- CITES, 1973;
- Convention of the Law of the Sea, 1982;
- Vienna Convention for the Protection of the Ozone Layer, 1988;
- Montreal Protocol on Substances that deplete the Ozone Layer, 1989;
- Framework Convention on Climate Change, 1992;
- UN Convention on Biological Diversity, 1992;
- Convention to Combat Desertification, 1994;
- Kyoto Protocol to the Framework Convention on Climate Change, 1997;
- Cartagena Protocol on Biosafety, 2000;
- Barcelona Convention (Convention for the Protection of the Mediterranean Sea Against Pollution), 1977;
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1995;
- Stockholm Convention on Persistent Organic Pollutants, 2001 (European Commission, 2006; Tunisian Ministry of Environment<sup>141</sup>).

<sup>141</sup> Tunisian Ministry of Environment. *International conventions* [online]. Available at: <[http://www.environnement.gov.tn/index.php?option=com\\_content&task=view&id=106&Itemid=128](http://www.environnement.gov.tn/index.php?option=com_content&task=view&id=106&Itemid=128)>.

In 1998, Tunisia signed the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, but it has not ratified it yet.<sup>142</sup>

Even though in public discourse, political decision makers address environmental issues regularly, Tunisia's environmental legislation is often unsatisfactory. At times, it suffers from the stewardship of insufficiently trained civil servants or from conflicting competences between ministries and subordinated agencies. These shortcomings, coupled with corruption, mean that existing legislation can relatively easily be circumvented or ignored. Furthermore, environmental concerns are often intermingled with or subordinated to growth considerations, e.g. regional development and job creation. This was for example the case during the times of economic crisis and mounting social strife when improving road and highway infrastructure took precedence over the promotion of public transport (BTI 2012).

The Jasmine revolution has impacted on Tunisia's environmental policy in several ways. Since the revolution, the top-down approach of the former Tunisian government came under increasing criticism as at that time environmental policies were used as a means to sell the Tunisian image and attract international donors and foreign countries (RAC/CP 2011). Prior to the revolution, the political leadership excluded autonomous civic associations from the political process. NGO activities were either systematically suppressed or channelled towards activities compatible with the system (BTI 2012). This means that the nearly 9,400 officially legalised civil society organisations were either strictly apolitical or generally complied with the regime's strategy. They also served to give credence to the government's purported openness (BTI 2012). The revolution brought about more freedoms and enabled the creation of a more vibrant civil society. Since then, more than 2000 organizations have been formed (COWI 2012). There are currently no political mechanisms and procedures in place to incorporate NGOs into the political process. Nonetheless, there are examples of fruitful collaboration between civil society organizations and the government, mainly in less political areas, such as culture, leisure and environment (COWI 2012). In the advent of the Jasmine revolution, the high degree of corruption which spanned almost all economic domains including the environmental sector became public. Furthermore, the falsity of crucial indicators and data that had been disseminated and made public, was unveiled. Amongst others, falsified environmental statistics had been used as an instrument of political propaganda and made it difficult to assess the impact of governmental policy in the field of environmental protection (RAC/CP 2011).

The majority of activities undertaken by Tunisian environmental NGOs focus on information and awareness-raising campaigns rather than on implementation of concrete projects which is mainly due to the limited funding available. However, their role in giving advice, providing and distributing information and conveying key messages is fairly important due to their proximity to the relevant stakeholders (World Bank, 2004).

#### 4.1.2 Air pollution

In this section, we describe the *status quo* situation for air emissions for a selection of air pollutants in Tunisia. First, we describe the context of air pollution in Tunisia. The remainder of the section presents emission volumes, emission intensities and a rough indication of the costs to society related to air pollution. In step 3 of this chapter, the effects of the DCFTA on these baseline indicators are presented.

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<sup>142</sup> <http://www.pic.int/Countries/Statusofratifications/tabid/1072/language/en-US/Default.aspx>.

## Introduction

According to Van Acoleyen and Baouendi (2011), the main air polluters in Tunisia are power plants, cement factories, metallurgy, and mining and quarrying activities; another large share of emissions stems from transport. As almost all of these activities tend to be concentrated in industrialised and urban areas, cities are most affected, in particular Tunis and Sfax. Air pollution affects human health as it can lead to pulmonary and cardiovascular illness and early mortality. In addition to the emissions listed above, dioxin and mercapthane – toxic substances resulting from wild burning of solid waste – pose a further threat to human health in Tunisia (see also the section on waste).

Apart from their impact on human health, emissions to air also affect the environment. They can directly damage natural vegetation and crops. Emissions of sulphur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) cause acid rain, which in turn leads to acidification of forests and freshwaters and thus exacerbates the existing problems with forest ecosystems and fresh water availability (see also the corresponding sections below) (Van Acoleyen and Baouendi, 2011).

Efforts to combat air pollution in Tunisia include the establishment of measurement points and mobile laboratories to monitor air quality in urban areas. In order to reduce air pollution from transport, Tunisia has adopted national standards to limit sulphur and lead contents in gasoline, resulting in a sharp decline in sulphur content and a complete ban of leaded carburant in 2009 (Van Acoleyen and Baouendi, 2011).

## Current emission volumes in Tunisia

The table below presents emission levels of air pollutants by sector of economic activity. The pollutants that we have considered are the classical air pollutants SO<sub>x</sub>, NO<sub>x</sub> and two types of primary particulate matter (PM<sub>2.5</sub> and PM<sub>coarse</sub>).

**Table 4.1 Baseline emission levels, thousand tonnes**

Sector	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>2.5</sub>	PM <sub>coarse</sub>
Agriculture	3.89	0.02	2.36	1.45
Industry	7.44	58.24	6.66	4.08
Transport	32.31	4.88	0.64	0.39
Utilities	25.65	46.58	0.20	0.12
Rest of Emissions	6.19	11.50	14.50	8.88
<b>Total</b>	<b>75.48</b>	<b>121.21</b>	<b>24.35</b>	<b>14.92</b>

Source: EDGAR database for NO<sub>x</sub>, SO<sub>x</sub>, and particulate matter. Distribution of PM<sub>10</sub> based on ENPI country report Tunisia: PM<sub>2.5</sub>: 62%; PM<sub>co</sub>: 38%. Data are for the year 2008.

Unfortunately, the sector structure that we can use for the analysis of air pollution is much less detailed than the structure in the CGE model. This is due to the need to match emission sources to our model sectors. The correspondence between sectors that we use is further explained in Annex C. For vehicle emissions, an important source of pollution, we have decided to allocate all emissions related to vehicle use to the transport sector. The sector *Rest of Emissions* (RoE) includes sources that could not be assigned to specific sectors of economic activity. An example would be emissions from heating systems that can be used in buildings related to any economic activity. It includes emissions from activities in the services sector, but also includes emissions sourcing from agriculture, industry, transport and from residential sources.

The utilities sector is an important source of SO<sub>x</sub> and NO<sub>x</sub> in Tunisia, the two pollutants with the highest volume of emissions. On the other hand, industry plays only a minor role in PM emissions. The industrial sector, however, is the primary contributor of SO<sub>x</sub> emissions. It also holds a large

share of particulate matter emissions. The transport sector provides the highest share of NO<sub>x</sub>. PM2.5 and PMcoarse emissions are highest in the rest category sector. This sector includes the service sectors but also emissions that have no direct link to any sector of economic activity in particular. The agriculture sector has modest levels of NO<sub>x</sub> and SO<sub>x</sub> emissions, but plays a considerable role in PM emissions.

#### Current emission intensities in Tunisia

Emissions per euro of value added give an indication of the emission intensity in the economy as a whole and its various sectors for the classical pollutants. The utilities sector has the highest emission intensity. The last row in the table indicates for each pollutant the average emission intensity per euro of GDP. SO<sub>x</sub> has the highest emission per euro GDP in Tunisia, mainly driven by the utilities and industrial sectors.

**Table 4.2 Emission intensities in Tunisia, tonnes per € million of value added**

Sector	NO <sub>x</sub>	SO <sub>x</sub>	PM2.5	PMcoarse
Agriculture	0.99	0.00	0.60	0.37
Industry	0.71	5.58	0.64	0.39
Transport	12.99	1.96	0.26	0.16
Utilities	31.01	56.30	0.24	0.14
<b>Total</b>	<b>2.30</b>	<b>3.69</b>	<b>0.74</b>	<b>0.45</b>

Note: For the category 'Rest of Emissions', no value added can be assigned because emissions cannot be explicitly linked to sectors of economic activity.

#### External costs estimates

A rough indication of the external costs related to the baseline emissions in Tunisia can be attained by multiplying the current emissions in Tunisia (baseline emissions) with the external cost factor per tonne of emissions. The external cost factors are taken from the NEEDS framework, as explained in more detail in Annex C. The table below provides estimates for the baseline external costs derived accordingly.

**Table 4.3 Benchmark externality associated with air pollution in Tunisia in € million**

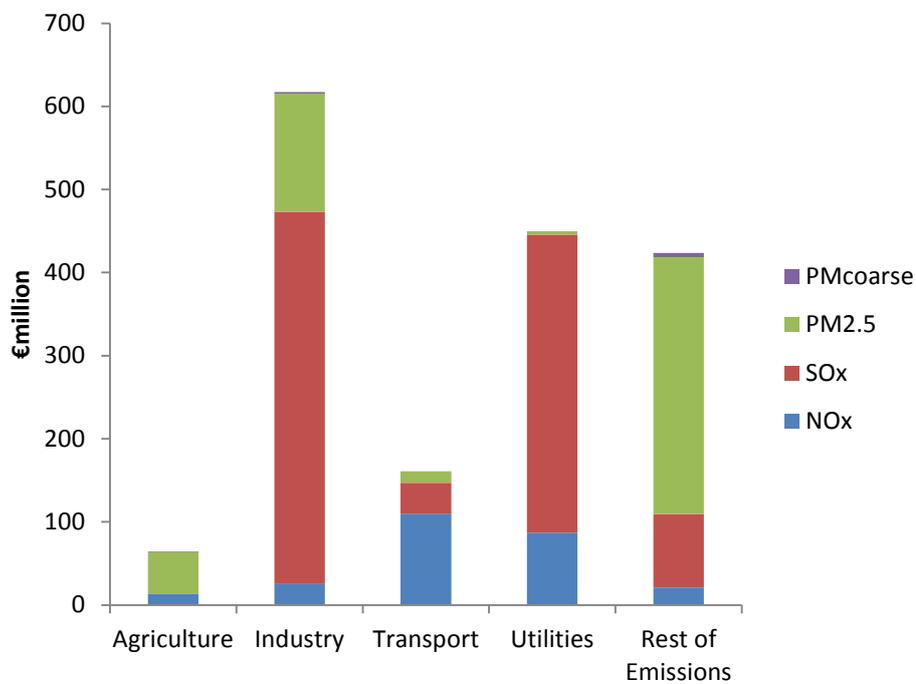
	NO <sub>x</sub>	SO <sub>x</sub>	PM2.5	PMcoarse
Agriculture	13.16	0.13	41.68	1.52
Industry	25.16	447.90	117.44	4.27
Transport	109.36	37.51	11.22	0.41
Utilities	86.81	358.21	3.45	0.13
Rest of Emissions	20.96	88.47	255.60	9.30
<b>Total</b>	<b>255.45</b>	<b>932.22</b>	<b>429.38</b>	<b>15.62</b>

Notes: emission data for 2008; external cost factors taken from WP1 of RS3a NEEDS project, <http://www.needs-project.org>.

These figures only provide an order of magnitude of the costs involved such that one can compare the different types of air pollution across sectors. The reported monetary values for total external costs of air pollution should be interpreted very cautiously, though. The external cost factors are typically indicating the costs of extra emissions on top of the baseline situation. They indicate marginal costs, not average costs. If total costs of emissions increase more than proportionally with the volume of emissions, marginal costs are higher than average costs, resulting in an overestimation of the baseline external costs.

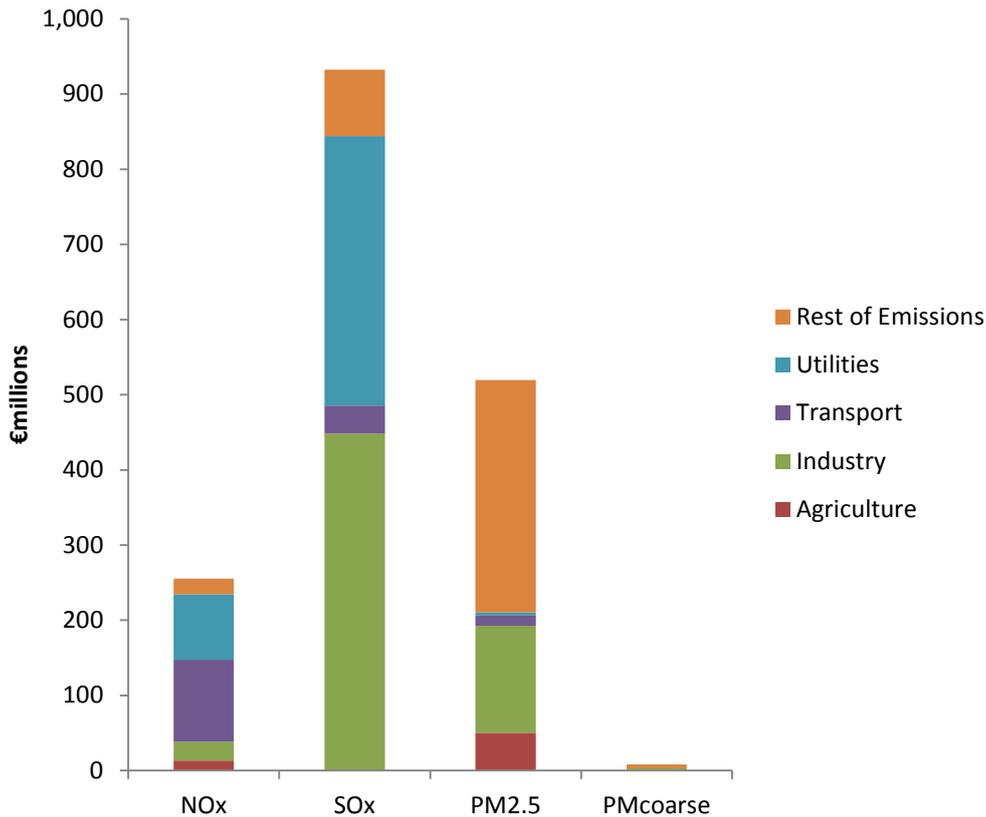
The table shows that SO<sub>x</sub> currently leads to the highest costs to society arising from air pollution followed by PM2.5. The industrial sector is the major area of economic activity causing external costs of air pollution, followed by the utilities sector. A large share of the emissions and external costs related to PM2.5 could not be allocated to any economic sector in particular. The figures below present this information graphically.

**Figure 4.1 Benchmark externality associated with releases of air pollutants in Tunisia, € million per sector**



Source: Own calculations based on emission data EDGAR for 2008; external cost factors taken from WP1 of RS3a NEEDS project.

**Figure 4.2 Benchmark externality associated with releases of air pollutants in Tunisia, € billion per pollutant**



Source: Own calculations based on emission data EDGAR for 2008; external cost factors taken from WP1 of RS3a NEEDS project.

#### 4.1.3 Waste

According to a recent Sweepnet report, the municipal solid waste (MSW) generated in Tunisia amounted to 2.25 million tons in 2009, most of it being organic materials (68 per cent), plastics (11 per cent) and paper/cardboard (9 per cent). The annual growth rate of MSW generation is 2.5 per cent. With 76 per cent, the biggest source of MWS is the industrial sector, the remaining 24 per cent coming from domestic and commercial activities. On a per capita basis, people residing in urban areas produce significantly more MSW than those living in rural areas (0.815kg/day compared to 0.15kg/day). The waste reception capacity of closed landfills is approximately 1,765,000 tons per year which represents 78 per cent of total household production. The remainder is largely eliminated in uncontrolled dumps, while the levels of recycling or composting are very low (Sweepnet, 2010).

The responsible regulatory and legislative body for waste management is the Ministry of Environment. Implementation of policies decided on by the MoE lies with the National Waste Management Agency (ANGed) which was established in 2005. Next to this function, the ANGed also monitors and controls waste management and helps building capacity in the waste management sector. Collection and routing to transfer centres and municipal landfills is provided by the municipalities and their sub-contractors, who cover 85 per cent on average in urban areas, but only 50 per cent in rural areas (Sweepnet, 2010). This could be a potential problem in case industrial activity in the underserved areas increases due to the DCFTA.

As a result of the demographic growth and urban expansion of the last years, problems related to the management of solid waste have increased, especially with regard to the collection and

disposal. Many disposal sites are uncontrolled and solid wastes are not segregated prior to collection (European Commission, 2006), which prevents recycling. Therefore, Tunisian waste management policy centres on the collection of waste into controlled landfills. At the time of writing of the latest available report (Sweepnet, 2010), 10 controlled landfills were in operation, covering 13 governorates out of 24. It was anticipated that by 2013, all previously uncontrolled dumps would be closed or rehabilitated, which would ensure coverage with controlled landfills of the whole country (Sweepnet, 2010). At this point, it is not known whether this statement still holds true. Nonetheless, it should be noted that even the controlled disposal sites do not have proper sanitary measures for soil covering and treatment of the leachate and therefore behave as pollution sources themselves (European Commission, 2006). While the majority of waste is currently buried, Tunisia is stressing the importance of waste valorization. The final goal is to bury only the ultimate waste that is not at all recoverable. However, levels of composting and recycling are low and in the case of composting do not exceed 0.5 per cent of the deposits available (Sweepnet, 2010).

In 1993, the National Solid Waste Management Program (PRONADGES) was launched. This program constituted the first national strategic and operational plan for solid waste management for the period 1995-2006 (European Commission, 2006). The successor program has been renamed the National Integrated and Sustainable Waste Management Program (PRONGIDD) and extends from 2007 through to 2016. Its five main goals are to (1) reduce waste production at the source, (2) promote waste treatment and its valorisation, (3) improve the institutional, regulatory and financial waste framework by promoting private sector participation in infrastructure investments, (4) improve technical and organisational aspects and (5) develop communication and awareness about the control of waste production (EIM Business & Policy Research / Oxford Research, 2012; Sweepnet, 2010). As a result of the waste management programs, Tunisia moved from government-controlled waste collection to an enterprise-led waste management system, allowing enterprises to create opportunities out of environmental challenges. The evidence on the success of this shift in collection systems is mixed; well-structured private companies have proven to contribute to good and more cost-efficient waste collection, but there have also been complaints about lack of compliance of some other companies (Sweepnet, 2010). While the last years have shown progress in extracting value from waste, the move from re-use of waste to a reduction of waste will require significant additional efforts (EIM Business & Policy Research / Oxford Research, 2012).

After 14 January 2011, the national waste management system in Tunisia is faced by many challenges. Since waste collection mechanisms often do not work anymore, it may happen that waste accumulates for several days forming dumps even within cities (Sweepnet 2012). Furthermore, many waste treatment centres have been blocked by sit-ins and demonstrations by local people, e.g. the municipal waste treatment centre of Béni Naïm, Bizerte (RAC/CP 2011). Another example is the centre for industrial and hazardous waste treatment in Jradou, Zaghuan, which stopped operating in February 2011. This centre was considered best practice in the field of hazardous waste management but was completely rejected by the local population that felt discarded in the implementation process of this project. For now, the waste destined for this location is either stored at the point of production or thrown into the environment. It is hoped that it can be reopened through an open dialogue with local communities and under more environmentally-sound operating conditions (Sweepnet 2012).

#### 4.1.4 Water

Tunisia, being an arid to semi-arid country, is facing water shortages of increasing severity. Water availability equates an annual average of 465 m<sup>3</sup> per capita which is already well below the water poverty threshold of 1,000 m<sup>3</sup> per capita per year (FAO, 2009). As a result of population growth, rising living standards and accelerated urbanisation, water scarcity problems are expected to

intensify and water availability per capita is predicted to drop to 315 m<sup>3</sup> per year by 2030 (FAO, 2009; Tunis International Center for Environmental Technologies, 2009). Next to water availability, water quality is a problem in Tunisia. Less than half of the country's water resources contain less than 1.5g/l of salt and thus meet health and agronomic standards (El Hedi Louati and Bucknall, 2010). The previously mentioned drivers of increased water consumption are likely to decrease water quality further: the current average rate of exploitation of 106 per cent has already resulted not only in depletion of aquifers and water tables, but also to increased salinity levels in coastal aquifers (Tunis International Center for Environmental Technologies, 2009). Responsible for close to 80 per cent of Tunisia's water use, the irrigation (hence agricultural) sector is currently the biggest water consumer (El Hedi Louati and Bucknall, 2010).

For the past three decades, Tunisia's water resource management policy was mainly aimed at reducing the risk and impact of droughts and has thus focused on mobilising the country's limited water resources as much as possible. To this end, a significant amount of water infrastructure has been developed (El Hedi Louati and Bucknall, 2010). Even though current water-related legislation is mainly focused on the exploitation of water resources, demand management constitutes an important axis of future water policies. The emphasis is thus shifting to changing water users' behaviour, encouraging more efficient resource use and maintaining a sustainable consumption level. To this end, measures have been implemented towards water conservation and rational water use in the agricultural sector, like charging user fees and providing incentives for investment in resource-efficient irrigation. This national irrigation water saving programme has led to a stabilisation of water use for irrigation despite an increase in irrigated land. Furthermore, a monitoring network has been established throughout the country to assess and monitor water availability and quality (Tunis International Center for Environmental Technologies, 2009; World Water Assessment Program, 2009).

Most responsibilities related to water resource management lie with the Ministry of Agriculture and Hydraulic Resources and the several directorates under its authority. One of these Directorates, SONEDE (Société Nationale d'Exploitation et de Distribution des Eaux), is responsible for the production, treatment and distribution of drinking water across the country (Tunis International Center for Environmental Technologies, 2009). While the Ministry of Agriculture and Hydraulic Resources is responsible for water resource management, the responsibilities for pollution reduction, sanitation and wastewater recycling are covered by the Ministry of Environment (World Water Assessment Program, 2009). The National Sanitation Utility (ONAS) is the major agency responsible for the protection of water environment and for pollution abatement. The utility was created in 1974 and operates under the authority of the Ministry of Environment. One of its responsibilities is the collection and treatment of wastewater (Tunis International Center for Environmental Technologies, 2009). Since its creation, the ONAS has made remarkable progress: In 2006, 87 per cent of the total Tunisian population were connected to public sewerage and a total of 97 wastewater treatment plants existed. More than 90 per cent of the wastewater collected by ONAS is treated and more than 20 per cent of treated wastewater is reused (European Commission, 2006). Even though overall wastewater services are very well developed in Tunisia, especially compared to other countries in the region, some issues still require attention, such as increasing the capacity of wastewater treatment plants, improving the semi-urban and rural sanitation sector and the efficient management of sludge (European Commission, 2006).

The EU-financed SWIM project (Sustainable Water Integrated Management) is a support scheme to provide technical assistance in designing and implementing sustainable water management policies and plans. Currently, 5 demonstration projects have been launched, ranging from draught management to integrated wastewater management.<sup>143</sup>

<sup>143</sup> [http://www.swim-sm.eu/index.php?option=com\\_content&view=article&id=20&Itemid=14&lang=en](http://www.swim-sm.eu/index.php?option=com_content&view=article&id=20&Itemid=14&lang=en).

#### 4.1.5 Marine pollution

With regard to marine pollution, the majority of studies and reports focus on the situation for the entire Mediterranean, in which the major sources of pollution include municipal wastewater treatment and disposal, urban solid waste disposal, the release of harmful concentrations of nutrients into the marine environment, activities contributing to the destruction of the coastline and coastal habitats, as well as storage, transportation and disposal of radioactive and hazardous waste (Khamis El Sayyed, 2008). On a national level, little information was found about this specific area of environmental pollution. However, UNEP/WHO (1999) has identified priority pollution hot spots on a country basis in the Arab Mediterranean Environment. Overall, 101 hot spots have been identified, four of which are located in Tunisia (i.e. Gabès; Lake of Tunis; Lake of Bizerte and Sfax-South) (UNEP and WHO, 1999). According to a 2004 survey, in these four hot spots, 7.250t of biochemical oxygen demand (BOD) were discharged on an annual basis, stemming from domestic and industrial waste (depending on the hot spot: fertilisers, phosphates, oil, textiles, metal-working, cement) (Khamis El Sayyed, 2008). The source of pollutants was primarily municipal and industrial waste (UNEP and WHO, 1999). While efforts have been made to control discharges, many industries still discharge their wastewater without any treatment and even those that have some form of treatment system in place, do not always achieve a high degree of pollution abatement, due to malfunctions of the treatment equipment (European Commission, 2006). In Gabès, one of the four priority pollution hotspots, the Tunisian Chemical Group has been dumping phosphogypsum into the sea since the early 1970s, The envisaged solution to this was to build a waste collection site, yet since 14 January 2011, the local population is protesting firmly against this project, arguing it poses serious health risks (McNeil and Addala, 2013).

With regard to marine pollution by ships, Tunisia has experienced a number of smaller oil spills from tankers in the past three decades, but no incidents with hazardous and noxious substances have been reported (International Tanker Owners Pollution Federation Limited, 2011).

Governance of the Mediterranean Sea Large Marine Ecosystem (LME) involves 21 countries - including Tunisia - and the European Union. Under the UNEP Regional Seas Program created in 1974, the Mediterranean became the first region to adopt an Action Plan in 1975 - the Mediterranean Action Plan (MAP). One year later, the Convention for the Protection of the Mediterranean Sea against Pollution (Barcelona Convention) was adopted and six landmark protocols followed. Since then, the MAP and the Barcelona Convention have been amended to reflect the emphasis on sustainable development and biodiversity conservation. Furthermore, the Mediterranean countries have adopted two Strategic Action Programs (SAP) to reduce both land-based sources of marine pollution (SAP-MED) and protect biodiversity, living resources and their habitats (SAP-BIO). In order to facilitate the implementation of the SAPs, a Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem has been launched by GEF, UNEP and the World Bank (Aquarone, et al., 2009; UNEP). In Tunisia, the National Agency for Coastal Protection (APAL) which was established in 1996 is responsible for the protection of the coastal environment and works together with the above-mentioned international institutions (European Commission, 2006).

The European Commission's Horizon 2020 Initiative for the de-pollution of the Mediterranean, launched in 2006 and endorsed by the Union for the Mediterranean in 2008, is active in investments for pollution reduction and capacity building with the goal to de-pollute the Mediterranean by the year 2020. Its main fields of action are municipal waste, urban waste water and industrial pollution – the main sources of pollution of the Mediterranean Sea. The initiative shows the cross-links between different environmental issues and also is an example of addressing the need for cross-Mediterranean cooperation. By establishing common indicators for the main pollution sources, the project contributes to better monitoring and thus can pave the way for better

policy decisions.<sup>144</sup> Under the Initiative's Hot Spot Investment programme, activities for the Lake Bizerte Integrated De-pollution project in Tunisia have been started.<sup>145</sup>

#### 4.1.6 *Ecosystems & biodiversity*

Tunisia is comprised of four main ecosystems:

- The Northern region ecosystem with cork oak and beech forests, stone pine forests and juniper forests;
- The steppe and Atlas mountains ecosystem with arid areas, steppe, mountains and plains;
- The wetlands and coastal ecosystem with various types of coasts, semi-dry salt lakes, lakes, wadis, marshlands, springs and oases;
- The Sahara ecosystem with sand dunes and several sand tolerant plant species.

Hosting 3,573 plant species, Tunisia is one of the richest countries in terms of plant diversity documented in the Arab world (Convention on Biological Diversity; Talhouk and Abboudafed, 2008). The country also hosts 2,244 animal species, including a total of 362 bird, 63 reptile and 78 mammal species (Convention on Biological Diversity). According to the International Union for the Conservation of Nature (IUCN) red list, 79 species are threatened, including 13 mammal, 7 bird, 5 reptile, and 35 fish species (IUCN 2012).

The main threats to ecosystems and biodiversity are overexploitation of natural and agricultural resources (soil, water, and biodiversity), desertification, climate change, pollution and invasive species (Van Acoleyen and Baouendi, 2011).

Since 1987, Tunisia has been actively trying to preserve its biological resources and natural ecosystems through both in-situ and ex-situ conservation. Tunisian ecosystems are monitored by the National Mapping and Remote Sensing Center.<sup>146</sup> Tunisia has established 24 protected areas (eight national parks and 16 natural reserves), accounting for about 2.5 per cent of the country's land area. Currently a legal frame for protection of coastal areas is in development. In 1998, Tunisia adopted a National Biodiversity Strategy, which included the creation of new protected areas and several specific measures in the forest, mountain, agricultural and littoral and coastal zones (Convention on Biological Diversity). In 2007, Tunisia created a National Bank of genes for the storage and recovery of approximately 200,000 samples of genetic strains (European Commission, 2006).

After 14 January 2011, people in many regions of the country have attacked national parks claiming their right over the land and criticizing the national control over their basic resources and livelihoods (RAC/CP, 2011).

Policies addressing adaptation to desertification started in 1998 with the National Action Plan to Combat Desertification. Together with the National Commission on Combating Desertification (CNLD), launched in 2005, the National Action Plan unites programmes directed at desertification in one framework and establishes guidelines and recommendations. Among those are efficient management of water resources, mainstreaming the climate change dimension in the preparation of programmes related to natural resource management, strengthening the national strategies of Water and Soil Conservation, and promoting the forestry and rangeland sector (Van Acoleyen and Baouendi, 2011).

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<sup>144</sup> See <http://www.h2020.net/en/news-and-events/news/137-real-progress-on-the-horizon-2020-indicators.html> and <http://enpi-seis.ew.eea.europa.eu/project-activities/data-and-indicators/enp-south-national-workshop-indicators/tunisie-22-may>.

<sup>145</sup> <http://www.h2020.net/en/pollution-reduction-investments/the-project-mehsip-ppif.html>.

<sup>146</sup> See <http://www.cnt.nat.tn/en/index.php?m=61>.

#### 4.1.7 Forests

As forests in Tunisia are both endangered and play an important role for soil and water conservation, they are considered in more detail here. Forest area in Tunisia has increased by 9 per cent between 1994 and 2008, which is in line with the development in other Mediterranean countries, where forest cover has largely been increasing through reforestation (Van Acoleyen and Baouendi, 2011). However, the quality of forests is an issue. Growing stock (i.e. the stem volume of living trees) per hectare in Tunisia is 24m<sup>3</sup>, the lowest value in the Mediterranean region (compared to 213m<sup>3</sup>/ha in Croatia, and 36m<sup>3</sup>/ha in Morocco). This is also reflected in the forest carbon stock, where Tunisia again has the lowest value of all Mediterranean countries with 10 tonnes per hectare.

Approximately 41 per cent of Tunisian forests are primarily designated for soil and water protection, which is an average value for the Mediterranean region. For example, it has been demonstrated that forests reduced sedimentation in the Siliana water reservoir in Tunisia by 12.9 m<sup>3</sup>/ha/year (FAO, 2013). In addition, next to uncontrolled urbanisation, two water-related issues are major threats to Tunisian forests: desertification and acidification (resulting from air pollution). This means that forests can help overcome water problems, but other issues affecting forests and water need to be addressed simultaneously. Compared to other Mediterranean countries, Tunisian forests are not heavily affected by fires or biotic disturbances such as insect pests (FAO, 2013). Illegal conversion of land use from forest to agriculture has been mentioned as a problem (Daly-Hassen and Mansoura, 2005). Human use of forests – especially logging and clearing activities, and overgrazing from livestock – is also the cause for forest degradation in Tunisia. Almost 74 per cent of Tunisian forests are classified as public property. It is expected that increased urbanisation and economic diversification will contribute to reducing degradation, as economic activity relies less on forest services (Daly-Hassen and Mansoura, 2005).

None of the Tunisian forests are primary forests, defined by the FAO as “forests of native species in which there are no clearly visible indications of human activity and where the ecological processes have not been significantly disturbed” (FAO, 2013). Around 70 per cent of Tunisian forests are planted, and only 30 per cent naturally regenerated, reflecting the strategic priority to increase forest cover and the multiple use of forests (24 per cent of forests are designated for production, 41 per cent to soil and water protection, and 32 per cent to multiple use) (Daly-Hassen and Mansoura, 2005; Van Acoleyen and Baouendi, 2011). Urban parks are considered to play an important role for providing ecosystem services in Tunisia. Only four per cent of Tunisian forest are dedicated to conservation of biological diversity. However, this does not necessarily mean that Tunisian forests are biologically not diverse.

Most of Tunisian forest consists of Aleppo pine (*Pinus halepensis*), cork oak (*Quercus suber*), and Algerian oak (*Quercus canariensis*), with oaks adapted to the mild climatic conditions of the supra-Mediterranean level, and pines to dry conditions with poor soils (FAO, 2010; FAO, 2013). Cork oak forests “coexist with agriculture and traditional practices and provide a broad range of goods and services, such as cork, wood fuel, pasturage, forage, aromatic herbs, mushrooms, beekeeping, nature tourism and leisure activities associated with rural areas” (FAO, 2013). Although they are strongly shaped by human intervention, cork oak forest landscapes show a high biological diversity: 60–100 flowering plant species can be found in 100m<sup>2</sup>.

#### 4.1.8 Climate change

This section describes the baseline situation for CO<sub>2</sub> emissions, as main greenhouse gas related to climate change. After an introduction to the context of climate change and climate change adaptation for Tunisia, we provide an overview of current CO<sub>2</sub> emission volumes and a rough indication of the external costs related to the baseline situation.

## Introduction to climate change related policy

Tunisia is one of the signatories of the Kyoto Protocol without binding targets (non-Annex I).<sup>147</sup> As such, it participates in the Clean Development Mechanism (CDM), which enables Annex I countries (and resident companies) to reduce 'their' emissions by investing in mitigation measures in non-Annex I countries. The Ministry of Environment is the national authority in charge of administration of CDM projects.<sup>148</sup>

Tunisia is also active in mitigation outside the CDM framework. "Initiatives and regulations have been introduced to regulate emissions from the larger production facilities and industrial zones. However, given the number of SMEs, which are placed outside the industrial zones, there are gaps in the coverage of regulatory measures and support systems" (EIM Business & Policy Research / Oxford Research, 2012).

Renewable energies are promoted, for example through PROSOL, a programme which established a loan facility to subsidise the cost of purchasing Solar Water Heaters. As a result of the programme, 40,000 families use solar power to heat their water, and more than 1,000 companies have installed the systems. This led to a cumulative CO<sub>2</sub> emission reduction of 240,000 tonnes (UN Sustainable Development Knowledge Platform).

In order to respond to the threat of climate change, a CCC/GTZ project was established. It was implemented as part of Tunisian-German bilateral cooperation and ran from 2006 to 2011. Its objective was to integrate measures in line with the UNFCCC and the Kyoto Protocol into Tunisia's key economic sector strategies and development plans and to serve as an example for other countries (GTZ). The following results have been achieved so far:

- Ministries, government and NGOs active in the high-risk sectors of agriculture, water resources management, health and tourism are aware of the effects of climate change and communicate them to the public;
- On a political level, climate change adaptation measures have been established in the agriculture, water resources management and health sectors. Investment projects for key adaptation measures have been drafted;
- By building competence among partner institutions, Tunisia has become an attractive and competent partner on the international CDM market;
- An early warning system for floods and heat waves has been set up;
- Measures to reduce GHG emissions have begun to take effect, e.g. introducing renewable energies, saving energy, improving waste management and using biogas (GIZ).

A current project financed by the European Union, "Support for Climate Change Mitigation and Adaptation in the ENPI South region", or short "Clima South", disseminates information, strengthens institutional capacity and fosters regional cooperation on climate change mitigation and adaptation (European Commission, 2013). However, the project has only just started which is why no concrete outcomes can be expected yet.

## Adaptation

The expected impacts of climate change in Tunisia are temperature rise, increased drought, rising sea level and an increased number of floods (Van Acoleyen and Baouendi, 2011). Amongst others, it is expected that by 2020, 50 per cent of ground cover vegetation will be lost in the south of the country, ground water resources will be reduced by 28 per cent and that a 20 per cent reduction in

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<sup>147</sup> Tunisian Ministry of Environment. *International conventions* [online]. Available at: <[http://www.environnement.gov.tn/index.php?option=com\\_content&task=view&id=106&Itemid=128](http://www.environnement.gov.tn/index.php?option=com_content&task=view&id=106&Itemid=128)>.

<sup>148</sup> Tunisian Ministry of Environment. *Clean Development Mechanism CDM in Tunisia* [online]. Available at: <<http://www.mdptunisie.tn/en/index2.php#>>.

land under cultivation for cereal production will occur. By 2050, the main consequences of climate change in Tunisia are expected to be a temperature rise of between 1.6°C and 2.7°C accompanied by a greater recurrence of heat waves, a drop in average rainfall levels of around 10 per cent in the north west of the country and 30 per cent in the far south and a 15-18 cm rise in sea level (GTZ). Tunisia is particularly exposed and sensitive – and thus in need of adaptation measures – to sea level rise and enhanced desertification due to temperature rise and increased drought (Tunisian Ministry of Environment and Land Planning, 2001).

With a coastline of 1,300 km, where most of the country's economic activity is concentrated, sea level rise is a direct threat to humans and the economy. In particular, port infrastructure and coastal water resources are expected to be heavily affected. A study by the Ministry of Environment listed actions needed to prevent the likely impacts, such as protection of coasts against erosion, prevention of salinisation of water resources, and protection of port infrastructure (Van Acoleyen and Baouendi, 2011). A coastal Action Plan has been developed in order to minimise the impacts.<sup>149</sup>

The impacts of climate change will exacerbate other environmental issues such as water scarcity and desertification. Climate change is therefore expected to contribute to further desertification, leading to a potential loss of a fifth of arable land, half of forested areas, and reduction of ground water reserves by almost 30 per cent.

#### Current emissions and external costs

The DCFTA has an effect on climate change by affecting CO<sub>2</sub> emissions in Tunisia. CO<sub>2</sub> emission volumes are available at the country level rather than by sector or emission source. In 2008, emissions of CO<sub>2</sub> in Tunisia amounted to 25 million tonne. In comparison to the classical pollutants discussed above, it is obvious that the volume of emission of CO<sub>2</sub> vastly exceeds that of the classical pollutants such as NO<sub>x</sub> and SO<sub>x</sub>. However, emission volumes do not tell the whole story for the assessment of the costs to society of various emissions. Costs per tonne of emissions vary between the different types of air emissions. In contrast to NO<sub>x</sub>, SO<sub>x</sub> and particulate matter, CO<sub>2</sub> is not a pollutant as such. The environmental cost related to CO<sub>2</sub> is hence different in nature than for pollutants. As a greenhouse gas, CO<sub>2</sub> can contribute to global warming and climate change. Hence, the external environmental costs are the costs related to climate change.

To value the costs related to CO<sub>2</sub> emissions, an estimated value of the external costs per tonne of emission is needed. No single estimate applies, as is shown by the range of estimates that emerge from the academic literature on the topic. For an overview and meta-analysis of this literature, see Tol (2005). The value depends on a lot of aspects, such as choices made in the method of calculation. Annex C provides a brief overview of the main methodological issues. The median value reported by Tol was around USD 14 per tonne, and the mean at USD 93 per tonne (in 1995 price levels). In line with earlier Trade SIA studies, we assume a value of €20 per tonne of CO<sub>2</sub>. This would imply that the baseline costs to society from CO<sub>2</sub> emission are €500 million. As before, the cost estimate is intended mostly in order to allow for comparisons of costs across different air emissions. Costs of CO<sub>2</sub> emissions are in the same order of magnitude as PM<sub>2.5</sub> and half those related to SO<sub>x</sub> emissions, even though the volume of CO<sub>2</sub> emissions is much higher. Interpretation of the absolute value should be done with caution, as the external cost factor is an estimate of marginal social costs rather than average social costs. The reported value is therefore most likely overestimating actual costs to society, assuming the marginal cost estimate is accurate.

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<sup>149</sup> Tunisian Ministry of Environment. *Vulnerability and Adaptation* [online]. Available at: <[http://www.environnement.gov.tn/index.php?option=com\\_content&task=view&id=124&Itemid=146&limit=1&limitstart=0](http://www.environnement.gov.tn/index.php?option=com_content&task=view&id=124&Itemid=146&limit=1&limitstart=0)>.

#### 4.1.9 Green economy

While the relationship between economic activity and the environment is usually considered negative, increasing efforts are made in Tunisia to change this relationship and to engage the private sector in a process of greening the economy, together with international partners. As the DCFTA will directly affect economic activity and international economic relations, these developments are worth noting here.

National environmental standards have been developed in Tunisia, prompting companies to implement programmes of environmental protection, rational use of natural resources and sustainable waste management. With the privatisation of waste management, the government has created opportunities for enterprises to profit from environmental activities by extracting value from waste (EIM Business & Policy Research / Oxford Research, 2012). The Ministry of Environment also assists enterprises in implementing certified environmental management schemes (ISO 14000) and established a portal grouping all companies active in the field of environment (<http://www.pagesvertestunisie.com>).<sup>150</sup> Small environmental companies are supported by a dedicated programme (EIM Business & Policy Research / Oxford Research, 2012).

Another notable measure is the “FODEP” industry depollution fund (Fonds de dépollution industrielle). It co-finances projects by industrial and small-sized enterprises aimed at eliminating waste or emissions (end-of-pipe measures) as well as integrated measures such as saving resources and implementing cleaner technology (Tunisian Ministry of Economy and Finance). The International Centre for Environmental Technologies provides a further opportunity for development of Eco-innovation and for cooperation between academic and research institutions, industry and international partners (EIM Business & Policy Research / Oxford Research, 2012).

In general, the Tunisian activities towards greening the economy show a strong pattern of international partnerships. For example, the Ministry of Environment actively supports private investor projects under the Clean Development Mechanism (see section on climate change). It organised two international fora on investment in the environment, “Green Ifriqiya”, with a strong focus on CDM partnerships.<sup>151</sup> In addition, Tunisia has benefited and is benefitting from cooperation with international partners on a number of the measures outlined above (EIM Business & Policy Research / Oxford Research, 2012). For example, Morocco is part of the EC-funded SWITCH-MED programme, which is about promoting the shift towards sustainable production and consumption in the Mediterranean region, through demonstration and dissemination of methods that improve resource and energy efficiency. The programme started in the end of 2012, therefore concrete achievements cannot be reported yet.<sup>152</sup>

With regard to the energy sector, renewable energy development has not been a high priority for Tunisia which can be explained by its reliance on fossil-fuel reserves and a lack of political support. However, due to the rapid expansion of the market, recognition of the potential of renewable energies and several major international solar initiatives, a commitment to diversify power generation has been created. The government aims to increase the electricity generated by renewable energies from its current level of 1 per cent to 11 per cent by 2016 and 25 per cent by 2030. In order to reach this target, Tunisia has launched several national and international investment programs, including the Tunisian Solar Plan which aims to fund around 40 renewable energy projects and the Mediterranean Solar Plan, an EU-backed scheme to invest in solar and other renewable energy around the Mediterranean Sea. Furthermore, Tunisia will also be part of

<sup>150</sup> See Tunisian Ministry of Environment. *Environmental policy* [online]. Available at: [http://www.cime-tunisie.nat.tn/index.php?option=com\\_content&view=article&id=54&lang=en&Itemid=0](http://www.cime-tunisie.nat.tn/index.php?option=com_content&view=article&id=54&lang=en&Itemid=0).

<sup>151</sup> Tunisian Ministry of Environment. *Environmental policy* [online]. Available at: [http://www.cime-tunisie.nat.tn/index.php?option=com\\_content&view=article&id=54&lang=en&Itemid=0](http://www.cime-tunisie.nat.tn/index.php?option=com_content&view=article&id=54&lang=en&Itemid=0).

<sup>152</sup> [http://www.enpi-info.eu/mainmed.php?id=449&id\\_type=10](http://www.enpi-info.eu/mainmed.php?id=449&id_type=10).

the DESERTEC super-grid which connects several African and European countries (Ernst & Young). One of the barriers to the development of renewable energies in the MENA region including Tunisia is the low cost of energy from fossil-fuel based energy sources. These are subsidized and therefore too low, making the production of renewable energy less attractive (OECD, 2013). In parallel to the Tunisian uprisings, the Tunisian population protested against rising living costs and unemployment. As a response, the government approved a USD230 million package to reduce both food and fuel prices and temporarily suspended its automated fuel adjustment mechanisms in order to lower fuel prices even further (Fattouh and El-Katiri, 2012).

Looking at water use, the irrigation user fee and investment incentives mentioned above have made Tunisian agriculture less irrigation intensive, although the sector remains the most important water user (World Water Assessment Program, 2009). A study has shown that an increase in the water price would have a direct negative impact on Tunisian agricultural production and exports, indicating the continued heavy reliance of the agricultural sector on water (Larson, et al., 2002).

## 4.2 Environmental impacts of the DCFTA

### 4.2.1 General environmental issues relevant to the assessment of the impacts of a DCFTA

In the table below, the environmental issues outlined above are listed, together with an assessment of how a DCFTA could have an impact on them in very general terms. In the following section we elaborate further on the specific expected impacts for Tunisia given the baseline situation there as described above.

**Table 4.4 Expected scope of DCFTA environmental impacts by category**

Environmental aspect	Why relevant for DCFTA
Air pollution	Direct consequence from economic / industrial activity; Influence from DCFTA: Sectoral shift, change in economic activity.
Climate change mitigation	CO <sub>2</sub> emissions are a direct consequence from economic / industrial activity; Influence from DCFTA: Sectoral shift, change in economic activity.
Biodiversity	Increased trade activity can make illegal trade of protected species easier
Biodiversity	Increased land use can endanger species.
Ecosystems	Increased air pollution / acid rain due to DCFTA can damage ecosystems.
Waste	Changing activity in certain industries (e.g. industry) and changing overall welfare can lead to a change in waste production.
Water	Changing activity in certain industries (e.g. clothing, agriculture) can lead to a change in water use.
Green economy	DCFTA may create a larger demand market for green products and foster compliance with environmental product standards.
Most aspects	Environmental issues are influenced by policy, which can be affected by the Association Agreement between Tunisia and the EU. At this stage we cannot say whether how the DCFTA will influence implementation of the Agreement.
Most aspects	Economic growth is usually associated with increased pollution.

### 4.2.2 Expected environmental impacts of the DCFTA for Tunisia

We start by noting that the DCFTA is going to be just one of several forces that will influence the environmental developments in Tunisia in the future. From a legal perspective, the DCFTA follows from the broader Association Agreement (AA) that details cooperation between the

EU and Tunisia in several areas. One of the chapters provided for a free trade area to be established (hence the launch of the negotiations for a DCFTA).

Given the focus of this report, one should understand that our analysis, while acknowledging that the DCFTA finds its legal framework in the AA, treats the DCFTA as different from the AA. Also, the AA entered into force in Tunisia in the year 1998 and hence the environmental effects resulting from the AA should be treated completely separately. The focus here is thus on the environmental impact of the DCFTA only.

The analysis also takes into account, to the extent possible, the possible interactions between the DCFTA and international environmental obligations that Tunisia has committed to. Possibly, the DCFTA could enforce the international agreements. Lastly, complex interactions between domestically driven policies, including environmental policies, and the policy/regulatory changes likely to be motivated by the DCFTA need to be distinguished. Some of the potential effects from the DCFTA could be mitigated by environmental measures and programmes such as:

- The National Integrated and Sustainable Waste Management Program (PRONGIDD);
- The coastal Action Plan;
- The National Biodiversity Strategy;
- The industry depollution fund "FODEP";
- National environmental standards;
- The National Action Plan to Combat Desertification;
- The Strategic Action Programs (SAP) to reduce both land-based sources of marine pollution (SAP-MED) and protect biodiversity, living resources and their habitats (SAP-BIO);
- The national irrigation water saving programme.

Thus, two general impact channels are valid for all issues identified in the first section (the environmental profile). First, the conclusion of a DCFTA may lead to an increase in the efforts to deepen the Association Agreement and work on the provisions on environmental policy outlined there. Whenever relevant, these provisions will be mentioned in the context of the corresponding issue. The second channel is economic activity. The scenario results show that the effect of the DCFTA on economic activity (GDP) is expected to be positive for Tunisia. In general, economic growth is associated with negative environmental effects. However, scientific literature has been discussing the "environmental Kuznets curve", suggesting that after an initial positive relationship between economic growth and pollution, this relationship turns negative after a certain level of welfare has been reached (Dasgupta, et al., 2002). A perhaps even more important question in this context is to consider to what extent DCFTA-driven economic growth in Tunisia could become 'greener'. This is one of the potential effects that receive some more attention in the following sections. Important to take into account also is that there are substantial differences in environmental impact of sectors of the economy reflecting different sector size, energy intensities, character of inputs, dominant technologies, etc. The DCFTA environmental effects caused by changes in particular sectors will be a combination of the effects of a sectors' growth and technological and other transformations influencing the environmental pressure.

#### 4.2.3 Air pollution

Based on the CGE results and the baseline emission volumes and intensities, this section provides a quantitative assessment of the impact of the DCFTA on the emissions of classical air pollutants. Subsequently, we provide an estimate for the valuation of the costs to society related to the changes in air pollution.

The quantitative simulations only consider the direct links between economic activity and air pollution. Any other direct and indirect effects related to economic development, such as changes to technology and shifting preferences towards abatement policies cannot be taken into account explicitly. As we assume no changes in underlying technology in terms of emissions per unit of value added, the estimates that follow below can be considered as the upper limits (maxima) of emission changes. In particular, for Tunisia, scientific research suggests that SO<sub>2</sub> emissions follow the environmental Kuznets curve: at a certain welfare level, they can be expected to decrease, while economic activity still increases (Fodha and Zaghdoud, 2010). This finding could not be incorporated into the analysis that follows, but should be taken into account when interpreting the results.

### Assessment of the DCFTA impacts on emission volumes

The impact of the DCFTA on emission volumes is split into two components, in line with the two determinants identified earlier, namely the scale and the composition effect. Both the volume of economic activity and the sector composition of these activities determine the level of emissions. As we have seen before, emission intensities differ between various sectors of the economy. A shift of activity between sectors thus will lead to a change in total emissions of air pollutants.

The impact of the volume of economic activity is measured using the scale effect. As economic activity increases, the volume of emissions will also tend to rise. The second determinant of emissions is sector structure. This determinant of changes in total emissions of a pollutant is the composition effect. Annex C describes in detail how the total effect on emissions and its scale and composition components are computed. Here, we will present the results of these computations.

According to the CGE results and estimation of the impact on emissions, the DCFTA is expected to have an overall positive impact on external costs related to air pollution in the short run. However, the impact on emissions and their costs to society turns to a negative in the long run. The overall impact on emissions for the classical air pollutants is illustrated in the table below, which also repeats the baseline values for emissions.

**Table 4.5 Baseline values and DCFTA-induced changes of emissions, thousand tonnes**

	NO <sub>x</sub>	SO <sub>x</sub>	PM2.5	PMcoarse
Baseline level	75.48	121.21	24.35	14.92
Short run change	-2.65	-2.61	0.40	0.24
%	-3.5%	-2.2%	1.6%	1.6%
Long run change	-0.17	1.99	1.17	0.72
%	-0.2%	1.6%	4.8%	4.8%

Source: EDGAR database. Year: 2008 for baseline. Own calculations based on CGE results.

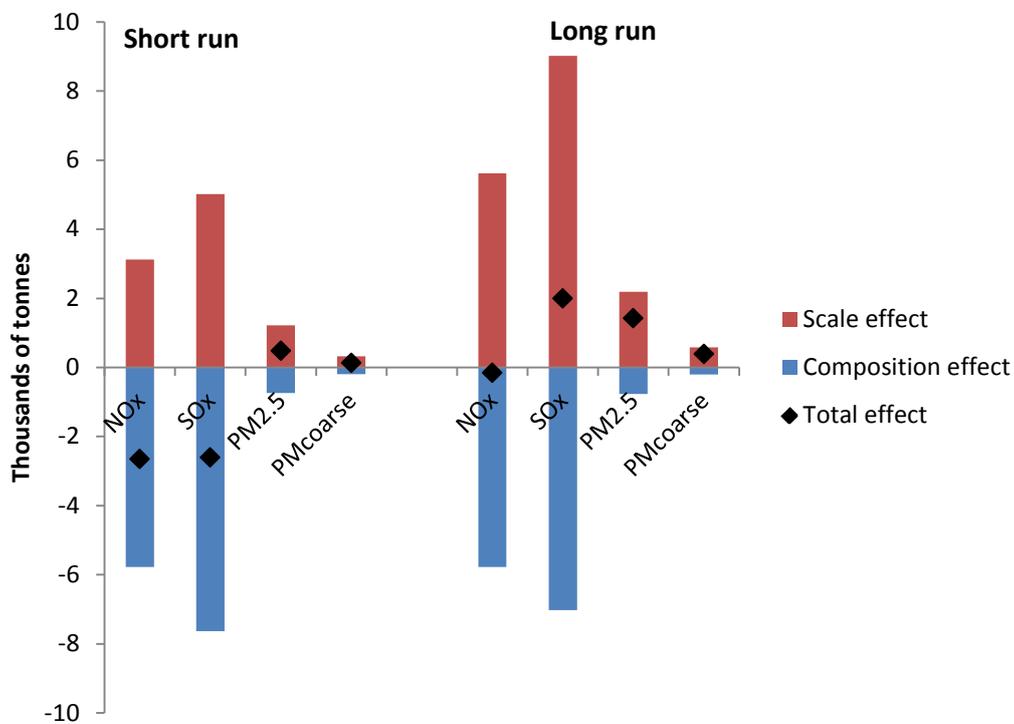
In the short run, emissions of NO<sub>x</sub> and SO<sub>x</sub> decline following the implementation of the DCFTA, whereas PM emissions show a modest increase. The decline in NO<sub>x</sub> and SO<sub>x</sub> emissions implies that beneficial effects from sectoral change dominate the overall impact of the 4.1 per cent rise in GDP. The beneficial composition effect arises from a shift in economic activity from industries like primary energy, textiles, leather goods, chemicals and transport into sectors with lower air pollution intensities such as vegetables and fruit, trade and consumer services. The higher growth of GDP over the long run, however, implies that emissions will eventually increase in the long run. Only for NO<sub>x</sub> the impact remains beneficial. The increase in emissions is most pressing for PM at 4.8 per cent for both categories.

The figures below show the decomposition of the impact on emissions into scale and composition effects for each of the pollutants. Accepting the inflation in the scale effect for the long run, the

pattern of scale and composition effects is very similar otherwise. Due to the growth in economic activity expected from the DCFTA, the scale effect on emission volumes is positive for all pollutants. For SO<sub>x</sub> the increase in emissions due to the rise in GDP amounts to about 5,000 tonnes in the short run and 9,000 tonnes over the long run. The composition effect on emission volumes is negative for both the short and the long run. This reflects a beneficial shift of activity from the viewpoint of air pollution, into sectors that pollute less per euro of value added. The composition effect dominates only for the gaseous emissions; for PM the scale effect drives the overall impact. The scale effect becomes relatively more important in the long run, due to the strong growth in GDP that reaches 7.4 per cent.

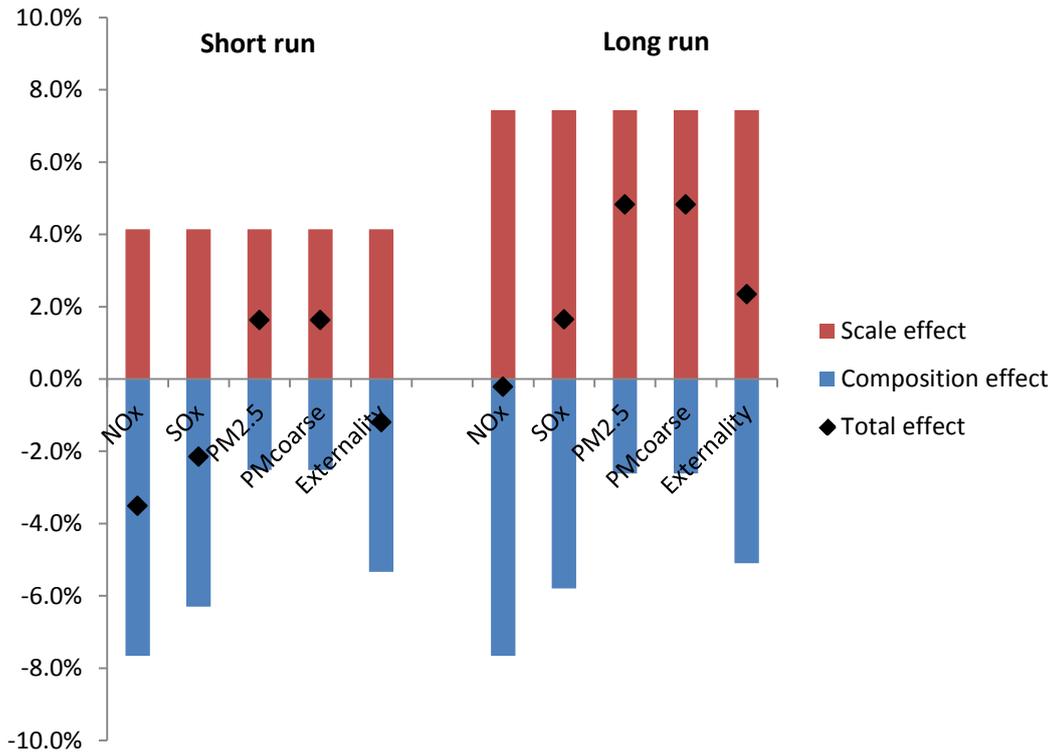
Figure 4.4 provides an overview of the impacts and their components in percentage changes. It also includes the relative impact of the DCFTA on total external costs related to these classical air pollutants. The scale effect is equal across pollutants, because it is based on the change in GDP. The composition effect is rather stable across the short and long run and particularly large for NO<sub>x</sub> at minus eight per cent.

**Figure 4.3 Decomposition of DCFTA-induced change in emissions of classical pollutants in Tunisia, thousand tonnes**



Source: Own calculations based on CGE model outcomes and baseline emissions.

**Figure 4.4 Decomposition of DCFTA-induced change in emissions of classical pollutants in Tunisia, %**



Source: Own calculations based on CGE model outcomes and baseline emissions.

#### Assessment of the DCFTA impacts on external costs of air pollution

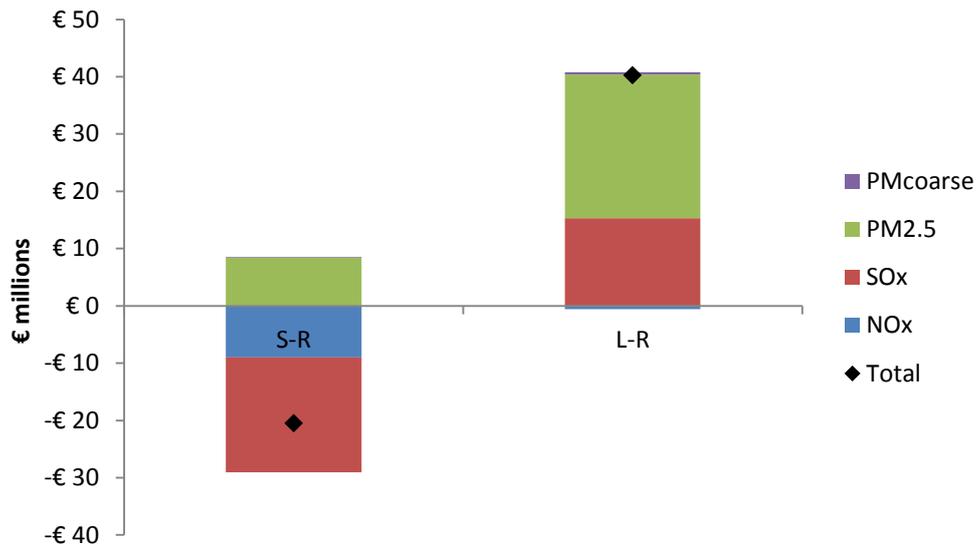
The external costs per tonne of extra emissions for each pollutant are taken from the NEEDS project framework and estimated using the impact pathway approach. This approach assesses emissions by location and source from a detailed geographical grid of Europe and its neighbouring countries. The spread of pollutants throughout this grid and beyond is estimated based on a spread model. The model thus shows exposure changes across the grid, which are then translated into total cost estimates assigned to air pollution point sources.<sup>153</sup> The external cost per tonne for each pollutant include external costs for several impact categories, including human health, loss of biodiversity, crops and building materials. Because of data availability, we include health costs only. The costs to human health are typically around 90 per cent of total costs.

As was shown in Figure 4.4 above, the external costs to society that arise from air pollution decrease by 1.34 per cent in the short run due to the DCFTA. This environmental gain is lost in the long run, when external costs are expected to rise by 2.22 per cent compared to the baseline.

The impact on the monetary value of pollution costs to society is presented in the figure below. Due to the beneficial composition effect in emissions, the overall impact of the DCFTA on pollution externalities is beneficial in the short run. The costs to society of health damages caused by classical pollutants decline by €21.8 million in the short run. These effects are not expected to last permanently. As GDP grows further due to materialization of the DCFTA effects, external costs would rise by €36.2 million in the long run compared to the baseline. Most of the impact on external costs in the long run is related to PM emissions, with particularly high health costs per tonne.

<sup>153</sup> For more information on the method, consult Preiss, P. et al. (2008) and other reports within WP1 of RS3a NEEDS project, <http://www.needs-project.org>.

Figure 4.5 DCFTA-induced changes in external cost for Tunisia (without climate costs)



Source: Own calculations of emission impacts, and external costs factors from NEEDS project framework.

#### 4.2.4 Waste

According to the modelling results, general economic activity in Tunisia will increase due to the DCFTA, implying more waste production of households. Given the difficulties with waste collection and recycling in Tunisia at the moment, an increase in economic activity without proper enforcement of regulation may negatively affect the waste situation. On the other hand, it is the industrial sector that has been identified as the largest waste producer in Tunisia, and it will see a slight decrease in activity following the DCFTA according to the modelling results. In addition, the DCFTA may, through promoting private sector development, enhance activities of SMEs in the waste sector, leading to improved waste collection and recycling (EIM Business & Policy Research / Oxford Research, 2012). Also, Article 48 of the Association Agreement foresees cooperation in the areas of soil quality and waste (European Commission, 1995); commitment to these aims may be nurtured by the DCFTA.

The DCFTA and Association Agreement, as steps of convergence to Europe, can also be looked at in terms of democratisation. Greater freedoms after the Jasmine Revolution have also led to increased protests against environment-friendly projects such as waste landfills. The immediate effect of a power vacuum has deteriorated the waste situation. It can be expected that Tunisia's increased international recognition and cooperation – such as through the DCFTA – will contribute to a strengthening of institutions and thus overcome the short-term issues resulting from political change. With regard to civil society protests, it remains to be seen whether the increased collaboration with the EU can contribute to more constructive societal dialogue also on waste issues.

It is therefore hard to predict the overall direction (net effects) of the impact of the DCFTA on waste production in Tunisia, with both positive and negative potential impacts likely to take place.

#### 4.2.5 Water

With irrigation responsible for 80 per cent of Tunisia's water use, the effect of the DCFTA on inland water issues in Tunisia mainly depends on its impact on the agricultural sector. According to the modelling results, production of vegetables and fruit – the most important agricultural products, contributing eight per cent to total value added in Tunisia – will increase by four per cent, while

other agricultural activities, on average, decrease slightly. At the same time, production of vegetable oils will increase by more than 200 per cent, suggesting that the increase in vegetables and fruit production is partly triggered by this development.<sup>154</sup> With fruit and vegetables – and in particular olives and palm trees – among the most intensely irrigated agricultural products in Tunisia, this suggests that the pressure on Tunisia's scarce water resources will increase due to the DCFTA (FAO, 2012). In addition, water quality is expected to be negatively affected by acidification (due to increased air pollution).

With regard to pollution of the sea, it has been described above that this mainly stems from industrial and household waste, and is therefore closely linked to the previous section on waste. Article 48 of the Association Agreement commits the parties to “cooperate in [...] monitoring and prevention of pollution of the sea” (European Commission, 1995). The DCFTA may enhance this cooperation.

#### 4.2.6 *Ecosystems and Biodiversity*

According to the modelling scenarios, land use intensity in Tunisia will increase as a result of the DCFTA. This can lead to further pressure on species which are losing their habitat. In the above description it could also be seen that the short-run effects of the democratisation process after the Jasmine revolution on the environment were mixed. Greater freedoms have led to increased protests against environmental regulation such as protected sites. Considering a potential contribution of the DCFTA on democratisation and institutional development, it remains to be seen whether the institutions can be strengthened to better engage in constructive dialogue. Economic development due to the DCFTA may lead to less dependence on small-scale agricultural production and more environmental awareness, such that the environment may be valued more highly than individual land use.

With regard to ecosystems, another expected effect of the DCFTA lies in increased air pollution: natural vegetation is expected to be damaged by the pollutants directly or by acid rain. Additional threats to Tunisian ecosystems are formed by water scarcity and desertification, which are likely to be enhanced by the DCFTA due to increased water use, especially from agriculture. On the other hand, the DCFTA may strengthen cooperation between the EU and Tunisia on improving soil and water quality as laid out in the Association Agreement, and thus improve the status of ecosystems.

Production of forestry products is expected to increase due to the DCFTA. As cork is among the main Tunisian forestry products, this is likely to translate into increased planting and exploitation of biologically diverse cork oak forests. With most of Tunisian forests designated for either soil and water protection or economic use, while at the same time forest management is improving, land-use pressure from increasing agricultural production is unlikely to have a large impact (Daly-Hassen and Mansoura, 2005).

#### 4.2.7 *Climate change*

The impact of the DCFTA on climate change as a result of changes in carbon dioxide (CO<sub>2</sub>) emissions is quite high according to the model predictions, especially over the longer term. The CGE results indicate a 1.9 per cent increase in emissions or 468.5 thousand tonnes in the short run. The increase reaches up to 5 per cent compared to the initial situation (before the DCFTA) or 1,251 thousand tonnes in the long run.

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<sup>154</sup> The modeled increase in output for vegetables and fruit is higher than the increase in value added, suggesting that the outputs from this sector are further processed, for example in the vegetable oils sector.

Expressed in monetary terms, using a value of €20 per tonne for marginal external costs of carbon, the DCFTA is estimated to raise external costs of carbon by €9.4 million in the short run and €25 million in the long run. These external cost are about 69 per cent of the external costs related to air pollution and could be higher if a higher value for external costs of carbon is applied to value the emissions. Given the extent of the cost, mitigation measures might be called for to deal with the climate pressure consequences of the increased economic activity due to the DCFTA.

Climate change adaptation as such is unlikely to be affected by the DCFTA, except through increased welfare as predicted by the modelling scenarios. However, vulnerability especially to desertification can be expected to increase, as the water situation is likely to deteriorate further following the DCFTA.

#### 4.2.8 *Green economy*

From the modelling results, it is hard to draw conclusions on the 'greening' process of the Tunisian economy. Looking at air pollution, we can however see that despite an overall increase in emissions, the composition effect – due to internal reorganisation of economic activity – influences emissions negatively, which could be taken as an argument for a development towards a 'larger, but greener' economy.

Looking at the international component of greening the economy, the DCFTA is likely to strengthen the general trend: the EU as a demand market for green products will become even more important, and compliance with EU (environmental) product standards may become a prerequisite for successful exports (EIM Business & Policy Research / Oxford Research, 2012). At a more general level, the DCFTA is part of Tunisia's convergence to Europe, and will increase international exchange and investment activities following EU standards. This may contribute further to more environmentally-friendly production.

Again, it has to be noted that the increased investment and greening activities are unlikely to influence the agricultural sector on a large scale, and thus address mainly pollution, but not water scarcity. We can thus say that a 'green' economy is not necessarily 'blue'. It is unclear whether the DCFTA can promote a de-coupling of agricultural production and water use.



# 5 Consultation and Communication

## 5.1 Stakeholder consultation plan and implementation

Consultations with relevant stakeholders constitute a key element of the TSIA methodology and hence our study; the input from stakeholders contributes to a higher quality (more relevant) impact assessment. In the inception report of this study we presented a detailed stakeholder consultation plan. This plan is a living document, which is continuously adjusted and updated during the course of the project according to progressing insights and comments from civil societies. The different instruments used as part of our consultation plan for this Trade SIA are summarised below, including an update on their implementation.

### 1) Electronic consultation and documentation

Among the many lessons learned from previous TSIA's, uninterrupted communication with stakeholders has proven to be a key element to take into consideration when conducting the study. Therefore, as in previous studies, Ecorys has built a dedicated Trade SIA website for EU-Tunisia DCFTA through which stakeholders are constantly updated on the different phases of the study and its results. The feedback process is facilitated by the contact email, available on the website, through which stakeholders can directly provide Ecorys with inputs and comments. Some of the features hosted on the website include:

- A built-in mechanism to facilitate the feedback;
- A direct link to the Facebook Page;
- Various links to the websites of main stakeholders that are involved in the process;
- A section on the background of the study;
- A section containing relevant documentation, including 1) background material on the Trade SIA methodology, 2) documents that are relevant for the negotiations/our study, and 3) all project reports (both draft and final versions) as well as presentations that were made throughout this study;
- A section with news items.

The website for the Trade SIA EU-Tunisia is available at: <http://www.trade-sia.com/Tunisia/>

The dedicated email address for the study is [tsiatunisia@ecorys.com](mailto:tsiatunisia@ecorys.com). Any question related to the project, as well as opinion, ideas or specific related issues can be communicated to the team via this email address.

This two way communication strategy has been reinforced by the launch of a Facebook page (tsiatunisia), which not only contributes to strengthening the communication between stakeholders and Ecorys, but also provides stakeholders with a platform to interact with each other on issues relevant to the study.

Since we strongly believe stakeholders can effectively contribute to the success of this project, Ecorys also makes use of a newsletter to inform civil societies about new deliverables and the progress of the project.

A mailing list that includes NGOs, business associations, industry groups and special interest groups has been developed. Together with the EU Delegation and the Steering Committee, key stakeholders have been identified. The mailing list and list of key stakeholders will continue to be updated and complemented during the course of the project, if necessary. The key stakeholders

have received newsletters after the publication of the inception report and the interim technical report, which included an update on the project and the DCFTA and highlighted the available consultation opportunities.

The newsletter, the Facebook page, the website and the email address together facilitate feedback which helps in validating the results, obtaining new information or adjusting the study's focus and placing the results in a proper perspective.

## **2) Public meetings**

A public meeting has been organised on April 9th 2013 in Brussels with the aim to meet and to engage with EU civil societies and the key stakeholders. On the agenda of the meeting, was the presentation of the main findings, methodologies, assumptions and the choices made during the inception phase of TSIA study. The public meeting was held after the submission of the draft inception report on April 26th.

The second public meeting took after the submission of the draft final report, on the 16th of October 2013.

## **3) Workshops in Tunisia**

In line with our efforts to engage the local civil societies in Tunisia, a Trade SIA workshop has been organised in Tunis. The workshop took place on 19 June 2013, and was used to discuss the study and specifically the findings of the interim report. The workshop participants also provided inputs for the in-depth (sectoral) analysis and policy recommendations for phase 2 and 3.

## **4) Other relevant conferences and workshops**

Linking up to other conferences and workshops relevant to the study is another element of the stakeholder consultation plan. Although we have not been able to attend other workshops, we have been in touch with some organisers of similar events to exchange information.

## **5) Personal interviews with individual representatives and/or targeted surveys**

Lastly, the consultation plan is complemented with face-to-face bilateral interviews with selected stakeholders. We strongly believe such interviews together with surveys are important means of receiving inputs of high quality. These have been organised especially in the second phase of the study, and have been crucial the sectoral analyses. A new element in this study is the organisation of a survey among SMEs on the DCFTA, which has been channelled through the EU SME panel.

## **5.2 Overview of consultation inputs received**

Since the start of the study we have observed commitment from civil societies to actively contribute to the success of this study. We have invited all participants to make use of all the various communication channels we have put in place and to solicit and to facilitate their involvement. We have received various e-mails in the dedicated mailbox.

We have been pleased with the quality of inputs we have received so far from a broad range of stakeholders. In direct collaboration with the EU delegation, Ecorys has acknowledged and answered, to the extent possible, all suggestions and recommendations that have been communicated.

An overview of the issues that have been raised by the stakeholders through the different communication channels as well as our response to them is available in Annex F. The SME survey

and its results are available in Annex G, while a summary of the survey results is presented in the next section. A full report of the workshop is available in Annex H.

The main questions/inputs received include the following:

- suggestions for literature and stakeholders to include the analysis;
- questions on the data and methodology for the study;
- the importance of analysing the importance of mode 4 in services trade;
- the question to what extent investment policy will be included;
- the need to first make ex-post assessment of previous trade agreements;
- the question whether the issues of land concentration and ownership will be taken into account;
- the need to have consultations in French;
- questions on methods and inclusiveness of stakeholder consultations;
- the importance of employment and regional development for Tunisia and how this will be affected by the DCFTA;
- the possible negative social effects and the need for support in this area, also following current discussions on social security.
- the problem of water scarcity in the country.

## 5.3 SME survey results

### 5.3.1 *Introduction to the survey*

To obtain more knowledge about SMEs in Tunisia and to analyse the impact of the DCFTA on SMEs in Tunisia and the EU, we conducted an online SME survey. In total, 72 respondents filled out the survey, of which 51 from Tunisia. The link to the online survey was disseminated via the SME Panel network of DG Enterprise & Industry, the project website [www.trade-sia.com/tunisia](http://www.trade-sia.com/tunisia) and the TSIA Newsletter. Here we present only a summary of the main results of the survey, a full report on the survey, including the survey questions is available in Annex G.

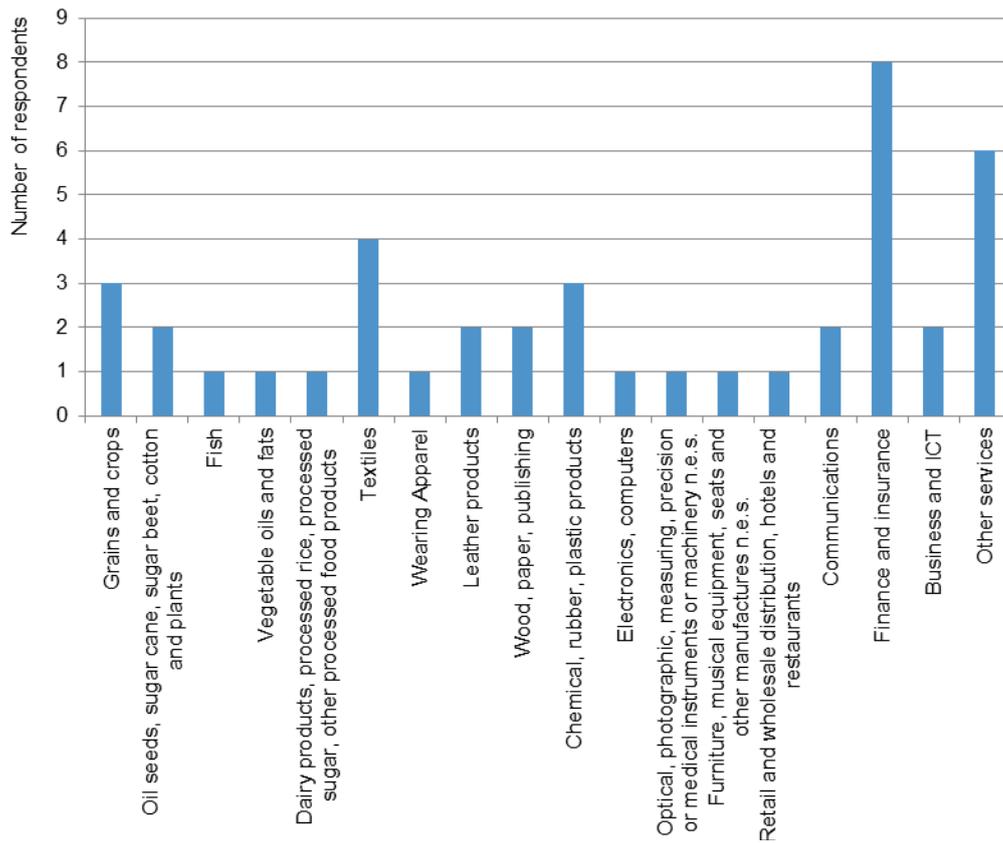
### 5.3.2 *Sector and size of respondents*

The 51 Tunisian respondents that filled out the survey<sup>155</sup>, are active in different sectors and differ in size. As shown in Figure 5.1, the survey respondents represent 18 industries and thereby cover all three broad categories of the economy, being agriculture, industry and services.

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<sup>155</sup> It should be noted that not all respondents finished the complete survey, hence the number of responses presented is sometimes lower than 51.

**Figure 5.1 Distribution of Tunisian survey respondents across sectors**



When looking at the size of the responding companies in terms of employees and turnover, we see that the majority of respondents represents an SME company according to the official EU SME definition, as shown in Table 5.1.

**Table 5.1 Company size of Tunisian respondents**

Category	Number of employees	Respondents	Annual turnover	Respondents
Micro	0-9	10	EUR 0-2 million	21
Small	10-49	10	EUR 2-10 million	7
Medium	50-249	14	EUR 10-50 million	5
Large	More than 250	5	More than EUR 50 million	4

### 5.3.3 Current trade of respondents

Table 5.2 shows the trade status of the respondents from Tunisia. Half of the companies export their products and/or services to foreign countries, and about 37% regularly imports intermediary or final products and/or services. Of the respondents that are currently not involved in trade, 53% plans to export in the future.

Of the companies that do export, it is often a minor share of their business as shown in **Table 5.2**. For 62% of the exporting companies, exports is not more than a quarter of their total turnover.

**Table 5.2 Export shares of respondents**

Exports as % of turnover	% respondents	% of exports for EU destination	% respondents
0-25%	61.9	0%	38.1
25-50%	19.1	0-25%	28.6
50-75%	9.5	25-50%	19.1
75-100%	9.5	50-75%	0.0
		75-100%	14.3

The European Union is an important export destination for Tunisian SMEs, as about 62% the exporters produce for the EU, although for most respondents less than 50 percent of total exports are destined to the EU market. Popular European export destinations are (in order of importance) France, Italy, Germany, Belgium, Portugal and Spain. The remaining 38% of exports flow to the neighbouring countries (Libya, Algeria). With Germany as an exception, we observe that Tunisian SMEs mainly trade with nearby countries and with other francophone countries.

#### 5.3.4 Trade barriers faced by Tunisian SMEs

Figure 5.2 shows the trade barriers that are felt by Tunisian respondents that export, or are expected to be experienced when starting to export. Second, the figure shows if the companies think that these barriers will be addressed by the DCFTA. About 81% of the Tunisian respondents is aware that the EU and Tunisia are preparing for DCFTA negotiations.

The factor limiting them most in the internationalisation process is a lack of access to finance, followed by a lack of information on the foreign market. Technical Barriers to Trade (TBT) is the most imported NTM that the respondents face when exporting.

The survey respondents expect that the DCFTA will solve mainly custom procedures at the border and access to raw materials. Relatively few respondents seem to be aware of the effect of the DCFTA in areas like TBT, Sanitary and Phytosanitary measures (SPS) and Intellectual Property Rights (IPRs).

**Figure 5.2 Trade barriers experienced by Tunisian companies and their expectation for the DCFTA**

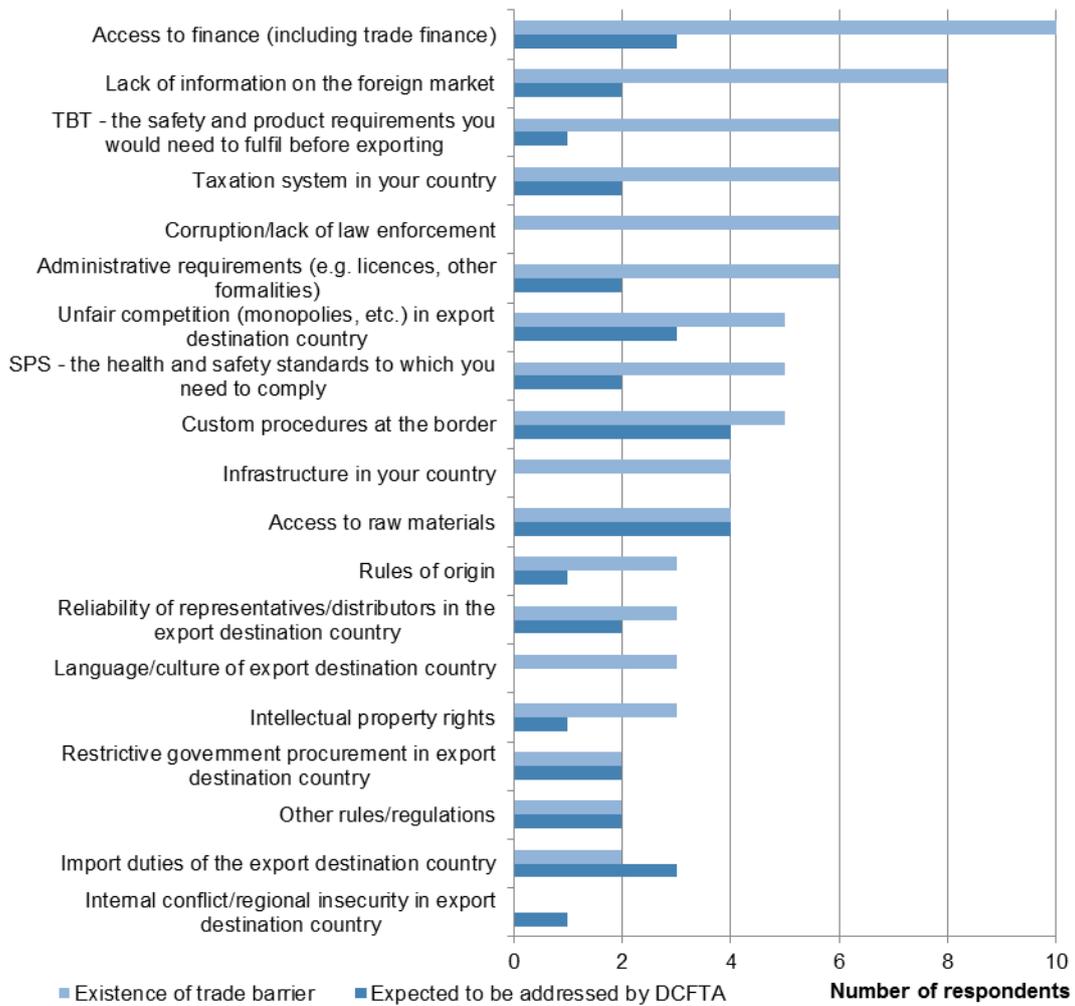
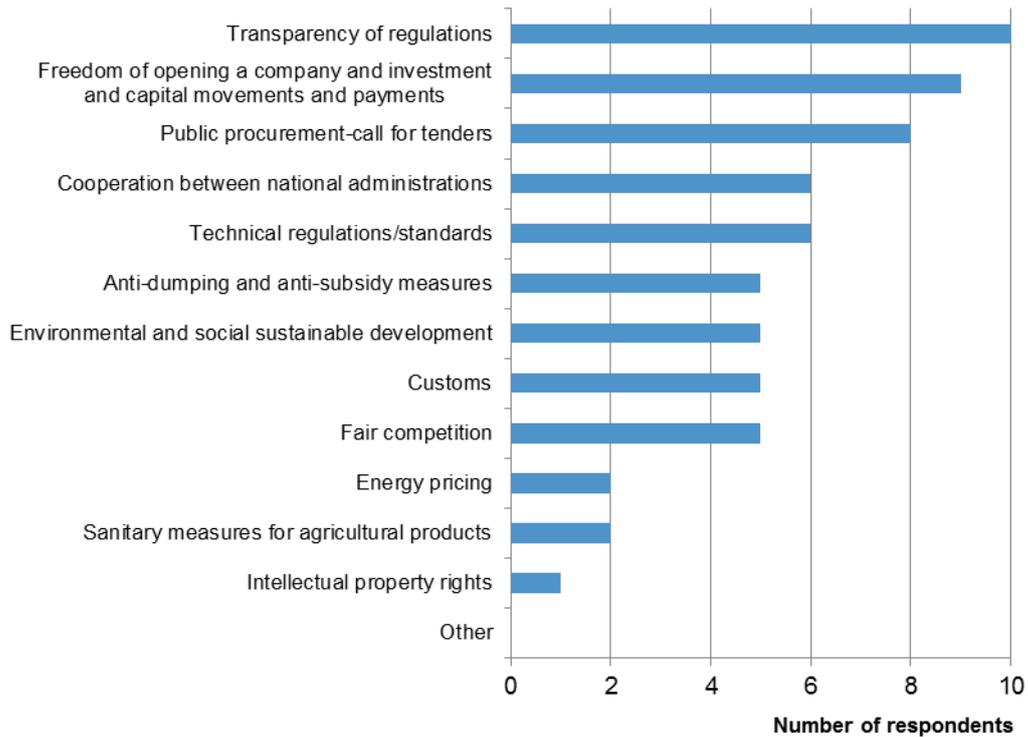


Figure 5.3 shows the topics that should be included in the DCFTA according to the respondents, ranked by priority given to them. “Transparency of EU regulations” would be the most important issue to include, followed by “Freedom of opening a company and investment and capital movements and payments”.

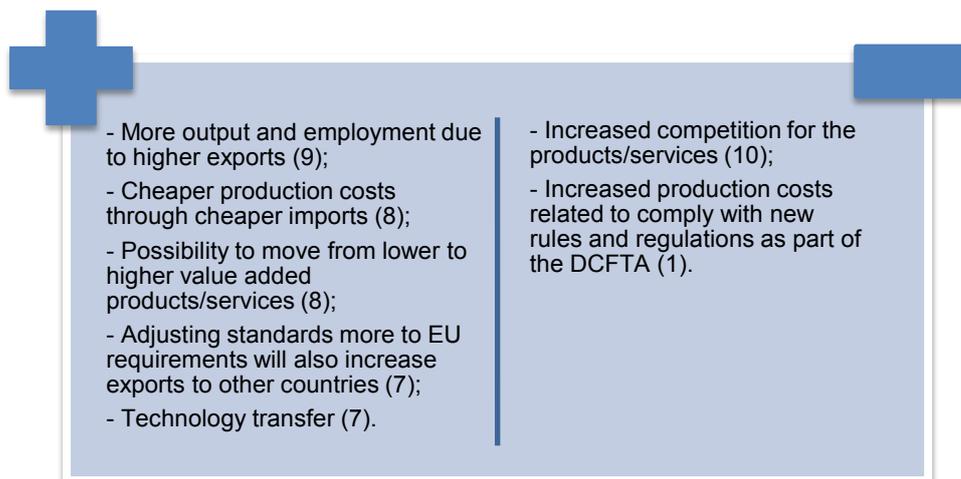
**Figure 5.3 Priorities of Tunisian SMEs to be included in the DCFTA**



### 5.3.5 Benefits and costs of the DCFTA

A large part of the respondents is convinced that the DCFTA will help their company expand without any costs. A somewhat smaller group thinks that next to the benefits they will also face some costs. Only one respondent does not expect any benefits at all. Figure 5.4 shows the benefits and costs of the DCFTA that are expected by these Tunisian SMEs. The number of respondents, mentioned between brackets, gives an indication of the importance of benefits and costs.

**Figure 5.4 The benefits and costs of the DCFTA for SMEs**



### 5.3.6 Internationalisation support measures

It turns out that there is scope for the Tunisian government to help companies in the internationalisation process. Eight companies have indicated that they would need more financial support to export (e.g. insurance, export credits, subsidies). Ten companies say that they need

information on exporting to the EU and information on these local markets (e.g. through trainings, websites, brochures, etc.). More support in meeting potential buyers of our products/services (e.g. through matchmaking events, trade fairs, etc. is needed by 11 respondents. These findings are in accordance with the most often experienced barriers from **Figure 5.2**. So new or better marketed support services could probably contribute to removing some of these important barriers to trade and thereby maximise the benefits of the DCFTA.

## 6 Screening and scoping

### 6.1 Screening criteria and indicators

The sectors or horizontal (cross cutting) issues that are of particular importance to the DCFTA have been studied in phase 2 of the study, particularly for Tunisia. This in-depth study enables us to understand more clearly how the DCFTA is expected to impact not just at the macro level, but also within and across sectors and at grassroots levels. In addition, it allows us to identify specific areas of concern or interest that may require specific attention in the negotiation process or warrant the development of flanking measures and implementation support.

The selection of specific sectors and horizontal issues is done through a screening and scoping exercise, based on the following criteria:

1. initial importance for the economy;
2. expected economic impact of the DCFTA;
3. expected social, environmental and human rights impact;
4. stakeholder issues of special importance;
5. strategic importance of sector / issue in the negotiations.

#### **Criterion 1: Initial importance for the economy**

The potential impact of a DCFTA on economic sectors differs with the importance and position of this sector in the economies under consideration. A small change for a significant sector might cause more impact than a large change for a very small sector at national level. By taking into account these considerations, negotiation efforts can be directed at the most relevant issues with the potentially biggest impacts.

The indicators used to screen the economic sectors in terms of their importance are:

- Sector share in total value added;
- Sector share in skilled and unskilled employment;
- Sector share in exports.

Data used for this analysis are based on GTAP 8 (base year 2007) projected to 2011.

#### **Criterion 2: Expected economic impact of the DCFTA**

The second criterion for the scoping exercise is the impact of the DCFTA for specific sectors or in relation to specific horizontal issues. The outcomes from the CGE modelling and Causal Chain Analysis in phase 1 are used to assess this impact resulting from the implementation of the DCFTA. The dynamic nature of the CGE model will also ensure that the “enabling nature” of certain catalysing sectors (such as transport) is taken into account in the results. Combined with the first criterion, this criterion establishes a quantitative (economic) base for the selection of important sectors and/or horizontal issues.

The CGE simulation uses the same data as under step 1, which implies that data are fully consistent along the different stages of the analysis.

#### **Criterion 3: Expected social and environmental impact (including human rights)**

The additional analyses of social, environmental and human rights impacts as conducted in Chapters 3 and 4 also result in an identification of sectors or issues that are crucial in either one or all of the above three areas. Using the results of these analyses as well as Causal Chain Analysis,

we assess the direct and indirect effects of the DCFTA in the three areas and flag issues relevant for specific sectors or horizontal issues.

#### Criterion 4: Stakeholder issues of special importance

Through the consultation plan presented in Chapter 5, the study incorporates the input from civil society and key stakeholders of the DCFTA negotiations and implementation. Their feedback on sectors and/or horizontal issues is of vital importance for the sector selection. Stakeholders are invited to indicate sector or horizontal issues that they see as specifically important in relation to the DCFTA, and provide reasons for this.

#### Criterion 5: Strategic importance of sectors and/or issues in the negotiations

To ensure that the Trade SIA remains relevant to the DCFTA negotiation process, the importance of specific sectors and/or issues to the reality of the DCFTA process and negotiations is the last screening criterion. This fifth criterion takes into account specific offensive or defensive interest of both negotiation parties, or sectors and/or issues which are perceived as vulnerable or in need of special attention in relation to possible flanking measures.

## 6.2 Screening results

### 6.2.1 Criterion 1: Initial importance for the economy

To enable a consideration of the initial importance of different sectors in the Tunisian economy, Table 6.1 presents the largest sectors in terms of value added and employment, based on the baseline values for 2011 (see Chapter 1). The sectors in the table are ranked by their share in total value added. The 15 largest sectors in terms of value added together account for approximately 86 per cent of Tunisia's total value added and for 94 and 85 per cent of respectively skilled and unskilled employment.

**Table 6.1 Top 15 largest sectors in Tunisia, by value added and employment (2011)**

Ra nk	Sector	Share in total value added (%)	Share in total skilled employment (%)	Share in total unskilled employment (%)
1	Trade <sup>156</sup>	19.2	7.6	14.9
2	Public and other services	15.5	61.7	17.3
3	Vegetables, fruit and nuts	8.1	0.5	14.9
4	Construction	5.9	4.6	10.7
5	Other transport (services)	5.7	3.3	6.5
6	Energy	5.5	0.3	0.5
7	Finance and insurance	4.9	4.6	2.6
8	Business and ICT	4.5	4.6	2.6
9	Other minerals	3.9	0.9	2.5
10	Utilities	2.5	1.4	1.2
11	Chemical, rubber, plastic products	2.3	1.2	2.1

<sup>156</sup> The GTAP sector Trade consists of all retail sales; wholesale trade and commission trade; hotels and restaurants; repairs of motor vehicles and personal and household goods; retail sale of automotive fuel.

Rank	Sector	Share in total value added (%)	Share in total skilled employment (%)	Share in total unskilled employment (%)
12	Animal products	2.3	0.1	4.2
13	Wearing apparel	2.2	1.0	2.7
14	Communications	2.1	1.7	1.0
15	Wood, paper, publishing	2.0	0.5	1.4
	<b>Total top 15</b>	<b>86.4</b>	<b>93.9</b>	<b>85.0</b>

N.B. Sectors are ranked on the basis of their share in value added.

Source: Calculations based on GTAP 8.0 database.

The table shows that the Trade sector is the biggest contributor to value added accounting for almost 20 per cent of the total, followed by Public and other services. The latter is the most important one in terms of employment and in particular of skilled employment (more than 61 per cent of total skilled employment works in this sector).

The table highlights a number of key features of the Tunisian economy. First, service sectors are important for Tunisia, with seven out of 15 sectors in Table 6.1 being service sectors, together accounting for about half of total value added. Also agriculture and raw materials are important determinants of GDP. Agricultural sectors from the top 15, including Vegetables, fruit and nuts and Animal products, together account for more than 10 per cent of total value added and are especially important for low skilled employment, employing 19.1 per cent of unskilled workers. Raw materials are responsible for 9.4 per cent of total value added but do not add much to employment as these are capital intensive sectors. Finally, it should be noted that there are no manufacturing sectors in the top 10 of most important sectors in terms of value added. The biggest manufacturing sector is Chemical, rubber, plastic products with a value added share of only 2.3 per cent.

Table 6.2 below presents the 15 biggest export sectors of Tunisia.

**Table 6.2 Top 15 export sectors for Tunisia, by value and share (2011)**

Rank	Sector	Export - gross value f.o.b. mIn EUR	Share in total export value (%)	Rank in VA share
1	Other machinery	3,189.7	18.0	21
2	Wearing apparel	2,385.4	13.4	13
3	Chemical, rubber, plastic products	1,426.1	8.0	11
4	Energy	1,298.4	7.3	6
5	Other transport (services)	914.5	5.1	5
6	Electrical machinery	881.5	5.0	20
7	Air transport	846.4	4.8	16
8	Textiles	842.5	4.7	17
9	Leather products	709.5	4.0	19
10	Trade	514.9	2.9	1
11	Other processed food	415.5	2.3	26
12	Wood, paper, publishing	375.9	2.1	15
13	Motor vehicles	371.6	2.1	25
14	Public and other services	365.8	2.1	2
15	Fabricated metals	361.1	2.0	30

Source: GTAP 8.0 database.

The majority of important export products stem from manufacturing sector. The most important export sector for Tunisia is Other machinery, accounting for 18 per cent of total exports. The second most important is Wearing apparel with a share of 13.4 per cent, followed by Chemical, rubber, plastic products with 8 per cent. The export of Energy is almost completely accounted for by oil.

The last column of Table 6.2 illustrates that not all sectors that are important in terms of value added are important in terms of exports and vice versa. In particular, manufacturing industries are considerably more important in terms of their contribution to exports than their contribution to total value added. Conversely, there are only three service sectors in the Top-15 export sectors, while this sector accounts for the majority of value added. Finance and insurance, Business and ICT, Utilities, and Communications, which all rank high in terms of value added, do not feature in the export top 15, while Air transport does. Finally, although agricultural sectors are quite important for the Tunisian economy in terms of value added, it turns out that they are currently not important export sectors. Only Other processed food appears in the Top-15, which depends on agriculture.

The top 15 sectors in terms of contribution to value added and employment and the sectors with a contribution to total exports of more than 3 per cent are selected for further analysis under this first screening and scoping criterion, as these sectors are considered of highest importance for the Tunisian economy (GDP, employment, exports).

#### 6.2.2 Criterion 2: Expected economic impact of the DCFTA

The quantitative results of our modelling exercise as presented and discussed in Chapter 2 are considered here at sectoral level for Tunisia to identify the sectors for which we expect the biggest impacts in economic terms. In addition we consider key horizontal issues that are expected to be relevant to the DCFTA implementation and potential impact.

##### Sector level economic impacts

Table 6.3 presents the sectors for which the expected change in value added and output is highest in percentage terms, either positive (expansion of the sector) or negative (contraction of the sector). The table only includes the sectors for which the long run change in value added is more than five per cent (either positive or negative).

**Table 6.3 Most important sectors based on economic impact of DCFTA (% changes from baseline, long run effects)**

Sector	Baseline share (%)	Change in VA (%)	Change in output (%)	Change in exports (%)	Change in imports (%)
Vegetable oils and fats	0.2	222.6	224.9	238.7	19.1
Other machinery	0.9	47.0	48.8	62.0	12.4
Other transport (equipment)	0.4	19.9	20.8	62.2	37.5
Electrical machinery	1.0	18.0	18.8	38.4	23.0
Trade	19.2	12.1	12.3	-13.2	46.0
Fabricated metals	0.4	9.8	11.1	34.1	20.5
Personal and recreational services	0.0	7.9	9.2	1.4	3.9
Chemicals, rubber, plastic products	2.3	-5.6	-4.9	24.2	21.3

Sector	Baseline share (%)	Change in VA (%)	Change in output (%)	Change in exports (%)	Change in imports (%)
Air transport	1.7	-5.8	-5.3	-4.3	16.6
Wood, paper, publishing	2.0	-6.7	-6.3	-4.5	23.6
Other crops	0.3	-9.9	-9.8	-19.1	9.6
Leather products	1.1	-11.1	-10.7	-2.5	22.7
Grains and crops	0.8	-13.9	-13.7	-9.4	17.9
Ceramics, cement, etc.	0.3	-14.6	-14.1	3.1	18.4
Petro-chemicals	0.5	-14.8	-14.5	4.4	7.1
Textiles	1.7	-15.6	-15.1	-3.5	7.7

N.B. The sectors are sorted based on the expected change in value added. The baseline share in the second column is the initial value added share of the sector in total value added.

Source: GTAP 8.0 database, IIDE CGE modelling calculations.

The table shows that the sector Vegetable oils and fats is expected to experience the largest expansion in value added and output in percentage terms. Tariff reductions are the driving force behind this. The sectors Other machinery, Other transport and Electrical machinery are also expected to experience significant increases in value added and output as a consequence of the DCFTA. However, the initial value added levels of all these four expanding sectors currently account for less than one per cent of total value added, implying that these changes are less striking in absolute terms.

Trade, which is by far the largest sector in terms of initial value added, shows a lower percentage change in value added as a result from the DCFTA. However, because of the initial size of the sector in terms of value added, this is a very large positive change in absolute terms.

When looking at the sectors that are expected to contract as a result of the DCFTA, we see that Textiles, Petro-chemicals, and Ceramics, cement, etc. are expected to decrease most in terms of value added and output percentages. However, because the latter two sectors are very small in terms of initial contribution to total value added, these decreases will have a negligible effect on national production. The contraction of the Textiles sector is remarkable as this sector is currently in the top ten of Tunisian export sectors.

From the top 15 most important sectors for Tunisia in terms of contribution to value added (Table 6.1), we only see Trade, Chemical, rubber, plastic products, and Wood, paper, publishing in the table above, with Trade experiencing the largest effect from the DCFTA in terms of output and VA change. The other sectors that are currently important for the Tunisian economy are expected to experience relatively minor effects from the DCFTA.

Three sectors that are not mentioned in Table 6.1 as their value added does not change significantly, but that show remarkable high long run export changes are Other manufacturing (29.3%), Motor vehicles (36.2%) and Primary metals (35.1%).

In terms of **horizontal issues**, it is relevant to note that the removal of NTMs will generate a significant positive impact for Tunisia. In the long run, 49.5 per cent of the expected increase in national income for Tunisia will be due to the removal of NTMs. This effect is mainly caused by removing NTMs in goods trade, as the removal of NTMs in services trade only accounts for 1.1 per cent of the total effect on national income.

### 6.2.3 Criterion 3: Expected social and environmental impact (including human rights)

The analysis of key issues in social and environmental spheres as well as of key channels of potential social and environmental impacts of a DCFTA as presented in chapters 3 and 4 suggest several issues and sectors of importance.

#### Social impact

The table below shows the changes in less skilled employment for the ten sectors that employ most of the less skilled workers.

**Table 6.4 Top 10 sectors in share in less skilled employment, percentage changes in skilled and less skilled employment**

Sector	% change less skilled employment	% change more skilled employment	Share in less skilled employment
Vegetables, fruit and nuts	4.43	4.30	14.9
Trade	3.43	2.71	14.9
Public and other services	1.49	0.96	17.3
Other minerals	0.60	0.51	2.5
Construction	0.28	-0.29	10.7
Business and ICT	-3.32	-3.80	2.6
Finance and insurance	-3.97	-4.45	2.6
Animal products	-4.65	-4.75	4.2
Wearing apparel	-6.42	-6.86	2.7
Other transport (services)	-7.93	-8.48	6.5

N.B. Data are sorted on percentage change in less skilled employment.

Source: GTAP 8.0 Database, IIIDE CGE modelling calculations.

These changes are complemented by insights from chapter 3 to determine which sectors deserve more attention in the next phase of the study from a social point of view. Considerations include:

- Low skilled sectors in Tunisia have in the past been responsible for job creation (agricultural sectors, Trade). The relatively high employment share of less skilled workers in sectors where employment is expected to rise due to the DCFTA (such as Trade, Vegetables and fruits, Public and other services) is promising for the lower skilled population;
- Unemployment is currently high among graduates. The government absorbs most of the graduates. Employment in Public and other services will grow only marginally as a result of the DCFTA, but because of the large share in total employment this still represents a considerable job creation;
- Six sectors from Table 6.4 show negative employment effects for less skilled employment. Labour will in the long run reallocate to other sectors. However, in the short run some frictional unemployment will emerge, especially because skills levels of the unemployed may not match the required skills from expanding sectors.

For the screening and scoping exercise, the sectors with negative changes in unskilled employment are selected, as well as the sectors Trade, Vegetables and fruit, Public and other services that are likely to absorb part of current unemployment as a result of the DCFTA.

#### Environmental impact

Next we consider the environmental issues from chapter 4 that can be related to specific sectors of the Tunisian economy. Thus we illustrate which sectors would deserve more attention in a next phase of the study from an environmental point of view.

**Water scarcity** is currently one of the main environmental challenges in Tunisia, and the shortages are increasing. As a result of population growth, rising living standards and accelerated urbanisation, water scarcity problems are expected to intensify. Next to water availability, water quality is a problem as well. Irrigation is currently the biggest water consumer, with fruit and vegetables – and in particular olives and palm trees – among the most intensely irrigated agricultural products in Tunisia. Because especially Vegetables, fruits and nuts is a large sector, this suggests that the pressure on Tunisia's scarce water resources will increase due to the DCFTA. In addition, water quality is expected to be negatively affected by acidification (due to increased air pollution).

Important sectors from the perspective of water scarcity and quality in relation to the DCFTA are thus: Vegetables, fruits, nuts and Vegetable oils and fats.

The main **air polluters** in Tunisia are power plants, cement factories, metallurgy, and mining and quarrying activities; a further share of emissions stems from transport. However, transport service sectors will not increase as a result of the DCFTA. The same holds for Cement, Energy and Metals.

Important sectors from the perspective of air pollution in relation to the DCFTA include: Utilities, Other minerals.

Currently, the biggest source of **solid waste** is the industrial sector. This also holds for marine pollution. For example, many industries discharge their wastewater without any treatment. Even those that operate such systems do not always achieve a high degree of pollution abatement due to malfunctions of the treatment equipment. However, solid waste and wastewater are expected to decrease as the DCFTA is expected to lead to a slight decrease in activity in the (aggregated) industrial sector.

From the perspective of solid waste issues in relation to the DCFTA no specific sectors stand out.

Overexploitation of natural and agricultural resources is currently among the main threats to **ecosystems and biodiversity**. Important sectors in relation to the DCFTA are therefore all agricultural sectors, Energy, and Other minerals.

Human use of forests – especially logging and clearing activities, and overgrazing from livestock – is one of the main cause for **forest degradation**, together with desertification and acidification resulting from air pollution. Important sectors in relation to the DCFTA are therefore Livestock and meat products.

#### 6.2.4 *Criterion 4: Stakeholder issues of special importance*

Up to now, we have received input from the civil society stakeholders through one public meeting in Brussels, feedback through the website, Facebook and through the dedicated email address. Additional consultations with civil society based on the findings of this report are likely to generate more specific suggestions for sectors and horizontal issues to consider in more depth in the next phase of the study.

The stakeholders so far raised a few specific points that are relevant for the screening and scoping exercise. The comments are included in Table 6.5 below, together with issues that are found in the media and comments received from our local partners. Because the DCFTA negotiations between the EU and Tunisia have not yet started, the DCFTA has not received extensive attention of civil society in Tunisia and inputs for sector specific issues are limited.

**Table 6.5 Stakeholder specific issues**

Comment	Relevant sector / horizontal issue to which this comment may relate
The extent to which the project team takes into account the concentration of land ownership.	<ul style="list-style-type: none"> <li>• Land ownership.</li> </ul>
The extent to which the study analyses the impact on non-sensitive agricultural products (like olive oil).	<ul style="list-style-type: none"> <li>• Grains and crops;</li> <li>• Vegetables, fruit and nuts;</li> <li>• Other crops;</li> <li>• Vegetable oils and fats.</li> </ul>
The fight against corruption in Tunisia is still a policy challenge.	<ul style="list-style-type: none"> <li>• Corruption;</li> <li>• Public and other services.</li> </ul>
Given that the current Association Agreement already includes tariff liberalisation, there will be more emphasis on regulatory approximation. This implies that Tunisian standards will need to approach the EU in areas like SPS, TBT, IPR, competition, etc. In general, this is not an easy exercise for countries like Tunisia.	<ul style="list-style-type: none"> <li>• SPS;</li> <li>• TBT;</li> <li>• IPR;</li> <li>• Competition policy.</li> </ul>
Although there will be emphasis on regulatory approximation, liberalisation in agricultural goods and in services mode 4 (movement of labour) is still an important goal for Tunisia in the negotiations and hence also important for the trade SIA.	<ul style="list-style-type: none"> <li>• Agricultural sectors;</li> <li>• Mode 4 of services trade;</li> <li>• Temporary movement of labour.</li> </ul>
The issue of unemployment and regional disparities are very important for post-revolution Tunisia	<ul style="list-style-type: none"> <li>• Employment/labour mobility;</li> <li>• Regional development.</li> </ul>
Water scarcity is an important issue for Tunisia, as well as water pollution.	<ul style="list-style-type: none"> <li>• Water scarcity and water quality.</li> </ul>

### 6.2.5 Criterion 5: Strategic importance of sectors and/or issues in the negotiations

Because the negotiation process has not started yet, the sectors and issues of specific interest for the DCFTA process that were mentioned in the Inception Report remain valid. These sectors and issues are based on inputs from the Steering Committee and the EU Delegation in Tunisia. It concerns the following sectors and issues:

- Textiles;
- Car parts (belongs to “Motor vehicles”);
- Fruit and vegetables;
- Offshoring (horizontal).

## 6.3 Selection of sectors and horizontal issues

Having thoroughly assessed the study results according to the five screening criteria for the various sectors, below we summarise this assessment for all five criteria and present our proposed selection of sectors / issues, which can be considered of highest importance for the DCFTA negotiations between the EU and Tunisia.

### 6.3.1 Selection of sectors

Table 6.6 summarises our assessment at sector level.

**Table 6.6 Screening and selection of sectors**

	1. Initial importance	2. Economic impact	3. Social / environmental impact	4. Civil Society	5. Importance for negotiations
Grains and crops		✓		✓	
Vegetables, fruit and nuts	✓		✓	✓	✓
Other crops		✓		✓	
Animal products	✓		✓	✓	
Forestry products				✓	
Fish products				✓	
Energy	✓				
Other minerals	✓		✓		
Livestock and meat products			✓		
Vegetable oils and fats		✓	✓	✓	
Other processed food					
Beverages and tobacco					
Textiles	✓	✓			✓
Wearing apparel	✓		✓		
Leather products	✓	✓			
Wood, paper, publishing	✓	✓			
Petro-chemicals		✓			
Chemical, rubber, plastic products	✓	✓			
Ceramics, cement, etc.		✓			
Primary metals					
Fabricated metals		✓			
Motor vehicles					✓
Other transport (equipment)		✓			
Electrical machinery	✓	✓			
Other machinery	✓	✓			
Other manufacturing					
Utilities	✓		✓		
Construction	✓				
Trade	✓	✓	✓		
Other transport	✓				
Water transport					
Air transport	✓	✓			
Communications	✓				

	1. Initial importance	2. Economic impact	3. Social / environmental impact	4. Civil Society	5. Importance for negotiations
Finance and insurance	✓		✓		
Business and ICT	✓		✓		
Personal and recreational services		✓			
Public and other services	✓		✓	✓	

Based on the five criteria and our assessment at sector level, we have identified the six sectors as potentially relevant for further study in phase 2 of the Trade SIA: Vegetables, fruit and nuts; Animal products; Vegetable oils and fats; Textiles; Trade; Public and other services.

In order to give a reflection of the three broad sectors of the economy, being agriculture, manufacturing and services, and in consultation with the Steering Committee, the following three sectors have been selected for further analyses in phase 2 of the study (see chapters 7-9):

1. Vegetables, fruit and nuts;
2. Textiles/leather/clothing: we propose to look at these three sectors in parallel because of the interlinkages between these sectors;
3. Retail distribution, as part of the sector Trade.<sup>157</sup>

### 6.3.2 Selection of horizontal /crosscutting issues

Several horizontal issues appeared under the five screening and scoping criteria, including Land ownership, Corruption, SPS, TBT, IPR, Competition policy, Services Mode 4, especially in relation to temporary movement of labour, Offshoring, and Water scarcity and quality. The latter issue turns out to be an important one, because the DCFTA will put more pressure on the available amount of water. Water use for irrigation will likely increase as a result of positive effects on agriculture due to the DCFTA, and also the quality of water is under pressure because of acidification due to increased air pollution. Furthermore, many other sectors apart from agriculture also need water inputs, and the environment and human health are thus negatively affected by scarcity and bad quality of water as well.

Based on its interrelation with many sectors of the economy, the environment, and human health, **Water scarcity and quality** has been selected as a horizontal crosscutting issue in more detail in phase 2 of the study (see chapter 10).

<sup>157</sup> The sector Trade consists of various subsectors, with the three main subsectors being Retail trade, Wholesale trade, and Hotels and restaurants. Each subsectors their own specificities.

## 7 Fruits and Vegetables

### 7.1 The Fruit and Vegetables sector in Tunisia

#### 7.1.1 Main characteristics of the sector

Agriculture is an important sector for the Tunisian economy. There are around half a million farmers in Tunisia.<sup>158</sup> In 2009, agriculture contributed to around 14% of GDP, employed about 20% of the workers and accounted for nearly 14.3% of total exports.<sup>159</sup> This chapter focuses on the DCFTA impact on a specific agricultural subsector: Fruits and Vegetables, and impacts will be assessed by using the GTAP sector Vegetables, Fruits, and Nuts (VFN).

GTAP data indicate that in 2011, VFN was responsible for 8.1% of total value added in Tunisia, and for 0.5% and 14.9% of skilled and unskilled employment respectively. So the sector is of economic and social importance for the country, in particular by providing jobs for unskilled workers. However, the sector is not very important in terms of exports, as VFN account for only 1.5% of total exports.

The Tunisian government has some policies to support the agricultural sector with guaranteed minimum prices and subsidies for agricultural inputs. We will discuss this in more detail in section 7.2.1.

#### Breakdown of the sector: different products

Table 7.1 shows all the product groups that belong to the VFN GTAP sector. Within product groups, often differences can be made between fresh and dried, shelled, in shell, chilled, with or without pits, reduced in size, etc.

**Table 7.1 The product groups of the sector**

Fruits		Vegetables		Nuts
Apples	Kumquats	Asparagus	Leeks	Almonds
Apricots	Lemons	Breadfruit	Lentil seeds	Brazil nuts
Avocados	Loganberries	Brussels sprouts	Lettuce	Cashew nuts
Bananas	Mandarins	Cabbage	Lima beans	Chestnuts
Bergamots	Mangoes	Carrots	Mushrooms	Coconuts
Berries and tamarinds	Mangosteens	Cassava (manioc)	Pearl onions	Filberts
Blueberries	Mixed nuts/dried fruits	Cauliflower	Peas	Hazelnuts
Cantaloupes	Nectarines	Celery	Pumpkins	Pecans
Cherries	Oranges	Chickpeas (garbanzos)	Radishes	Pistachios
Citrons	Papayas	Chicory	Seed potatoes	Walnuts
Cranberries	Peaches	Chili peppers	Seeds (different kinds)	
Currants	Pears and quinces	Chinese water chestnuts	Spinach	
Dates	Pineapples	Cucumbers	Sweet potatoes	
Durians	Plums, prunes and sloes	Eggplants (aubergines)	Tomatoes	

<sup>158</sup> Interview with l'Union tunisienne de l'agriculture et de la pêche (UTAP).

<sup>159</sup> Banque Africaine de Développement (2012), Distorsions aux incitations et politique agricole en Tunisie.

Fruits		Vegetables		Nuts
Figs	Prunes and plums	Garlic	Truffles	
Gooseberries	Raisins	Headed broccoli	Yellow potatoes	
Grapefruit	Raspberries	Jicamas		
Grapes	Strawberries			
Guavas	Watermelons			
Kiwi fruit				

Source: GTAP - HS6 concordance table.

The different products are grown in different parts of the country. This is because the geography and climate of Tunisia is varied. Tunisia has a temperate mountainous region in the north and the east coast is characterised by a Mediterranean maritime climate. The centre of the country contains hot and dry plains and the south has desert conditions.<sup>160</sup> Traditionally, the most cultivated agricultural products are those which grow best in the agro-climatic characteristics of the different areas of Tunisia.<sup>161</sup>

### Production

Table 7.2 below shows the production in thousand tonnes for the main VFN product groups, and its value in million US dollars. We observe that for 2011, vegetables are responsible for 31.0% of the total VFN production value, fruits account for 58.8%, and the production value of nuts is 10.2% of total VFN production.

**Table 7.2 Production of vegetables, fruits and nuts, in thousand tonnes and value in million US\$**

Crops	Production in thousand tonnes					Value in mln\$
	2007	2008	2009	2010	2011	2011
<b>Vegetables total</b>	<b>2,024</b>	<b>2,248</b>	<b>2,138</b>	<b>2,376</b>	<b>2,325</b>	<b>432</b>
Tomatoes	1,000	1,200	1,135	1,296	1,284	158
Chillies and peppers, green	278	291	281	304	268	96
Potatoes	350	370	324	370	367	71
Vegetables, fresh n.e.s.	86	92	96	100	97	24
Chick peas	13	11	8	6	11	13
Cucumbers and gherkins	38	35	38	42	41	9
Pumpkins, squash and gourds	50	45	51	49	48	9
Carrots and turnips	61	61	62	57	55	8
Artichokes	19	18	16	14	18	7
Chillies and peppers, dry	5	6	7	9	11	7
Spinach	17	15	16	22	21	6
Vegetables, leguminous n.e.s.	25	26	27	29	28	5
Peas, green	16	15	14	11	11	5
Lettuce and chicory	19	17	18	22	21	4
Cabbages and other brassicas	26	24	25	27	26	4
Lentils	1	1	0	0	4	2
Cauliflowers and broccoli	12	12	13	13	12	2
Garlic	8	8	8	4	4	2
<b>Fruit total</b>	<b>1,610</b>	<b>1,760</b>	<b>1,852</b>	<b>1,827</b>	<b>1,886</b>	<b>820</b>
Dates	124	145	162	174	180	183

<sup>160</sup> Government of Canada (2011), *Agri-Food – Past, Present & Future Report*. Tunisia, May 2011.

<sup>161</sup> Lachaal et al. (2002), National agricultural situation report for Tunisia.

Crops	Production in thousand tonnes					Value in mln\$
	2007	2008	2009	2010	2011	2011
Fruit, tropical fresh n.e.s.	77	87	85	88	94	104
Watermelons	466	465	570	498	470	79
Apples	102	110	110	126	128	55
Oranges	104	143	116	137	139	52
Fruit, citrus n.e.s.	83	84	95	104	121	44
Peaches and nectarines	101	110	118	117	120	42
Grapefruit (incl. pomelos)	77	86	84	87	93	38
Grapes	102	122	97	97	114	37
Fruit, fresh n.e.s.	71	75	75	67	72	36
Tangerines, mandarins, clementines, satsumas	35	36	44	37	48	24
Pears	55	75	60	66	61	23
Melons, other (inc.cantaloupes)	103	102	103	108	104	22
Lemons and limes	32	38	42	37	48	21
Cherries	5	4	5	6	7	15
Figs	22	25	28	26	26	14
Apricots	24	27	30	24	30	10
Strawberries	8	8	8	8	9	10
Plums and sloes	12	12	13	12	12	5
Fruit, stone nes	5	5	5	5	6	5
<b>Nuts total</b>	<b>61</b>	<b>54</b>	<b>63</b>	<b>54</b>	<b>63</b>	<b>142</b>
Almonds, with shell	58	52	60	52	61	134
Pistachios	3	3	3	2	2	9

Source: FAOSTAT.

The fruits and vegetable sector has a relatively stable demand, but supply (production) is uncertain and fluctuates, mainly because of rainfall levels. The instability of the supply-demand relation induces instability of prices and quantities sold. So farmers face a double-uncertainty regarding the price at which they sell products and the amount that can be sold at the end of the product cycle. The government has implemented some policies to reduce these uncertainties by managing the prices that farmers get for their production, see section 7.2.1 for more details. Such measures could affect the efficiency and competitiveness of the agricultural sector by reducing uncertainty.<sup>162</sup>

### Employment

Table 7.3 shows the employment in Agriculture and Fisheries. These figures are more aggregated and include more sectors than VFN alone. We know that citrus fruits are responsible for 15% of the permanent agricultural labour and 51% of the occasional agricultural labour. Production of citrus fruits provides a source of income for more than 18,000 households.<sup>163</sup>

**Table 7.3 Employment in Agriculture and Fisheries, Tunisia, in 1,000 workers**

2007	2008	2009	2010	2011	2011	2012	2012	2012	2012	2013	2013
				Q2	Q4	Q1	Q2	Q3	Q4	Q1	Q2
565.9	557.8	578.9	575.8	510.0	534.5	543.2	550.0	504.9	530.4	537.0	507.4

Source: National Institute of Statistics – Tunisia.

<sup>162</sup> Banque Africaine de Développement (2012), Distorsions aux incitations et politique agricole en Tunisie.

<sup>163</sup> Laajimi and Ben Mimoun (2007), National Citrus Sector Analysis: Tunisia. Institut National Agronomique de Tunisie.

## Exports

Table 7.4 shows the top five of export products of the VFN sector. Together these products account for 85% of total exports of the VFN sector. For these products, France, Italy and Libya are the most important export partners. Diversification of exports of the VFN sector is very limited compared to Tunisia's main competitors (Morocco and Spain).<sup>164</sup>

**Table 7.4 Top five VFN export products of Tunisia, 2011.**

Name	Export to world in USD	Top 3 export partners
1. Dates, fresh/dried	211,601,484	Morocco, France, Germany
2. Tomatoes, fresh/chilled	27,302,593	France, Netherlands, Libya
3. Vegetables, n.e.s. in 07.01-07.09, fresh/chilled	12,887,254	France, Italy, Libya
4. Oranges, fresh/dried	12,790,566	France, Algeria, Libya
5. Watermelons, fresh	7,878,530	Italy, France, Libya

Source: COMTRADE.

Table 7.4 shows that dates, in particular the Deglet Nour variety, are by far the most important export product of Tunisia. Tunisia is responsible for only 2% of the world's date production, but the value of Tunisian exports represents 30% of total world export. In Europe dates are popular during Christmas and New Year, and in the Muslim and Arab countries the Tunisian dates are popular during Ramadan. Growing dates is a small scale activity, but exporting is done by organisations that combine the outputs of the small farmers (e.g. collection centres).<sup>165</sup> Tomatoes are the second most important export product of Tunisia. The strength of this product is that Tunisia can grow tomatoes throughout the year, in the open field or under shelter in the off-season.<sup>166</sup>

For citrus fruits it holds that the dominant variety produced in Tunisia is the "Maltaise de Tunisie" orange, representing about 55% of citrus production. The Maltaise covers more than one third of the citrus orchards, followed by the Clementine (16%), Navel orange (15%), lemons (13%) and sweet oranges (10%).<sup>167</sup> The exports of fresh citrus products are primarily made up by the Maltaise and 90% of Tunisian Maltaise exports go to France.<sup>168</sup>

## Productivity

The production structures in the agricultural sector have evolved over the last two decades, as mechanisation has taken place. Although the number of farmers who own tractors and combine harvesters is low, renting such equipment has become increasingly popular and enables an increasing number of farmers to have access to mechanization. It affects almost 80% of farms that together cover a larger area.<sup>169</sup> The area of vegetable crops grown under shelter (unheated greenhouses, heated greenhouses, little mono tunnels and multi tunnels) represent 6.2% of total land used for growing vegetable field crops.<sup>170</sup>

The amounts of chemical fertilizers and high-yielding varieties have been increasing and the use of it has improved: phosphate fertilizers have gradually substituted for nitrogen fertilizers, which nevertheless continue to occupy a prominent place. In 2005, the amount of fertilizer applied per

<sup>164</sup> Interview with Groupement Interprofessionnel des Fruits (GIF).

<sup>165</sup> <http://news.bbc.co.uk/2/hi/business/8418619.stm>.

<sup>166</sup> [http://www.agriportail.tn/en/index.php?option=com\\_content&task=view&id=4&Itemid=7](http://www.agriportail.tn/en/index.php?option=com_content&task=view&id=4&Itemid=7).

<sup>167</sup> Gil and Tzouvelekas (2007), Productivity and efficiency analysis of fruits and vegetables in Mediterranean countries. Deliverable 21 of the project "Market and Trade Policies for Mediterranean Agriculture: The case of fruit/vegetable and olive oil", funded by FP6.

<sup>168</sup> Laajimi and Ben Mimoun (2007), *National Citrus Sector Analysis: Tunisia*. Institut National Agronomique de Tunisie.

<sup>169</sup> Banque Africaine de Développement (2012), Distorsions aux incitations et politique agricole en Tunisie.

<sup>170</sup> Agence de Promotion des Investissements Agricole (2008), Les cultures maraichères sous abris.

hectare amounted to 30 kg. This use was however uneven between cropping systems and types of farmers especially regarding food crops.<sup>171</sup>

Despite these developments, the agricultural productivity in general is much lower than that of manufacturing industries and below average of countries in the region. Since agriculture uses about 20% of the total workforce, low productivity of this sector weighs heavily on the productivity of Tunisia's economy. Agricultural productivity has increased at a lower rate than other sectors, slowing down the growth of total factor productivity in the country.<sup>172</sup> Human capital in the agricultural sector is of a low-skilled nature, most of the farmers have had only primary education, sometimes incomplete.<sup>173</sup>

### 7.1.2 Market structure

The VFN sector consists of many small family farms in rural areas. Because the agricultural land in Tunisia is highly fragmented, most of the producers are SMEs. More than 80% of the fruit plots in Tunisia are less than one hectare in area and therefore operated by small farmers.<sup>174</sup> This is especially true for the production of more 'traditional' VFN, like dates, citrus fruits and grenadines. For 'newer' products, like peaches, plums, nectarines, generally larger farms are active, although smaller farms also export through intermediaries. Co-operatives exist but are not as common as in some other countries. Intermediaries play an important role in the country, which also affects cost levels.

The production of most fruits and vegetables is used for domestic consumption. High prices on the domestic market discourage producers from exporting (see also section 7.2.1).

For the oranges that are exported, there is competition from other Mediterranean countries, in particular Spain, and Morocco. For Spain and Morocco it holds that prices of Tunisian oranges are higher, resulting from the high domestic demand.<sup>175 176</sup> Domestic demand is high because of the increase in population, the increased standard of living and the scarcity of the competing fruits in the period of consumption. In the recent years, the share of citrus fruits produced for the domestic market has increased from 80% to more than 90% for these reasons.<sup>177</sup>

### 7.1.3 Up and downstream relations in terms of products and sectors

The main inputs for the agricultural sector are fertilisers, pesticides and agricultural machinery such as tractors. In 2002, 24.18% of total agricultural value added was spent on those upstream sectors.<sup>178</sup> Other inputs are seeds, irrigation systems and energy.

The direct downstream relationships are the post-harvest treatments which include sorting, grading, cleaning or washing, cutting or slicing, ripening, and packaging and labelling. The next step in the chain is processing and distribution. An example of a company from the food processing industry is a canning factory that produces tomato paste from the fresh tomatoes. However, the food processing industry is not very big in Tunisia as Processed food and Vegetable oils account for only

<sup>171</sup> Banque Africaine de Développement (2012), Distorsions aux incitations et politique agricole en Tunisie.

<sup>172</sup> Banque Africaine de Développement (2012), Distorsions aux incitations et politique agricole en Tunisie.

<sup>173</sup> Banque Africaine de Développement (2012), Distorsions aux incitations et politique agricole en Tunisie.

<sup>174</sup> Interview with Groupement Interprofessionnel des Fruits (GIF).

<sup>175</sup> Laajimi and Ben Mimoun (2007), National Citrus Sector Analysis: Tunisia. Institut National Agronomique de Tunisie.

<sup>176</sup> Interview with Groupement Interprofessionnel des Fruits (GIF).

<sup>177</sup> Gil and Tzouvelekas (2007), Productivity and efficiency analysis of fruits and vegetables in Mediterranean countries. Deliverable 21 of the project "Market and Trade Policies for Mediterranean Agriculture: The case of fruit/vegetable and olive oil", funded by FP6.

<sup>178</sup> Lachaal et al. (2002), National agricultural situation report for Tunisia.

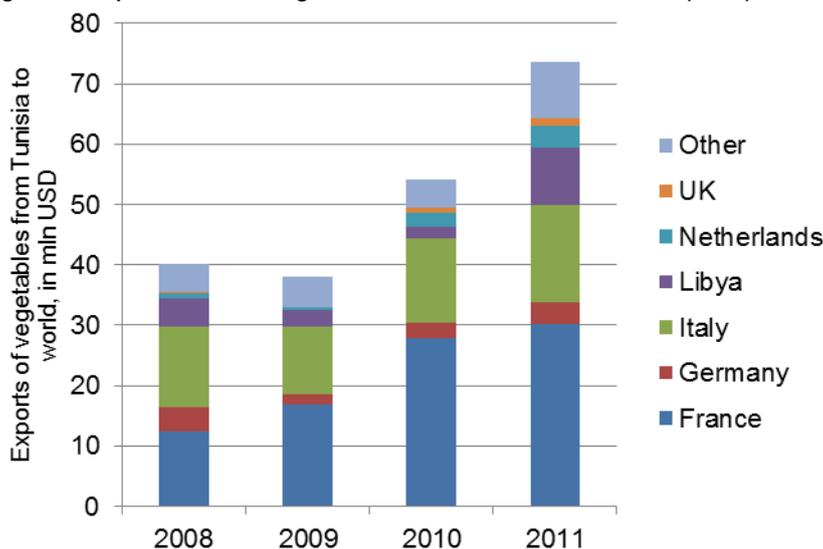
0.5% and 0.2% of total value added respectively. For the transport, sometimes refrigerated trailers are needed. The Tunisian government offers grants for the use of refrigerated trailers.<sup>179</sup> Further down in the chain, there are the different types sellers (wholesale, retail) where the fresh or processed products can be bought by consumers.

#### 7.1.4 Trade relations – main partners, shifts in recent years

With some exceptions, the exports of VFN products are quite limited compared to total production, as a large part of production is consumed domestically. There is a significant variation from year to year, due to the fluctuations in performance of the agricultural sector. During periods of insufficient production, satisfaction of the Tunisian market takes precedence and not enough products are available for exporting.<sup>180</sup>

Figure 7.1 and Figure 7.2 show exports of vegetables, fruits and nuts from Tunisia to the rest of the world. They show that Tunisia has some main export partners to which its fruits and vegetable exports flow, and this pattern holds over time. We observe that the main export partners are France and Italy for vegetables, and France, Morocco, Germany, Italy and Libya for fruits and nuts.

**Figure 7.1 Exports of Edible vegetables and certain roots and tubers (HS07)**

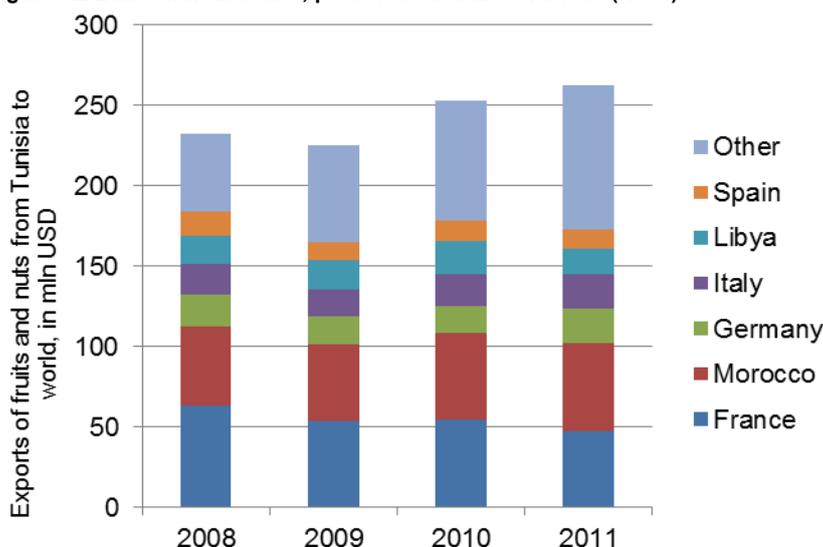


Source: UN COMTRADE.

<sup>179</sup> Laajimi and Ben Mimoun (2007), National Citrus Sector Analysis: Tunisia. Institut National Agronomique de Tunisie.

<sup>180</sup> Ministère du Commerce et de l'Artisanat (2010), Stratégie de développement des exportations tunisiennes de F&L transformés.

Figure 7.2 Edible fruit and nuts; peel of citrus fruit or melons (HS08)



Source: UN COMTRADE.

The exports of citrus fruits is double concentrated, both in terms of products and destinations: France receives 98% of the exported Maltaise orange, which is the only variety that is exported. On the French market, the biggest competitor for Tunisia is Spain which is responsible for nearly 80% of French imports of oranges.<sup>181</sup>

The trade of agricultural products fluctuates due to the unstable climate combined with the limited use of irrigation, which makes agricultural production rely on rainfall. In a very dry year, agricultural crops that can be produced domestically have to be imported for domestic consumption. So the unpredictable climate negatively affects the country's ability to be self-sufficient. In years with more favourable weather conditions in terms of rainfall, a decline in imports of agricultural products can be observed.<sup>182</sup>

#### 7.1.5 Constraints limiting the growth of the sector

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 exploitations over time and a greater parcelling out. This parcelling out hinders the development of the citrus sector. It prevents intensification and mechanisation, and it hence negatively influences the profitability of the citrus exploitations.<sup>183</sup> 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>184</sup>**

Figure 7.3 illustrates this. Small farmers do not have the means to modernise their farms. Aging and lack of resources combined with limited production in terms of quantity and quality makes it difficult to be competitive on the export market.<sup>185</sup>

<sup>181</sup> Gil and Tzouvelekas (2007), Productivity and efficiency analysis of fruits and vegetables in Mediterranean countries. Deliverable 21 of the project "Market and Trade Policies for Mediterranean Agriculture: The case of fruit/vegetable and olive oil", funded by FP6.

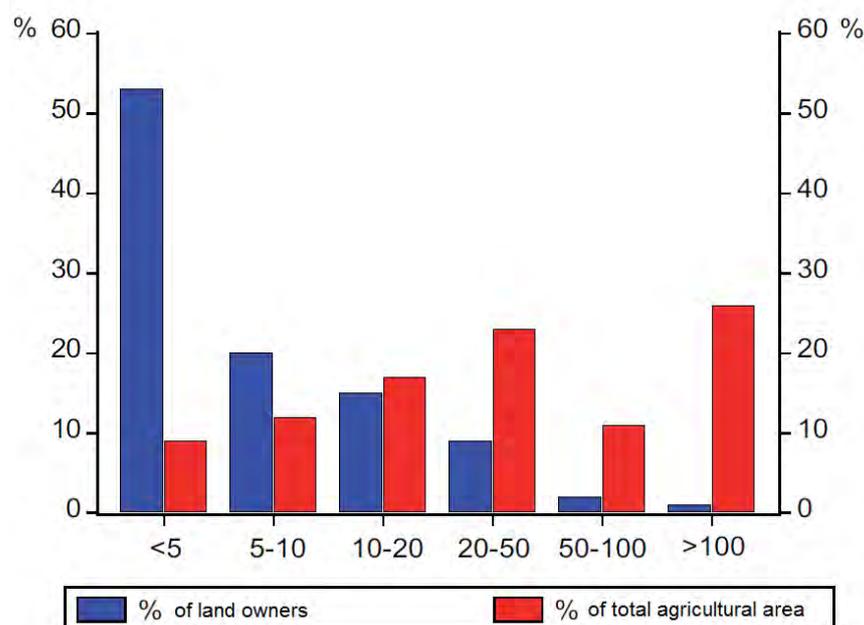
<sup>182</sup> Government of Canada (2011), *Agri-Food – Past, Present & Future Report*. Tunisia, May 2011.

<sup>183</sup> Gil and Tzouvelekas (2007), Productivity and efficiency analysis of fruits and vegetables in Mediterranean countries. Deliverable 21 of the project "Market and Trade Policies for Mediterranean Agriculture: The case of fruit/vegetable and olive oil", funded by FP6.

<sup>184</sup> Banque Africaine de Développement (2012), *Distorsions aux incitations et politique agricole en Tunisie*.

<sup>185</sup> Interview with Groupement Interprofessionnel des Fruits (GIF).

**Figure 7.3 Fragmentation of agricultural land in Tunisia in 2006**



Source: Banque Africaine de Développement (2012): Distorsions aux incitations et politique agricole en Tunisie.

The Tunisian agricultural sector including VFN also lacks modern infrastructure such as irrigation systems. As the majority of the agricultural crops are rain-fed, the agricultural sector is vulnerable to drought. The rainfall pattern in Tunisia is very irregular in terms of place, time, and intensity, which leads to fluctuations in production. Several years in the recent past were characterised by dryness. The situation can become even worse as in the summer priority is sometimes given to hotels before agriculture in terms of water supply.<sup>186</sup> On the other hand, there can be strong rains in the winter period that produce fast streaming which may cause soil erosion and violent floods. The exposure to erosion is increased by the fact that the major part of the agricultural land is situated on slopes.<sup>187</sup>

Even if farmers have an irrigation system, they often do not operate it in the most efficient way. Cross sectional data from 75 vegetable farms from northern Tunisia indicate that the farmers can often reduce their water consumption or costs without harming their production. Factors determining higher irrigation water use efficiency are education of farmers, access to credit and agricultural extension service for advice on irrigation.<sup>188</sup> Survey results from Gil and Tzouvelekas (2007) show that 86% of citrus farmers in Tunisia never followed a training program on citrus plantation and improving techniques including irrigation.

Only 8% of the agricultural area is irrigated, but this area generates 35% of the agricultural production value, 27% of the agricultural employment and 20% of agricultural exports.<sup>189</sup> This means that increasing investments in irrigation would provide the sector with big opportunities.

To cope with this problem of drought and limited irrigation, there is a project designed by the government to store 26 million m<sup>3</sup> of water with a dam for irrigation and thereby save the summer season for citrus production. There is also a government program for drip irrigation.<sup>190</sup>

<sup>186</sup> Interview with Groupement Interprofessionnel des Fruits (GIF).

<sup>187</sup> Lachaal et al. (2002), National agricultural situation report for Tunisia.

<sup>188</sup> Chebil, Frija and Abdelkafi (2012), *Irrigation water use efficiency in collective irrigated schemes of Tunisia: determinants and potential irrigation cost reduction*. Agricultural Economics Review, Vol. 13 (1), pp. 39-48.

<sup>189</sup> Chebil, Frija and Abdelkafi (2012), *Irrigation water use efficiency in collective irrigated schemes of Tunisia: determinants and potential irrigation cost reduction*. Agricultural Economics Review, Vol. 13 (1), pp. 39-48.

Modernisation of the sector without government support is seen as difficult. Investments by farmers in irrigation systems and machinery is inhibited by limited access to finance for them. The banking sector views the sector as “at risk” and interest rates are high. Self-financing – particularly for young people entering the sector – is not a realistic option for many.<sup>191</sup>

Next to the vulnerability of the sector to drought, desertification (mainly in the South), soil degradation and urbanisation have depleted arable land and water. These factors have reduced the country’s capacity to satisfy the growing demand for food of the Tunisian population.<sup>192</sup>

When looking at the production of citrus fruits, several sources show that a majority of citrus fruit orchards is old. The orchards older than 40 years represent 36% of total citrus orchards. This means amongst others that the irrigation system cannot be improved according to the latest techniques.<sup>193</sup>

The Tunisian VFN sector has difficulties with penetrating the international market. Some constraints that hindered the export development of processed foods that may be applicable to VFN products as well can be summarised as follows (partly overlapping with the above):

- Insufficient agricultural productivity and irregular supplies;
- The lack of agricultural varieties geared toward processing;
- The local fresh market remains more profitable than exporting for certain products;
- A lack of innovation means, capacity and resources and a lack of encouragement in this area so far did not allow the development of more sophisticated products;
- The lack of a communication strategy to promote and enhance the advantages of some Tunisian products abroad.<sup>194</sup>

#### 7.1.6 Social issues

In 2010 24.8% of the women in Tunisia were employed. According to latest population census, Agriculture, forestry and fishing in 2004 employed 461,272 workers, of which 112,837 are women. This is about 25% of total employment in the sector. This is in line with the national average.<sup>195</sup>

The governorate of Nabeul, situated in the north-east on the Cap Bon peninsula, is seen as the most productive area of Tunisia regarding the production of fruits and vegetables. Namely, in the north-east near the Mediterranean coast the climate is temperate and rainfall is higher than in the rest of the country.<sup>196</sup> So employment resulting from for example tomatoes and oranges production, two important products for exports that are mainly grown on Cap Bon, is concentrated in this part of the country.

The agricultural sector in Tunisia is characterised by informality. Although participation in the social security is mandatory, 80% of the farmers are not affiliated and only few agricultural workers pay tax on income.<sup>197</sup> A recent study on informality in Tunisia shows that about half of the agricultural labour force concerns informal employment.<sup>198</sup> Workers are often employed on the basis of short-

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<sup>190</sup> Interview with Groupement Interprofessionnel des Fruits (GIF).

<sup>191</sup> Interview with l'Union tunisienne de l'agriculture et de la pêche (UTAP).

<sup>192</sup> Government of Canada (2011), *Agri-Food – Past, Present & Future Report*. Tunisia, May 2011.

<sup>193</sup> Laajimi and Ben Mimoun (2007), *National Citrus Sector Analysis: Tunisia*. Institut National Agronomique de Tunisie.

<sup>194</sup> Ministère du Commerce et de l'Artisanat (2010), *Stratégie de développement des exportations tunisiennes de F&L transformés*.

<sup>195</sup> <http://www.ins.nat.tn/indexen.php>.

<sup>196</sup> Laajimi and Ben Mimoun (2007), *National Citrus Sector Analysis: Tunisia*. Institut National Agronomique de Tunisie.

<sup>197</sup> Banque Africaine de Développement (2012), *Distorsions aux incitations et politique agricole en Tunisie*.

<sup>198</sup> <http://www.globalfairness.org/attachments/article/118/FINAL%20SURVEY%20REPORT%20ENGLISH.pdf>.

term, seasonal assignments. Informal workers are usually women, masking the real gender composition of the sector.

### 7.1.7 Environmental issues

According to the CIA Factbook, current environmental problems that are relevant to the sector are limited natural freshwater resources, deforestation, soil erosion, and desertification.

## 7.2 Market access in the Fruit and Vegetables sector

### 7.2.1 Market access in Tunisia

Although Tunisia is a big (net) exporter of VFN, there is also demand for VFN products from abroad. In 2011 imports from the world were nearly USD 61 million, compared to exports of USD 320 million. Table 7.5 shows the main imported products, with an indication of the share coming from the EU.

**Table 7.5 Most important import products for Tunisia, 2011**

Name	Import from world in USD	% EU in total imports
1. Seed potatoes, fresh/chilled	22,058,144	100.0
2. Bananas, incl. plantains, fresh/dried	11,865,960	0.1
3. Beans*, dried, shelled, whether/not skinned/split	3,757,031	2.2
4. Almonds, shelled	3,365,419	9.4
5. Garlic, fresh/chilled	3,320,157	6.7

\* (Vigna spp., Phaseolus spp. (excl. of 0713.31-0713.33)).

Source: COMTRADE.

The recent political and economic unrest in the region of Tunisia has hindered market access.<sup>199</sup> Next to that, the degree of protection of the agricultural sector remains high with an average import tariff of 67%. The system is characterised by tariff quotas (import tariffs increase when imports exceed a specified amount). Tunisia currently only has no import tariffs on Manioc (cassava).<sup>200</sup>

In addition to tariffs, market access is also affected by Tunisia's policies to support the domestic agricultural sector for assuring food security in Tunisia and because agriculture is the main source of income for 45% of the rural population. The policies protect farmers against fluctuations in world prices. These protection policies may hinder market access from abroad.

The main support instruments are price control, subsidies to the use of inputs, and investment incentives:

- At the beginning of each year the state sets a minimum price for the agricultural production that farmers will at least receive when selling their products. The price setting is done each year before farmers take their production decisions, and the prices set are in general higher than world prices. The state intervenes directly on the domestic market to keep the price fixed by creating additional demand in case of excess supply (a public organisation buys the excess supply);
- Some agricultural inputs are subsidised. Chemical fertilizers and pesticides are sold to farmers at below cost prices. Furthermore, distribution of water in irrigated areas is charged at a price below operating costs of water infrastructure;

<sup>199</sup> Government of Canada (2011), *Agri-Food – Past, Present & Future Report*. Tunisia, May 2011.

<sup>200</sup> WTO Integrated Database (IDB).

- For some products, producers need the permission of the Ministry of Commerce for exporting these products. The aim is to maintain domestic prices of these goods (some of which have subsidies) at a low level.<sup>201</sup>

Tunisia also has a range of non-tariff measures (NTMs) in the VFN sector, depending on the specific product. If for illustration, we look at seed potatoes, the main VFN imports from the EU, these face the following NTMs at the Tunisian border:

- Temporary geographic prohibitions for SPS reasons due to infectious/contagious diseases (ad hoc and time-bound);
- Systems approach: An approach that combines two or more independent SPS measures on a same product: The combined measures can be composed of any number of interrelated measures, as well as their conformity assessment requirements and applied at all stages of production;
- Conformity assessment related to SPS: Requirement for verification that a given SPS condition has been met;
- A requirement for products to be tested against a given regulation;
- Certification of conformity with a given regulation that is required by the importing country but may be issued in the exporting or the importing country;
- Requirement to detain or isolate animals, plants or their products on arrival at a port or place for a given period in order to prevent the spread of infectious or contagious disease, or contamination;
- Requirement that goods must be shipped directly from the country of origin, without stopping at a third country;
- Obligation for imports to pass through a designated entry point and/or customs office for inspection, testing, etc.;
- Voluntary export-price restraints (VEPRs): An arrangement in which the exporter agrees to keep the price of the goods above a certain level;
- Inspection requirement: control over the quality or other characteristics of products for export.<sup>202</sup>

When looking at the almonds, which also has a relatively large share of EU imports, we see that there are even more requirements related to labelling, transport and storage, and safeguard measures. Although there are some differences per product group, many of the above requirements apply to VFN products imported into Tunisia.

### 7.2.2 Market access in the EU

The demand for VFN in the EU is substantial, with total EU imports in 2011 at nearly USD 22 billion. Depending on the product and Member State, about 20-90% of the VFN products are sold through supermarkets. These supermarkets have often more than minimal requirements on quality.

Besides the quality requirements of the distributors, the following EU regulations apply to VFN:

- **Border inspections:** exporters have to show relevant documentation, identity, physical plant health (EC/1756/2004) and compliance with EU import requirements. The Tunisian exporters need to show the Certificate of Conformity and the Phytosanitary Certificate. Furthermore, the products to be imported are partly or fully checked for quarantine organisms;
- Tunisian producers have to take into account the requirements of European regulation regarding **traceability** throughout the supply chain. All stages of the production chain have to be defined (EC/178/2002);

<sup>201</sup> Banque Africaine de Développement (2012), Distorsions aux incitations et politique agricole en Tunisie.

<sup>202</sup> UNCTAD TRAINS database (and the Market Access Database).

- The EU has minimum **marketing standards** for VFN products on country of origin and quality (sound, fair, and marketable). There is some regulation that applies to all vegetables and fruits (EC/1234/2007) and some products are subject to specific regulation (EC/1221/2008).<sup>203</sup>

The EU still has tariffs on a large majority of the products from the VFN, with simple average tariff rates ranging between 1.3 and 15.5% of the import value (2010 tariff data). Only Tunisian tomatoes, garlic, cauliflowers & headed broccoli, lettuce, peas, beans, apricots, pears and nectarines do not face import tariffs at the EU border.<sup>204</sup>

Just like the Tunisian government supports its agricultural sector, the EU does that via its Common Agricultural Policy. This gives the EU farmers an edge over the Tunisian farmers that try to enter the European market.

### 7.3 Impact assessment of the Fruit and Vegetables sector

This section presents a detailed impact assessment of the DCFTA on Vegetables, Fruits and Nuts, based on quantitative model outputs, further literature review, causal chain analysis and interviews.

#### 7.3.1 Economic impact

Table 7.6 below shows the CGE modelling results for some key indicators of the sector. When looking at employment, value added and output, we observe that the sector will benefit from the DCFTA and therefore expand in the long run.

**Table 7.6 Summary of CGE modelling results for the Tunisian VFN sector**

Indicators	Baseline		Short run change (%)	Long run change (%)
Employment (more skilled workers)	0.5	Share (%)	3.7	4.3
Employment (less skilled workers)	14.9	Share (%)	3.8	4.4
Value added	8.1	Share (%)	3.8	4.7
Output	8.1	Share (%)	4.0	5.0
Total imports	53.2	Mln EUR	35.8	41.8
Total exports	261.6	Mln EUR	4.7	2.8
EU exports to Tunisia	15.5	Mln EUR	37.3	80.9
Tunisia exports to EU	166.3	Mln EUR	8.6	3.9
Producer prices	100	Base index	9.6	12.3
Consumer prices	100	Base index	8.2	9.0

Source: CGE model calculations.

The sector overall benefits, also due to increased domestic demand as a result of the expected income increase, but the trade balance deteriorates. When calculating absolute values, imports increase by 22.2 mln EUR while exports increase by 7.3 mln EUR. This deterioration in the trade balance is less for bilateral trade between the EU and Tunisia. While in percentage terms the increase in imports from the EU seems much larger than exports to the EU (80.9 percent versus 3.9 respectively), in absolute terms the difference in the increase in exports to the EU (€6.2M) and the increase in imports from the EU (€12.6M) seems less significant. This can be explained by the fact

<sup>203</sup> CBI (2012), Market channels and segments for fresh fruit and vegetables – Your trade route through the European market.

<sup>204</sup> WTO Integrated Database (IDB).

that in the baseline (i.e. situation without the DCFTA) imports from the EU in this sector are relatively low.<sup>205</sup>

The positive effects are not caused by an expansion of the downstream sector. Processed foods, as the output of this sector will in the long run decrease with 4.1%. However, specific processed foods (notably vegetable oils) do experience a significant increase, which positively affects the demands for VFN products. Increased consumer demand also explains the expansion of the sector.

Fruit and vegetable products with actual or possible export potential include peaches, apricots, melons, water melons, salads (lettuce), potatoes, carrots, turnips, and tomatoes. These products could potentially benefit from the DCFTA.<sup>206</sup>

A decomposition of the DCFTA effect on outputs is shown in Table 7.7. The positive change in output is mainly caused by tariff reductions. A large part of the positive effect on output materialises in the short run. The relatively big effect from tariffs is logical given the fact that the EU still has so many tariffs on fruits and vegetables, including on dates, the most important export product of Tunisia.

**Table 7.7 Decomposition of the modelled change in VFN output**

Indicators	% change relative to baseline
<i>Short run</i>	
Goods NTBs	-0.9
Services NTBs	0.0
Spill overs	-0.2
Tariffs	5.0
<b>Total short run</b>	<b>4.0</b>
<i>Long run</i>	
Goods NTBs	-0.5
Services NTBs	0.0
Spill overs	0.1
Tariffs	5.4
<b>Total long run</b>	<b>5.0</b>

Source: CGE model calculations.

The large expected increase in imports could drive small scale Tunisians farmers from the market when imports increase. On the other hand, this development may give Tunisian producers incentives to increase efficiency of their business.

Table 7.6 also shows that producer prices will in the long run go up by 12.3%, mainly because the income effect, which causes increased demand for VFN products. The approximation to EU standards may increase the costs of production (compliance costs), but this also increases export opportunities arise and new markets open (not only EU).

<sup>205</sup> The trade balance deterioration for this should be seen in the context of a strong improvement in the trade balance in the agricultural sectors and processed food sector together. The strong increase in the exports of vegetable oils to the EU, both in percentage and absolute terms means that resources are shifted as well (so driving some reduction in production and export in other sectors). There is then an increase in the small underlying EU exports in these sectors.

<sup>206</sup> Interview with l'Union tunisienne de l'agriculture et de la pêche (UTAP).

### 7.3.2 Social impact

Social effects of the DCFTA related to VFN will be primarily driven by employment changes and to a lesser extent wage and price effects and health effects.

The sector accounts for 14.9% of less skilled employment. Employment gains for low skilled workers (+4.4%) from rural areas could contribute to a fall in inequality and poverty. As indicated in section 7.3.1, in the long run the population with income or expenditure levels below the official poverty line in rural areas will indeed fall from 22.1 to 19.4%.

The effect on prices is twofold. On the one hand, much more developed SPS measures could lead to rising production costs (due to compliance costs), but also to increased market access to the EU and possibly other third country markets. In addition, in the long run, when capital can reallocate between sectors, the output and prices increase even further. For many farmers, income is therefore expected to increase, although this will depend on the specific products they are producing and the competitiveness of their companies. The increased income effect could materialise in more investments in irrigation systems and/or storage, which will further increase competitiveness and may limit the fluctuation in production levels and hence in farmers' income. However, this effect is constrained by the limited availability of water in Tunisia as indicated in section 7.1.5.

According to the CGE results, consumer prices will in the long run go up by 9%. This increase in prices is likely with associated negative social outcomes. While in rural areas the effect may be limited as many households grow their own VFN, especially in urban areas the effects may be larger.

Introduction of higher SPS standards is expected to improve food quality and limit the risks related to contaminated or unhealthy food.

Labour standards are likely to improve somewhat, but this effects is not expected to be significant in the sector. As discussed in Section 7.1.6, the agricultural sector currently involves a high degree of informal work. The sector itself is expected to expand as a result of the DCFTA, however, growth of the sector does not automatically go together with a reduction of informality. According to the ILO, of great importance for the determination of informality levels is the policy mix surrounding it.<sup>207</sup> When policy making is dominated by a "free-market oriented economic model" and less attention is paid to formal job creation, informality in the Tunisian agricultural sector is not expected to decline automatically.

### 7.3.3 Environmental impact

Predicted production gains in the VFN sector will be associated with some increase in land use, although a significant share of output growth may be related to rising yields in already existing plantations.

Increased CO<sub>2</sub> emissions caused by potential increases of greenhouse production and building new cold storage facilities for VFN constitutes one of the potentially negative effects on the environment. Emissions related to transportation of VFN will probably increase as well, especially because international transports will increase due to increased imports and exports.

Because VFN output is expected to increase with 5% as a result of the DCFTA, the use of pesticides and fertilizers is likely to increase as well. The size of the increase partly depends on the

<sup>207</sup> [http://www.ilo.org/wcmsp5/groups/public/---ed\\_emp/---emp\\_policy/documents/publication/wcms\\_210444.pdf](http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_policy/documents/publication/wcms_210444.pdf).

investments in new and existing greenhouses. The Tunisian agency of investment promotion in agriculture mentions that crops under shelter alone currently consume about 15% of the pesticides and fertilizers used in total VFN production; per hectare they consume two to four times more pesticides and fertilizer than crops grown on open field. The environmental impact of pesticides and fertilizers may be defined at two levels:

- Direct impact on the natural environment (air, ground water and soil) and human environment (workers);
- Indirect impact on public health. The misuse of these chemicals may cause residuals on fresh vegetables and fruits, particularly because of non-compliance with recommended doses, techniques and delay of application.<sup>208</sup>

An increasing application of fertilisers and pesticides because of increased outputs will add to the environmental burden of the sector, but the DCFTA related upgrading of standards (i.e. SPS) may help to limit the use of particularly dangerous substances.

As mentioned in section 7.1.7, water scarcity is already a problem at this moment. When the sector will expand due to the DCFTA, even more water will be needed for VFN production. Further depletion of freshwater resources and desertification could be expected when water is not used in a sustainable way.

## 7.4 Conclusion

Overall it can be concluded that the VFN sector will benefit from the DCFTA and therefore expand, as output, value added and both skilled and unskilled employment will all increase.

Competition from foreign producers will increase as imports will increase with about 42% due to the DCFTA. On the one hand, this will give incentives for domestic producers to become more efficient and invest in more modern agricultural technologies. At the moment these producers may not get enough incentives due to the high import tariffs and price policies of the Tunisian government. On the other hand it could be that some of the many small scale farmers are forced out of business because they do not have the resources to invest in new technologies to cope with the increased competition from foreign producers that are more competitive.

Table 7.8 gives an overview of the policy recommendations that could help to remove barriers to growth of the sector.

**Table 7.8 Recommendations for Vegetables, Fruits and Nuts**

Policy measure	Potential to address within DCFTA	Potential to address outside DCFTA
Education of farmers about new technologies		<input type="checkbox"/>
Financial support for investments in irrigation systems		<input type="checkbox"/>
Environmental policies to prevent from further desertification, land erosion and depletion of water resources		<input type="checkbox"/>

Productivity of the sector could be increased to make Tunisian VFN producers more competitive, for example through better education of the farmers and investments in irrigation systems. Solving the issue of access to finance for agricultural producers would also help.

<sup>208</sup> Agence de Promotion des Investissements Agricole (2008), Les cultures maraichères sous abris.

Because desertification, land erosion, and water resources are already current environmental issues, attention must be paid to that as increased VFN production may enforce these issues. With respect to the issue of irrigation and water scarcity, we also refer to the recommendations (section 10.4) in the chapter on Water scarcity and quality.

## 8 Textiles, Clothing and Leather

### 8.1 The textiles & clothing sector in Tunisia

Outward Processing Trade (OPT) arrangements established in the mid-80s have integrated the Tunisian textile and clothing sector into the EU market. The labour intensive production activities have been outsourced to Tunisia and in essence it has become a part of the EU production network. This was driven by the terms of the OPT arrangements, which included preferential market access via reduced duties and higher quotas for finished products.

With the Association Agreement (AA) entering into force in 2000, the OPT arrangements were suspended and replaced by EU Rules of Origin (RoO) under the AA. These stipulated double transformation, meaning that local products or extensive inputs to the final product qualify for the preferential market access to the EU. At the same time this also stipulates, that the same preferential access applies to imports from the EU. However, given the business model of many of these manufacturers local input was rather low. In 2005 these RoO were relaxed and transformed into Pan-Euro-Mediterranean RoO, which made it possible to source inputs from for example Turkey and still be eligible for preferential market access.

The termination of the Agreement on Textiles and Clothing (ATC) – the transition agreement from the Multi Fibre Arrangement (MFA) - at the end of 2004 did not lead to decreasing exports to the EU in the period of 2005 to 2008, as anticipated.<sup>209</sup> This is partially due to EU safeguard measures against China. However, new competition from Asia led Tunisian manufacturers to rethink their business model and corresponding production structure. Particularly, Tunisia has successfully entered the so-called fast fashion segment characterised by short lead times, low costs, high flexibility, productivity, and quality. This restructuring led to market adaptation and saw a period of less exports (see figure 8.1).

In 2009, Tunisia clothing exports suffered a sharp decline due to the EU's phasing-out of safeguard measures against China, and subsequent increases in EU imports from this country, and - more importantly – due to the global economic crisis.

#### 8.1.1 *Structure and performance of the textiles, clothing and leather sector in Tunisia*

The textiles, clothing and leather sector is a major part of the Tunisian economy, notably in terms of employment. The sector employs a quarter million people, equalling more than 7% of its entire workforce and as much as 40% of all workforces in manufacturing. The significance of the sector is also represented in the number of companies with over 2% of all enterprise (over 23% of all in manufacturing) being registered with a main preoccupation in the textiles leather and clothing sector.

The sector is very much focused on exporting its products, with exports in 2012 totalling just under €3billion. This represents 22% of all exports from Tunisia and over a quarter of all manufacturing exports.

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<sup>209</sup> The MFA stipulated the rules that governed trade in textiles and clothing from 1974 until 2004. The ATC functioned as an agreement that organized the transition of the textiles and clothing sector from the MFA into the governance of the WTO. This included gradually dismantling the quotas entailed in the MFA. As a consequence of the MFA phase-out Tunisian producers feared that increased competition from Asia, particularly China, would lead to a significant decline in exports to the EU.

**Table 8.1 Key indicators Tunisian textiles, clothing and leather and share of manufacturing and economy totals (2008)**

Indicator	Total for textiles	Share of manufacturing total	Share of total
Number of enterprise	17,059	23.6%	2.4%
Total number of people employed	251,300	40.4%	7.6%
Value added (million Eur)	1,083	19.3%	3.3%
Exports (million Eur)	2,949	26.6%	22.3%

Source: Institut National de la Statistique(INS), API report 2010.

However, the products exported are primarily goods with limited value added. This is due to the fact that the Tunisian textiles, clothing and leather sector mainly involved in the outsourcing process of European brands in textile, leather and clothing. This explains the relatively low value added, which stands at little over €1billion and represents only 3% of the countries total value added.

### Main products

Table 8.2 provides a breakdown of the sector by subsector, providing more information on the economic significance of each subsector. It shows that the most important subsector is garment making, in particularly outerwear and underwear. The production of textile material (spinning / weaving / sewing) as well as knitting are also sizable sectors, each with a value added about €0.5billion a year. The leather sector employs almost 30 000 people, but their value added is rather limited compared to a similar subsector such as knitting.

**Table 8.2 Key indicators on the Tunisian textile, leather and clothing industry by sub-sectors (2008)**

Product	Number of enterprise (with more than 10 employees) <sup>210</sup>	number of employees	Value added (million €)	Value of Exports (million €)	Trade balance (million €)
	<b>78</b>	<b>6,491</b>	<b>494</b>	<b>97</b>	<b>-1,090</b>
Spinning / weaving / sewing	Cotton & Wool	29	3,486	417	
	linen & synthetics	14	950	44	
	silk	6	360	8	
	other	29	1,695	24	
Dyeing, finishing and printing	<b>34</b>	<b>6,017</b>	<b>33</b>	<b>28</b>	<b>_</b> <sup>211</sup>
Leather	<b>297</b>	<b>29,122</b>	<b>234</b>	<b>443</b>	<b>165</b>
	Tannery	11	910		
Shoes	225	23,546			

<sup>210</sup> Although the vast majority of enterprises in the industry in Tunisia and micro sized (see table 8.3) at times constituting only perhaps one person, these are notoriously difficult to acquire data on. As a result much of the research available has focused on the micro-small and above companies, that have at least 10 employees and therefore are forced to keep better data and evidence.

<sup>211</sup> Data not available

	Leather accessories	50	3,678			
	Leather garments	17	1,385			
		<b>252</b>	<b>20,091</b>	<b>631</b>	<b>581</b>	<b>494</b>
Knitting	knitwear	230	18,756			
	leggings	16	655			
	serape & scarf	6	680			
		<b>2,101</b>	<b>213,236</b>	<b>1,416</b>	<b>1,690</b>	<b>1,397</b>
Garment making	tailor made	1	36			
	outerwear	1,013	110,533			
	traditional	9	205			
	underwear	644	65,269			
	accessories	218	19,855			
	work wear	216	17,338			
		<b>408</b>	<b>34,231</b>	<b>95</b>	<b>199</b>	<b>92</b>
Other textile activities	covers	8	527			
	domestic laundry	75	6,167			
	other garment making	47	4,941			
	other	278	22,596			

Source: API report 2010, Institut National de la Statistique(INS).

It is interesting to note that for the production of textile material (spinning, weaving, sewing) the sector is experiencing a trade deficit, meaning that it imports more than it exports (by over a €1billion). It shows that the country does not produce enough textile material in order to satisfy its extensive production of garments. This is largely due to the nature of the garment making, which mainly focuses on outsourcing of European brands as explained above. This business model divides tasks into little specific activities that are done in Tunisia. Since the production process is highly specialised and fragmented, this might largely explain why the majority of fabrics are imported.

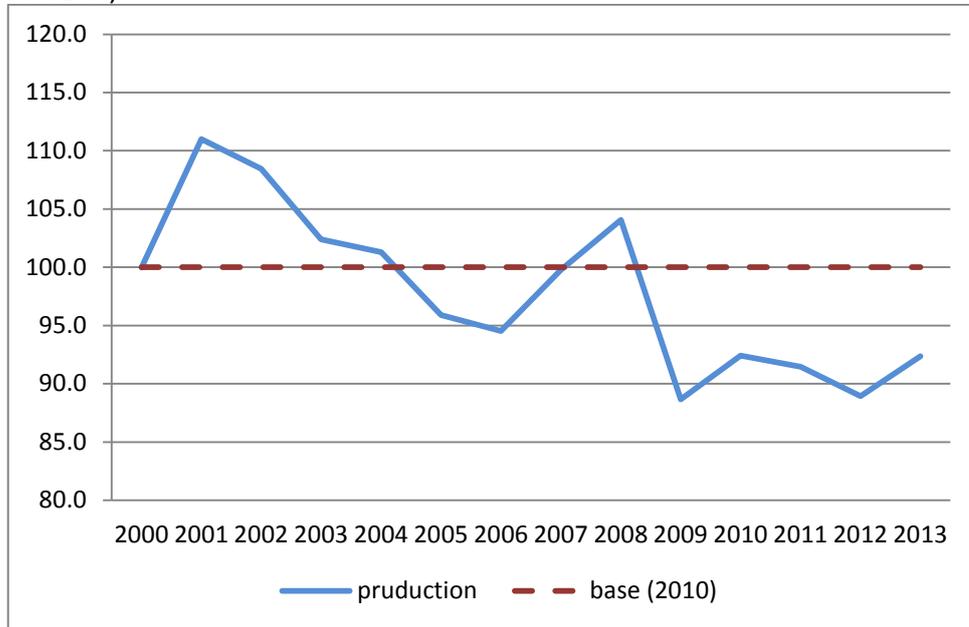
### History and recent trends

As mentioned earlier the first half of the 21<sup>st</sup> Century saw a restructuring begin to take shape in the Tunisian textile, leather and clothing industry as a result from changing business models and competition, especially from Asia. Such restructuring has inevitably led to a decline in the production, however it has meant that the industry survived and in 2007 begun to show signs of impressive recovery.

However, this recovery was to be rather short lived as a combination of an end to safeguards against Chinese imports to the EU in 2009 and more importantly the global financial crisis, which has then turned into a deep Eurocrisis.

Having said this, the foundations of the Tunisian textile, leather and clothing industry remained solid and this can be seen by the fact that this year as the demand in the EU is beginning to tentatively pick up, Tunisian production is responding in turn with increased production. Although the recovery is yet fragile and in its early stages, the outlook for Tunisian textile, leather and clothing industry looks positive, due to its improved competitive position.

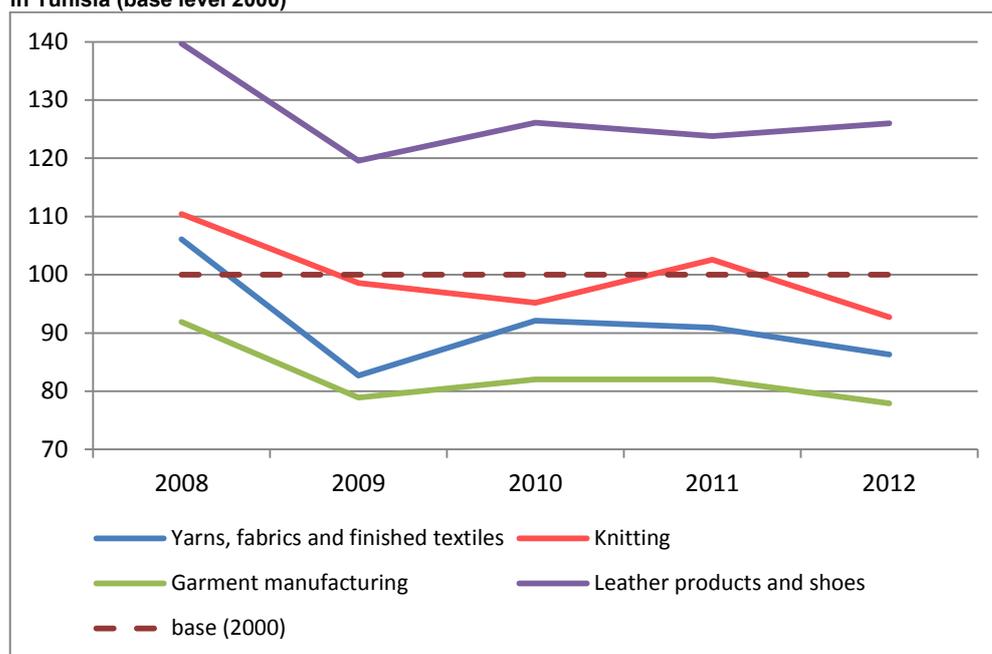
**Figure 8.1 Indexed development of production of textile, leather and clothing industry in Tunisia (base level 2010)**



Source: Institut National de la Statistique(INS).

When we look closer at the performance of the four main subsectors we see that only leather products and shoe production has maintained at above its 2000 levels. Knitting has also proved to be more resilient in light of the European economic crisis. However, the textiles and garments subsector has suffered greatly to the point of falling to 80% of its 2000 production levels. The two subsectors have in fact experienced a double-dip crisis and have not recovered by the end of 2012 (when the disaggregated data stops).

**Figure 8.2 Indexed development of production of subsectors in the textile, leather and clothing industry in Tunisia (base level 2000)**



Source: Institut National de la Statistique(INS).

One of the reasons to the decline in the sector can be the fact that garment manufacture is very labour intensive, rather than capital intensive. That means that in times of crisis it is easier to downsize on labour rather than sell off machinery. This is in contrast to leather and shoe production as well as to some extent knitting, which requires a more skilled workforce as well as machinery. In such circumstances it is more difficult to downsize presuming that the crisis will end in the short term and not lead to structural changes. Furthermore, these are usually products with higher value added and at times more luxurious products, which are generally more resilient to crisis.

Textiles is an interesting example of a sector, that is closely tied to another, namely the garment manufacture sector. Since most of the textile products are used by the garment manufacturers a decline in production of clothes directly corresponds to a decline in textile production. Having said that, from the above graph, one can see that the production of textiles has not been as hard hit as the production of garments. This could be due to the fact that the textile subsector is a bit more diversified also supplying domestic market, rather than the very export oriented garment manufacturing.

### Main producers and size distribution

The vast majority of companies in the sector belongs to the micro and small category.

In total 1,752 companies participate in the export trade, which represents 1% of all the companies. However, export is firmly in the hands of the medium and large companies. In fact, the 605 companies that employ over a 100 people account for 92% of all exporting companies.

**Table 8.3 Size distribution of firms in Tunisia textiles industry (2008)**

Size	Number of companies	Share of total enterprise
Micro (< 10 employees)	14,964	87.7%
Micro-small (10-50 employees)	929	5.4%
Small (51-100 employees)	561	3.3%
Medium (101-200 employees)	405	2.4%

Size	Number of companies	Share of total enterprise
Large (>200 employees)	200	1.2%
<b>Total</b>	<b>17,059</b>	<b>100%</b>

Source: API report 2010.

In total the vast majority of the sector's enterprise are fully owned by Tunisian businessmen, while only 6% of all companies are partially or completely owned by foreigners. Out of these almost half are owned by companies or individuals from France and over a quarter from Italy, the two fashion powerhouses of Europe. These foreign-owned companies are almost exclusively focused on exporting and in fact account for just over 55% of the total number of exporting companies in the textiles, clothing and leather industry in Tunisia.

**Table 8.4 Structure of ownership (2008)**

Country	100% foreign owned	Mixed ownership	Total	Share of exporting companies
France	286	149	435	45%
Italy	189	78	267	28%
Belgium	74	41	115	12%
Germany	57	40	97	10%
Other	25	19	44	5%

Source: API report 2010.

### Value chains

The sector in essence can be divided into two groups:

- Exporting companies that import most of their textiles and raw materials from the EU and then focus on assembling garments to be again exported back into the EU as ready made clothes or companies that focus on products, where they add as much value added (particularly in knitting and leather products) before re-exporting such products to the EU;
- Domestic companies follow a classical approach of focusing on one of the steps in the value chain. Either on the manufacture of the textiles, or production of garments, or the distribution and sale. The micro or micro-small enterprise usually focus on one of the steps specifically. The small enterprise tend to also be rather specialised in a certain type of textile or leather or garment and either supply the local market or in a limited way participate in the export business.

### Competitiveness and constraints

Most stakeholders agree that Tunisia's textiles, leather and apparel sector is rather competitive, which is confirmed by its strong position as EU's 5<sup>th</sup> largest supplier. The main reasons behind this include:

- Geographical proximity to the EU allows for good buyer-supplier relationships as well as short lead times. Whereas the former is particularly important for markets with a continuous sourcing model, the latter is especially relevant in the growing fast fashion segment;
- Historical, economic, and strategic importance of the sector creates a high awareness among policy makers to stimulate and support the sector's global competitiveness through various measures;
- Availability of skilled labour, allowing for adequate compliance with sector standards;
- Infrastructure that supports tight trade links with the main export market, the EU;
- Strategy to establish an environment that makes it possible to produce high quality products attracts new brands to make Tunisia their favoured production location;
- Local availability of leather inputs.

Nevertheless the industry suffers from several constraints:

- A focus on low value added products (such as the manufacture of garments). These are very price competitive products, where the profit margins are rather low and the industry is in danger of quickly moving away if a cheaper manufacturing location is discovered;
- High dependency on the EU market, which in light of the economic crisis make the sector rather vulnerable;
- The Rules of Origin requirements linked to the zero tariffs prevent the sector from sourcing its raw materials directly from Asia it would significantly cut costs (since the raw materials are currently first imported into the EU, before being directly re-exported to Tunisia and other countries);
- Lack of investments and outdated technology / machinery;
- A small domestic market with relatively low quality standards, has meant that production for the domestic market is not very lucrative. As a result the large companies and employers are focused on export activities.

### Specific social and environmental issues in the sector

Generally clothing production is labour intensive and labour conditions in this sector are often low, given the importance of keeping costs low. Insecurity of employment is seen as the biggest issue in the industry. Short and temporary contracts are often employed and no social or labour protection is thus given to the employees. This is often combined with very limited pay and worryingly no social security. The long working hours, in order to ensure quick and timely delivery of the product, make working conditions extremely tough with at times no overtime pay or paid leave being offered.<sup>212</sup> Many workers are not directly employed by large exporting companies, but these latter companies subcontract the work to sometimes very small companies, which also means there is less attention to labour conditions at the sub contractors.

The industry employs a very large share of women. This on the one side creates female employment, but at the same time it tends to be a vulnerable group of workers, which are often not very vocal.

For textiles production environmental issues relate mostly to the washing, treatment and finishing processes, which use chemicals and produce waste water and other by-products. The sector accounts for a significant share of the country's emissions of toxic organic materials. The cleaning and tanning processes for leather can be highly polluting if not properly regulated and treated. As a result water and soil pollution have at times had devastating effects. Given the overall water scarcity in Tunisia, this is a major concern, not only for the people directly affected, but also other industries especially the agriculture sector.

## 8.1.2 Trade in textiles and clothing

### Tunisian exports and imports of textiles & clothes

**Table 8.5** and **Table 8.6** present the top 10 exported and imported products in the textile, leather and clothing sector. Products have been filtered and retrieved on the HS-04 level, which allows for giving sufficient detail compared to the overall, sectoral GGE results explained in Section 2. In addition to the product description and corresponding trade values of Tunisian trade in the top 10 textile, leather and clothing products with the EU and the world, GTAP shares (last column) indicate the share of these products in the total trade flows of their corresponding GTAP sector.

**Table 8.5** shows the top 10 Tunisian export products in the textiles, clothing and leather sector. The combined, overall export value of the three industries is approximately €3 billion, whereas clothing

<sup>212</sup> Clean Cloths Campaign: Country Profile Tunisia 2005.

products form 70% or this and the other two industries take up approximately equal shares. It becomes clear that the export of the top 10 products are strongly dependent on the EU market, looking at the high shares of exports going to the EU (5<sup>th</sup> column). In addition, the top 3 export products (HS4 codes 6203, 6109, and 6110) take relatively high shares in the corresponding GTAP sector. This needs to be taken into account when interpreting the CGE results in Section 2.

**Table 8.5 Top 10 Tunisian textiles, clothing and leather exports (2012)**

Description		Tunisian export EU	TUN exports World	% EU	GTAP Share (world)
6203	Men's or boys' suits, ensembles, jackets, blazers, trousers, bib and brace overalls, breeches and shorts (other than swimwear).	413,803,019	518,368,304	80%	27.90%
6109	T-shirts, singlets and other vests, knitted or crocheted.	125,679,763	142,001,825	89%	29.69%
6110	Jerseys, pullovers, cardigans, waistcoats and similar articles, knitted or crocheted.	65,431,669	92,536,370	71%	19.35%
5407	Woven fabrics of synthetic filament yarn, including woven fabrics obtained from materials of heading 54.04.	8,706,568	8,797,638	99%	1.84%
4107	Leather further prepared after tanning or crusting, including parchment-dressed leather, of bovine (including buffalo) or equine animals, without hair on, whether or not split, other than leather of heading 41.14.	6,526,422	9,285,400	70%	2.35%
5209	Woven fabrics of cotton, containing 85 % or more by weight of cotton, weighing more than 200 g/m2.	3,672,717	9,040,559	41%	1.89%
5208	Woven fabrics of cotton, containing 85 % or more by weight of cotton, weighing not more than 200 g/m2.	237,440	582,065	41%	0.12%
5512	Woven fabrics of synthetic staple fibres, containing 85 % or more by weight of synthetic staple fibres.	193,608	193,608	100 %	0.04%
5211	Woven fabrics of cotton, containing less than 85 % by weight of cotton, mixed mainly or solely with man-made fibres, weighing more than 200 g/m2.	177,274	440,230	40%	0.09%
6004	Knitted or crocheted fabrics of a width exceeding 30 cm, containing by weight 5 % or more of elastomeric yarn or rubber thread, other than those of heading 60.01.	37,252	62,045	60%	0.01%

Source: COMTRADE.

Table 8.6 depicts Tunisia's top 10 imports of textiles, leather, clothing products. These are mainly products that function as inputs for further manufacturing. For example, a large part of the overall leather imports is processed leather (HS 4107), taking a share in the GTAP sector of ca. 27%. Other imports are mainly in the textiles sector coming from the EU (see high EU shares in total imports). This reflects the production structures that have been established through the OPT arrangements; i.e. capital intensive production of some textile products being mainly based in the EU.

**Table 8.6 Top 10 Tunisian textiles, clothing and leather imports (2012)**

Code	Description	Tunisian import EU	Tunisian imports World	% EU	GTAP Share (world)
5209	Woven fabrics of cotton, containing 85 % or more by weight of cotton, weighing more than 200 g/m2.	83,427,129	131,865,589	63%	11.88%
5208	Woven fabrics of cotton, containing 85 % or more by weight of cotton, weighing not more than 200 g/m2.	49,018,798	58,024,875	84%	5.23%
4107	Leather further prepared after tanning or crusting, including parchment-dressed leather, of bovine (including buffalo) or equine animals, without hair on, whether or not split, other than leather of heading 41.14.	47,447,350	54,793,979	87%	26.95%
5407	Woven fabrics of synthetic filament yarn, including woven fabrics obtained from materials of heading 54.04.	43,769,107	85,087,481	51%	7.66%
6004	Knitted or crocheted fabrics of a width exceeding 30 cm, containing by weight 5 % or more of elastomeric yarn or rubber thread, other than those of heading 60.01.	33,410,116	41,233,794	81%	3.71%
5211	Woven fabrics of cotton, containing less than 85 % by weight of cotton, mixed mainly or solely with man-made fibres, weighing more than 200 g/m2.	26,100,577	47,907,913	54%	4.31%
5512	Woven fabrics of synthetic staple fibres, containing 85 % or more by weight of synthetic staple fibres.	17,489,006	18,871,784	93%	1.70%
6109	T-shirts, singlets and other vests, knitted or crocheted.	12,374,944	19,743,848	63%	1.78%
6203	Men's or boys' suits, ensembles, jackets, blazers, trousers, bib and brace overalls, breeches and shorts (other than swimwear).	6,390,998	28,320,040	23%	13.52%
6110	Jerseys, pullovers, cardigans, waistcoats and similar articles, knitted or crocheted.	4,916,416	12,344,192	40%	1.11%

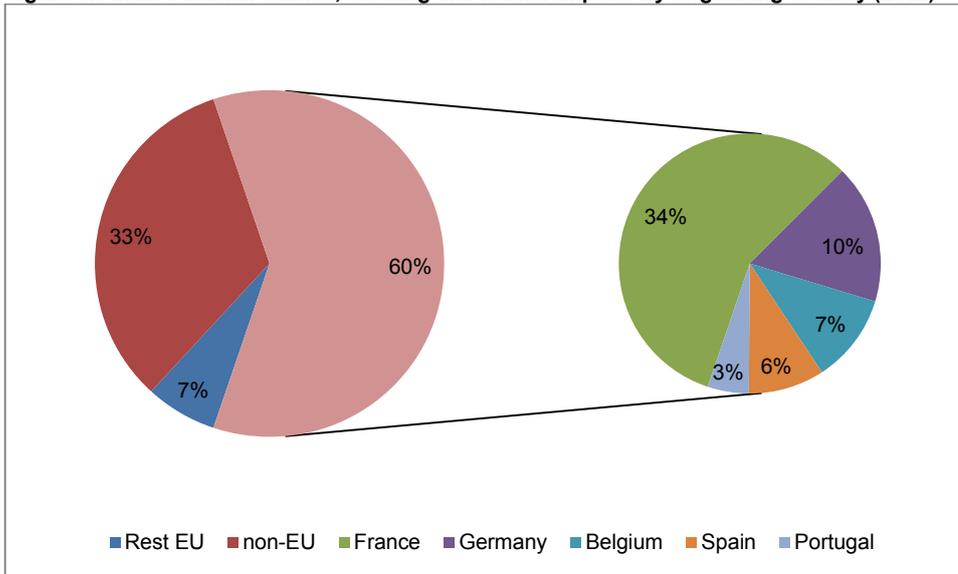
Source: COMTRADE .

As mentioned above, these production structures that have established over time are also confirmed by the overall trade deficit in the textiles. Trade in the other two industries, leather and clothing, is characterised by a trade surplus on the Tunisian side (combined ca. €2 billion).

### Main trading partners

In terms of imports the vast majority (67%) originates from the EU. France, Germany, and Belgium are the biggest EU exporters of textiles, clothing and leather products to Tunisia accounting for approximately 41% of total imports in this sector. Textile, leather, and clothing imports from non-EU countries constitute a third of total imports, highlighting the EU focus and dependency of the industry.

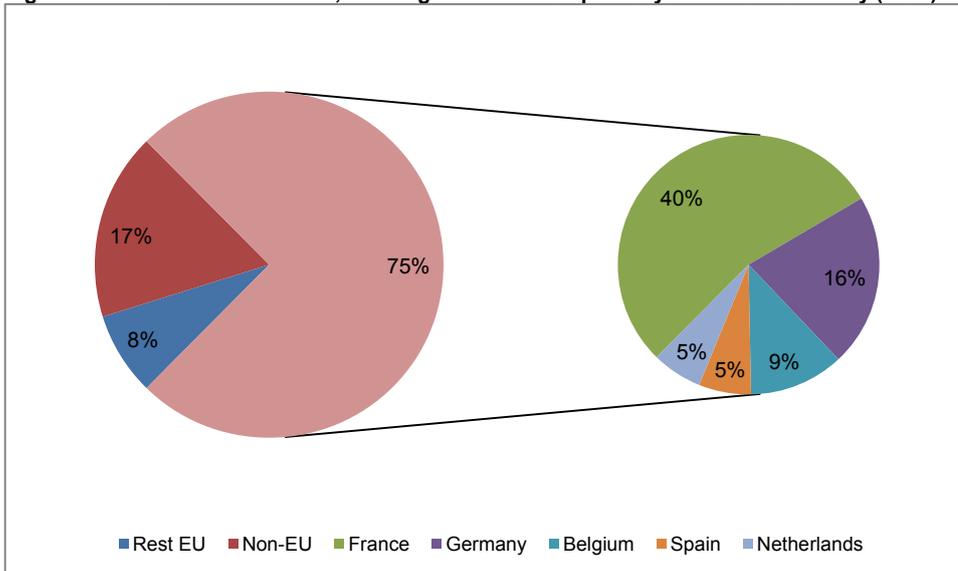
**Figure 8.3 Main Tunisian textiles, clothing and leather imports by originating country (2012)**



Source: COMTRADE.

This EU focus is also evident by the share of exports where in 2012 83% of all textiles, clothing and leather exports from Tunisia were headed for the EU market. Particularly, France and Germany are important markets for Tunisian exporters accounting for a combined share of 56% of total sectoral exports. In contrast to exports of neighbouring country Morocco, Spain does not play such a prominent role.

**Figure 8.4 Main Tunisian textiles, clothing and leather exports by destination country (2012)**



Source: COMTRADE.

## 8.2 Market access in the textiles, clothing and leather sector

### 8.2.1 Market access in Tunisia

Tunisia benefits from the Association Agreement with the EU from the year 2000. This has resulted in phasing out of tariffs until in 2008 all zero tariffs was applied on the trade of textile, leather and clothing products between the EU and Tunisia. As a consequence imports from the EU fall under the zero tariff.

Nevertheless EU exporters also face a number of non-tariff measures (NTM) when exporting to Tunisia. The data on these has been retrieved from the TRAINS database. NTMs were mapped to products on the HS6 level. The first column presents a NTM code and the second column gives a short description.

**Table 8.7 Top 10 Tunisian market access requirements for textiles, leather and clothing**

NTM Code	NTM Description
F200	<b>Voluntary export-price restraints (VEPRs):</b> An arrangement in which the exporter agrees to keep the price of the goods above a certain level: 5 A VEPR process is initiated by the importing country and is thus considered as an import measure.
B830	<b>Certification requirement:</b> Certification of conformity with a given regulation: required by the importing country but may be issued in the exporting or the importing country.
B840	<b>Inspection requirement:</b> Requirement for product inspection in the importing country – may be performed by public or private entities. It is similar to testing, but does not include laboratory testing.
F410	<b>Customs surcharges:</b> An ad hoc tax levied solely on imported products in addition to customs tariff to raise fiscal revenues or to protect domestic industries.
G300	<b>Regulation on official foreign exchange allocation</b>
B852	<b>Processing history:</b> Disclosure of information on all stages of production: may include their locations, processing methods and/or equipment and materials used.
B300	<b>Labelling, marking and packaging requirements:</b> Measures regulating the kind, colour and size of printing on packages and labels and defining the information that should be provided to the consumer. Labelling is any written, electronic, or graphic communication on the packaging or on a separate but associated label, or on the product itself. It may include requirements on the official language to be used as well as technical information on the product, such as voltage, components, instruction on use, safety and security advice.
B800	<b>Conformity assessment related to TBT:</b> Requirement for verification that a given TBT requirement has been met: This could be achieved by one or combined forms of inspection and approval procedure, including procedures for sampling, testing and inspection; evaluation, verification and assurance of conformity; accreditation and approval.
B820	<b>Testing requirement:</b> A requirement for products to be tested against a given regulation, such as performance level – includes sampling requirement.
P130	<b>Licensing- or permit requirements to export:</b> A requirement to obtain a licence or a permit by the government of the exporting country to export products.

Source: TRAINS Non-Tariff Measures.<sup>213</sup>

Table 8.8 below illustrates that these NTMs are mostly focused on key Tunisian industries, where the authorities are keen to provide support.

**Table 8.8 Effective applied Non-tariff measures for Tunisian imports of textiles, clothing and leather from EU (2011)**

Product Name	Number of NTM
Raw textiles	3
Textiles	12
Clothing	11
Leather & leather products	9

Source: TRAINS Non-Tariff Measures.

<sup>213</sup> The World Integrated Trade Solution user manual highlights that “Non-tariff measure data can be retrieved from Tariff - View and Export Raw Data. However, this information is often old and only partially reported, and should be used with caution.”

### 8.2.2 Market access in the EU

The EU has a long history in the production and trade of textiles and apparel and up till the late 1990s was still the second largest exporter of textiles and clothing products. However, with the expiration of the Multi-Fibre Agreement (MFA) in 2005<sup>214</sup>, which eliminated the use of quotas, the sector faced increased competition and import penetration increased rapidly. Imports have shown a constant increase, reaching €79.2 billion in 2008.

By 2011, extra EU imports of textiles and clothing amounted to €53 billion and €68 billion respectively, while exports stood at €22 billion for textiles and €18 billion for clothing. In 2012, imports of leather products have been declining by €6 billion from €32 billion in 2011. The overall trade deficit for 2012 in textiles, clothing and leather was €95 billion and €86 billion in 2011 and 2012, respectively.

Table 8.9 below provides an overview of the main suppliers of textiles and clothing to the EU27 for 2011 and 2012. Whereas in 2011 Tunisia was still one of the top 5 suppliers for textiles and leather products, their position deteriorated in 2012, when in textiles they ranked 14<sup>th</sup> (exports about one-sixth of their value in 2011) and in leather they ranked 9<sup>th</sup> (exports about half their value in 2011). Also in clothing its position slightly deteriorated; decreasing from 6 to 8 from 2011 to 2012, reflecting a decrease in exports of around €750 million in value terms.

**Table 8.9 Main countries of origin for EU textiles, clothing and leather imports (2011-2012), in million €**

EU Imports	2011	2012	
<b>Textiles</b>			
China	31,798	China	14,699
Turkey	6,440	Turkey	7,075
India	5,455	Bangladesh	4,610
Bangladesh	5,453	India	3,149
Tunisia	2,392	Pakistan	1,905
<b>Clothing</b>			
China	18,469	China	25,543
Turkey	8,469	Turkey	5,918
Bangladesh	5,282	Bangladesh	5,763
India	4,369	India	4,282
Pakistan	2,647	Morocco	2,056
<b>Leather</b>			
China	16,675	China	14,902
Vietnam	3,609	Vietnam	3,616
India	2,444	India	1,915
Indonesia	1,676	Indonesia	1,746
Tunisia	639	Brazil	447

Source: COMTRADE.

### EU's import tariffs towards Tunisia

Tunisia benefits from the Association Agreement with the EU from the year 2000. This has resulted in phasing out of tariffs until in 2008 all zero tariffs was applied on the trade of textile, leather and

<sup>214</sup> The MFA governed the world trade in textiles and clothing from 1974 through 2004, imposing quotas on the amount developing countries could export to developed countries, such as notably the EU countries. At the General Agreement on Tariffs and Trade (GATT) Uruguay Round, it was decided to bring the textile trade under the jurisdiction of the WTO. The Agreement on Textiles and Clothing (ATC) provided for the gradual dismantling of the quotas that existed under the MFA. This process was completed on 1 January 2005.

clothing products between the EU and Tunisia. Due to the “rules of origin (RoO)” this only applies to products that have been either entirely made in Tunisia, or have undergone two significant transformations, before it can be considered Tunisian and benefit from zero tariffs. However, there is a so-called bilateral cumulation, meaning that if the imported inputs are from the EU and not a third country, these will also be considered Tunisian. More recently, with the Pan-Euromed Rules of Origin, inputs can also be sourced from the region.

From the interviews it becomes apparent that the vast majority of exporting companies use this clause, mainly importing their textiles from the EU and therefore benefit from the zero tariff. And since 88% of all Tunisian exports head for the EU, we can say that the majority of Tunisian textile, leather and clothing goods also benefit from these zero tariffs.

However, several NTMs still exist to all textile, leather and clothing goods entering the EU. Table 8.10 below shows that products in the textile industry in particular are subject to labelling and testing requirements. Product quality, inspection, and certification requirements are more relevant for the clothing sector. In addition, some leather products are subject to prohibitions due to TBT reasons, as well as restrictions in the use of certain substances. The latter also applies to some textile products. This could for example be due to certain substances used in the colouring process entailed in the production of the two product categories.<sup>215</sup>

**Table 8.10 Top 15 EU market access requirements for textiles, clothing and leather**

NTM Code	NTM Description
B310	<b>Labelling requirements:</b> Measures regulating the kind, colour and size of printing on packages and labels and defining the information that should be provided to the consumer. Labelling is any written, electronic, or graphic communication on the packaging or on a separate but associated label, or on the product itself. It may include requirements on the official language to be used as well as technical information on the product, such as voltage, components, instruction on use, safety and security advice.
B820	<b>Testing requirement:</b> A requirement for products to be tested against a given regulation, such as performance level – includes sampling requirement.
B700	<b>Product-quality or -performance requirement:</b> Conditions to be satisfied in terms of performance (e.g. durability, hardness) or quality (e.g. content of defined ingredients).
B830	<b>Certification requirement:</b> Certification of conformity with a given regulation: required by the importing country but may be issued in the exporting or the importing country.
B840	<b>Inspection requirement:</b> Requirement for product inspection in the importing country – may be performed by public or private entities. It is similar to testing, but does not include laboratory testing.
E220	<b>Seasonal quotas:</b> Quotas of a permanent nature (i.e. they are applied every year, without a known date of termination of the measure), where the importation must take place during a given period of the year.
C400	<b>Import-monitoring and -surveillance requirements and other automatic licensing measures:</b> Administrative measures which seek to monitor the import value or volume of specified products.
B110	<b>Prohibition for TBT reasons:</b> Import prohibition for reasons set out in B1.
B220	<b>Restricted use of certain substances:</b> Restriction on the use of certain substances as components or material to prevent the risks arising from their use.
B320	<b>Marking requirements:</b> Measures defining the information for transport and customs that the transport/distribution packaging of goods should carry.

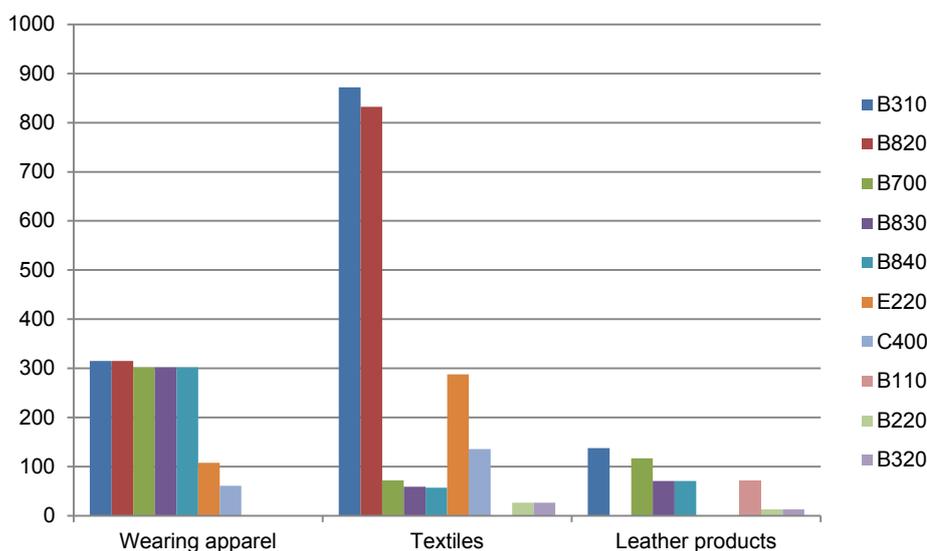
<sup>215</sup> TRAINS does not specify whether the reported TBT measures are due to the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH). However, textile and leather products may contain Substances of Very High Concern (SVHC) regulated by REACH.

NTM Code	NTM Description
A120	<b>Geographical restrictions on eligibility:</b> Prohibition of imports of specified products from specific countries or regions due to lack of evidence of sufficient safety conditions to avoid sanitary and phytosanitary hazards: The restriction is imposed automatically until the country proves employment of satisfactory sanitary and phytosanitary measures to provide a certain level of protection against hazards that is considered acceptable. Eligible countries are put on a “positive list”. Imports from other countries are prohibited. The list may include authorized production establishments within the eligible country.
E381	<b>Prohibition for religious, moral or cultural reasons</b>
B420	<b>TBT regulations on transport and storage:</b> Requirements on certain conditions under which products should be stored and/or transported.
H120	<b>Sole importing agency</b>

Source: TRAINS Non-Tariff Measures.

The delineation and frequency of these restrictions is evident in the figure below, where the vast majority of them are focused on wearing apparel and textiles.

**Figure 8.5 Top 10 EU market access requirements per sub-sector**



Comparing the market access requirements of the EU and Tunisia it becomes clear that the EU is focussing strongly on quality aspect of the products that are accessing the markets. Adhering to these quality (including health and safety standards) and sustainability requirements is posing a challenge, particularly for SMEs, to export their products to the EU.

In contrast, EU exporters to Tunisia generally face charges that could not only restrict access to the market, but also increase the final price to be paid by consumers as well as producers being dependent on input sourcing.

## 8.3 Impact assessment of the textiles, clothing and leather sector

### 8.3.1 *Economic impact*

The tables below provide a summary overview of the CGE results for the textiles, clothing and leather sectors, broken down by main sources of the effects (i.e. tariff reductions, NTM removal, services liberalisation and spillovers).

The results of the model show that with a trade agreement output and value added in all three subsectors is expected to fall both in the short-term as well as in the long-term. Both skilled and unskilled employment is likely to decrease, similar to the amount of exports to the EU. On the other hand imports, as well as consumer prices, face a significant increase.

These result might seem rather counter intuitive at first, but can largely be explained by the assumptions in the model: The model assumes full employment, which means that any additional demand for products and therefore labour will result in an increase of overall wages and not in job creation. This means that changes in the labour force depicted in the tables below explain labour displacement, i.e. inter-sectoral shifts in the labour force.

The textile, clothing and leather sectors already benefit from low barriers to trade, and therefore it is expected to benefit relatively less from the DCFTA as compared to other sectors, which will see relatively larger increase in market access to the EU. This may cause the Tunisian textile, leather and clothing sectors to become relatively less competitive compared to these other industries. Employment in the textiles, clothing and leather sectors is likely to decrease, as workers may shift to other sectors, which are expected to experience value added growth. These sectors need to attract workers to expand their production. This process is accompanied by likely increases in wages.

In reality this assumption of full employment does not hold. In fact in July 2013 the unemployment rate in Tunisia was around 16% (according to the Tunisian National Statistics Office). This would suggest, that rather than push up wages, the trade agreement would at macro level stimulate production and lead to more employment, and that wages would not increase as much as the CGE model predicts. For the sectors under study in this chapter, it means that there may not be as much competition for workers as predicted by the model, and therefore output and employment decreases could be less than predicted. The extent to which the changes will be less than predicted is however difficult to say.

Having said that, it should be noted that the highly price sensitive business model that the sector currently pursues is relatively volatile to any changes in the cost structure of the business and therefore rather risky for the industry as a whole. One possible way how to mitigate such risks is to increase the value added of the products, e.g. by increasing the quality or creation of unique characteristics for which consumers are willing to pay a premium. In another words if Tunisian clothing products become more unique with a higher value added, they will be valued and purchased by the customers even if the price of them increases. Following our discussion with the stakeholders, it became apparent that they are aware of the situation and are indeed attempting to pursue a path towards increasing the value added of their products.

**Table 8.11 Summarised CGE results for Tunisia textiles sector**

Indicators	baseline		short-run (% change)					long-run (% change)				
			tariffs	Goods NTMs	Serv. NTMs	Spillover	total	tariffs	Goods NTMs	Serv. NTMs	Spillover	total
Skilled employment	0.8%	Shares (%)	-5.5	-11.1	0.1	-2.4	-19.0	-5.5	-11.1	0.1	-2.4	-18.8
Unskilled employment	2.0%	Shares (%)	-5.9	-10.8	0.1	-2.0	-18.7	-5.9	-10.8	0.1	-2.0	-18.5
Value added	1.7%	Shares (%)	-5.9	-11.4	0.1	-2.1	-19.3	-4.7	-10.0	0.2	-1.1	-15.6
Output	1.7%	Shares (%)	-5.8	-11.2	0.1	-2.0	-18.9	-4.5	-9.7	0.2	-1.0	-15.1
Total imports	1,935.2	Million €	0.9	4.4	0.0	0.2	5.5	1.6	5.3	0.1	0.8	7.7
Total exports	842.5	Million €	-2.9	-2.4	0.1	-0.8	-6.0	-2.1	-1.3	0.1	-0.2	-3.5
Exports to EU	788.1	Million €	-4.7	-3.8	0.1	-1.1	-9.4	-2.4	-2.6	0.1	-0.4	-5.3
Consumer price	100	Base index	-0.2	0.6	0.0	-0.1	0.3	-0.3	0.6	0.0	-0.2	0.1
Producer price	100	Base index	0.1	1.8	-0.2	-0.3	1.4	1.7	3.9	-0.1	1.0	6.6

Source: In-House CGE calculations.

**Table 8.12 Summarised CGE results for Tunisia clothing sector**

Indicators	baseline		short-run (% change)					long-run (% change)				
			tariffs	Goods NTMs	Serv. NTMs	Spillover	total	tariffs	Goods NTMs	Serv. NTMs	Spillover	total
Skilled employment	1.0%	Shares (%)	-1.9	-2.8	0.0	-1.1	-5.9	-2.2	-3.3	0.0	-1.4	-6.9
Unskilled employment	2.7%	Shares (%)	-2.3	-2.4	0.0	-0.7	-5.4	-2.6	-2.9	0.0	-0.9	-6.4
Value added	2.2%	Shares (%)	-2.0	-2.5	0.0	-0.7	-5.2	-1.1	-1.4	0.1	0.0	-2.4
Output	2.2%	Shares (%)	-1.9	-2.2	0.0	-0.6	-4.6	-1.0	-1.0	0.1	0.1	-1.8
Total imports	326.7	Million €	6.4	15.4	0.0	2.7	24.5	6.7	15.8	0.0	2.9	25.4
Total exports	2,385.4	Million €	-1.6	0.2	0.0	-0.6	-2.0	-0.9	1.1	0.1	0.0	0.3
Exports to EU	2,306.3	Million €	-1.9	-1.1	0.0	-0.8	-3.8	-1.0	-0.1	0.1	-0.1	-1.2
Consumer price	100	Base index	-0.1	0.8	0.0	-0.1	0.6	-0.2	0.7	0.0	-0.1	0.4
Producer price	100	Base index	1.4	2.7	0.0	0.3	4.5	1.5	2.8	0.0	0.4	4.7

Source: In-House CGE calculations.

**Table 8.13 Summarised CGE results for Tunisia leather sector**

Indicators	baseline		short-run (% change)					long-run (% change)				
			tariffs	Goods NTMs	Serv. NTMs	Spillover	total	tariffs	Goods NTMs	Serv. NTMs	Spillover	total
Skilled employment	0.3%	<i>Shares (%)</i>	-4.8	-10.3	0.1	-2.0	-17.1	-4.3	-9.8	0.1	-1.3	-15.4
Unskilled employment	0.8%	<i>Shares (%)</i>	-5.2	-10.0	0.1	-1.6	-16.8	-4.7	-9.5	0.1	-1.3	-15.4
Value added	1.1%	<i>Shares (%)</i>	-5.1	-10.7	0.1	-1.7	-17.4	-3.0	-8.2	0.2	0.0	-11.1
Output	1.1%	<i>Shares (%)</i>	-4.9	-10.5	0.1	-1.6	-17.0	-2.9	-8.0	0.2	0.0	-10.7
Total imports	416.9	<i>Million €</i>	6.2	13.8	0.0	1.6	21.6	6.5	14.3	0.0	1.8	22.7
Total exports	709.5	<i>Million €</i>	-2.5	-4.1	0.1	-1.4	-7.9	-0.7	-1.9	0.1	0.0	-2.5
Exports to EU	655.9	<i>Million €</i>	-7.1	-5.4	0.1	-1.8	-14.2	-0.8	-3.0	0.2	-0.2	-3.9
Consumer price	100	<i>Base index</i>	2.2	3.4	0.0	0.3	5.8	2.1	3.2	0.0	0.2	5.5
Producer price	100	<i>Base index</i>	-0.6	0.4	0.0	0.0	-0.2	-0.7	0.3	0.0	-0.1	-0.6

Source: In-House CGE calculations.

### 8.3.2 *Social impacts and human rights issues*

The Free Trade agreement is expected to decrease the employment in the sector, although the decline may be less than predicted by the model. If the effects of the DCFTA would indeed be negative, this could put wages and labour conditions under pressure, implying a negative social impact. In addition, as many workers in the sector have low skill levels, it is difficult for them to move to other sectors.

Depending on whether and how the sector benefits from overall wage increases, purchasing power of workers in the sector may decrease. This stems from the fact that labour is likely to shift towards sectors where output increases. Nevertheless, as explained above the full employment condition in the CGE model in combination with the current unemployment rate in Tunisia might lead to an overstatement of labour shifting away from the textiles, clothing and leather sector.

### 8.3.3 *Environmental impact*

The main environmental issues related to textiles, leather sector and its use of chemicals and water in several processes, such as washing, dyeing and finishing of textiles and leathers. If not adequately discarded and treated, chemicals and waste water can leak into the surrounding areas and cause pollution of ground and surface waters as well as soil pollution. This can not only directly affect people's health and quality of life, but also other industries such as the agricultural sector, which is heavily dependent on the quality of the soil.

As production of the sectors is expected to decline by the CGE results (although the decline may in reality not be as large as predicted as indicated above), the sector is also expected to have less of an impact on Tunisia's environment. Technical Barriers to Trade that will be part of the DCFTA may also limit some of the pollution effects. Although not explicitly mentioned in the TRAINS NTM database it can be assumed that TBTs in the textiles and leather industries are connected to REACH and the Biocidal Product Regulation. Use of chemicals falling under these regulations is expected to decrease to guarantee seamless market access to the EU.

## 8.4 **Conclusions**

The textiles, clothing and leather industry is one of the biggest in Tunisia and hugely important not only for the economic productivity of the country as a whole, but also in terms of the employment that it provides. The industry is mainly focused on exporting the goods to the EU and as a result is rather susceptible to importing market conditions that occur in the EU. The fact that the industry has been particularly hard hit by the last EU crisis indicates that it still maintains to be rather low skilled, assembly operations, which are very price sensitive. The revolution may also have affected its export performance in recent years.

Nevertheless the industry is rather competitive and remains among the largest textiles, clothing and leather exporters to the EU. With ample labour market capacity, its existing infrastructure and proximity to the EU the future outlook on the industry appears positive.

The CGE models predicts the sectors to decline, but our analysis has shown that this is partly due to the underlying assumptions of the model. It is difficult to predict what would happen if the underlying assumptions would be changed, but given that the sector already has relatively good access to the EU market, we would not expect major effects.

Having said that there are still major social issues in the sector. In particular the working conditions, temporary contracts and compensation of the workforce. Real environmental risk must also be minimised to prevent water and soil pollution as well as worsening the already persistent water scarcity in the country.

### Policy implications

The main policy implications for the negotiations and implementation of the DCFTA for the textiles, clothing and leather sectors can be summarised as follows.

**Table 8.14 Policy recommendations for the textiles, clothing and leather sectors**

Policy measure	Potential to address	
	Within DCFTA	Outside DCFTA
Monitor social and environmental effects in the sector.	√	√
Promote corporate social responsibility.	√	√
Promote investments in the sector to upgrade processes and products, potentially allowing for the move away from (dependent) subcontracting and consequently perform more activities along the value chain.		√
Establish streamlined support structures for Tunisian firms, particularly SMEs, to enhance their understanding of EU market access requirements.		√
Facilitate the sectoral upgrading process by providing suitable training and workshops that lead to more innovation and use of modern production techniques.		√

Given the uncertainty among the sectoral impact of the DCFTA and the current social and environmental issues in the sector, it would be important to monitor the social and environmental developments in the sector. In terms of social developments it is of particular interest whether the DCFTA provides a suitable framework and incentive for EU importers to demand proof from Tunisian suppliers, i.e. possibly a social code of conduct, guaranteeing that labour rights have been adhered to in the part of the supply chain under their control. Especially, this refers to subcontractors and their working conditions, including for example working hours and share of regular employment. Another, more direct measure of this is the promotion of Corporate Social Responsibility. This reaches much further than labour rights and also tackles environmental issues, such as the sustainable use of raw materials and waste as by-products created in the production process.

Given the price sensitivity of the sector and the limited added value, upgrading processes and products in the sector would help to increase the value added of the sector. This needs to be facilitated by measures that enhance the understanding of value creation by the means of innovation and use of modern production techniques. This is particularly true given price competitive products from Asia and increased domestic competition by relatively high value EU products. Tunisian companies need to be supported in building business models that tackle these challenges.

In addition, given the high percentage of SMEs in the sector, support measures need to be in place that increase the understanding of EU market access requirements. Typically, SMEs find it difficult to comply with these rules. However, for the DCFTA to have a significant and far-reaching impact these type of companies need to enjoy the benefits of liberalised trade, as well.

It should be noted that part of the recommendations in this chapter for textile and clothing sector are already covered by the existing Euro-Mediterranean Dialogue on textile and clothing industry, the European Commission has been carrying out with Mediterranean partner countries since 2004<sup>216</sup>. The dialogue provides a platform for an exchange of experiences, good practice and information on available instruments and initiatives to improve the competitiveness of the textile and clothing industry across the Euro-Mediterranean Area. The participants represent national administrations, industrial associations, chambers of commerce, enterprises, trade unions, and research and educational centres involved with textile and clothing sector from EU Member States, Mediterranean partner countries and, recently, Western Balkans. Tunisia has been involved with the activities of the Dialogue in various themes such as opportunities and challenges in textile and clothing across the Euro-Mediterranean Region, research and innovation in technical textiles, skills development and social dialogue, capacity building for textile and clothing in the Euro-Mediterranean Area. The DCFTA might further stimulate this dialogue leading to a sustainable development of the sector in the Mediterranean.

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<sup>216</sup> [http://ec.europa.eu/enterprise/sectors/textiles/external-dimension/euro-mediterranean-region/index\\_en.htm](http://ec.europa.eu/enterprise/sectors/textiles/external-dimension/euro-mediterranean-region/index_en.htm).

## 9 Retail trade

This chapter provides an assessment of the DCFTA impacts on the retail trade sector. We start, however, with a brief overview of the broader 'trade' sector (hereafter, 'Combined Trade'), which corresponds *grosso modo* with the category of 'trade' – which encompasses retail and wholesale distribution and hotels and restaurants – used in the CGE modelling for assessing the overall impacts of the DCFTA.

### 9.1 Structure and performance of the 'Combined Trade' sector in Tunisia

The 'combined trade' sector in Tunisia consists of nearly 290 thousand enterprises, of which the vast majority (90%) are engaged in retail and wholesale distribution (see Table 9.1). Taken together, the 'combined trade' sector accounts for nearly half (48.1%) of enterprise in Tunisia. In terms of employment, it is important to make a distinction between the number of salaried employees and the overall number of persons working in the sector. In percentage terms the weight of the 'combined trade' sector is broadly similar, accounting for close to 16% of the active population and 18% of salaried employment. In absolute numbers, however, there is a considerable difference: in total, nearly half a million (498,200) persons are occupied in the 'combined trade' sector<sup>217</sup>, of which only 176 thousand are salaried employees.

The marked difference between the number of persons occupied in the 'combined trade' sector and the number of salaried employees is also reflected in the size distribution of enterprises. As shown in **Table 9.2**, nearly 90% of enterprises in the sector are recorded as having no employees, reflecting the very high proportion of small 'traditional' businesses run by families and individuals that do not formally employ salaried workers. In fact, less than 1% of enterprises in the 'combined trade' sector have more than 10 employees. At the upper end of the scale, there are only 110 enterprises recorded as having more than 200 employees, of which only 11 enterprises are in the 'retail distribution' sector.

In terms of value-added, the 'combined trade' sector generated around € 4.5 billion of value added in 2012, (see Table 9.3) of which 'retail trade and distribution' contributed roughly two-thirds of the total and 'hotels and restaurants' roughly one-third. Overall, the sector contributes around one eighth of total gross value added (GVA) in the Tunisian economy. Since 2000, the share of 'retail and wholesale distribution' (excluding repair and maintenance) in total GVA has remained relatively stable at between 7 to 8% (see Figure 9.1). By contrast, the share of 'hotels and restaurants' has declined somewhat; in 2000 the sector accounted for close to 6% of total GVA but fell to only 4% in 2011, undoubtedly due to the impact of the political turmoil in the country that adversely affected the tourism sector. In fact, the GVA generated by the 'hotels and restaurants' sector is estimated to have fallen by approximately one-fifth (20.7%) between 2010 and 2011, although it did rebound somewhat in 2012 (see Figure 9.2).

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<sup>217</sup> Data for 2012 indicate that the total number of persons occupied in the 'combined trade' sector exceeded half a million (513 thousand).

**Table 9.1 Combined Trade Sector: number of enterprises and employees by sub-sector (2011)**

	Enterprises			Employees (salaried)			Persons occupied		
	Number (1000)	Share of total trade	Share of total	Number (1000)	Share of total	Share of total	Number (1000)	Share of total trade	Share of total
Retail and wholesale distribution	261.6	90.2%	43.4%	113.8	64.7%	11.6%	387.8	77.8%	12.3%
Sale and repair of motor vehicles	24.8	8.5%	4.1%	17.4	9.9%	1.8%			
Wholesale trade and intermediaries	35.6	12.3%	5.9%	52.1	29.6%	5.3%			
Retail trade and repair of household articles	201.3	69.4%	33.4%	44.3	25.2%	4.5%			
Hotels and restaurants	28.3	9.8%	4.7%	62.2	35.3%	6.4%	110.4	22.2%	3.5%
<b>Total Combined Trade</b>	<b>289.9</b>	<b>100.0%</b>	<b>48.1%</b>	<b>176.0</b>	<b>100.0%</b>	<b>18.0%</b>	<b>498.2</b>	<b>100.0%</b>	<b>15.8%</b>

Source: Institut National de la Statistique (INS).

**Table 9.2 Combined Trade Sector: size distribution of firms (2011)**

	Size class (number of employees)						Total
	None	< 10	10-50	51-100	101-200	>200	
Retail and wholesale distribution	238,273 (91.1%)	21,416 (8.2%)	1,682 (0.6%)	157 (0.1%)	62 (0.0%)	38 (0.0%)	261,628 (100.0%)
Sale and repair of motor vehicles	21,088 (85.1%)	3,278 (13.2%)	376 (1.5%)	20 (0.1%)	11 (0.0%)	5 (0.0%)	24,778 (100.0%)
Wholesale trade and intermediaries	27,855 (78.3%)	6,653 (18.7%)	932 (2.6%)	99 (0.3%)	34 (0.1%)	22 (0.1%)	35,595 (100.0%)
Retail trade and repair of household articles	189,330 (94.1%)	11,485 (5.7%)	374 (0.2%)	38 (0.0%)	17 (0.0%)	11 (0.0%)	201,255 (100.0%)
Hotels and restaurants	20,919 (74.0%)	6,779 (24.0%)	347 (1.2%)	73 (0.3%)	75 (0.3%)	72 (0.3%)	28,265 (100.0%)
<b>Total Combined Trade</b>	<b>259,192 (89.4%)</b>	<b>28,195 (9.7%)</b>	<b>2,029 (0.7%)</b>	<b>230 (0.1%)</b>	<b>137 (0.0%)</b>	<b>110 (0.0%)</b>	<b>289,893 (100.0%)</b>

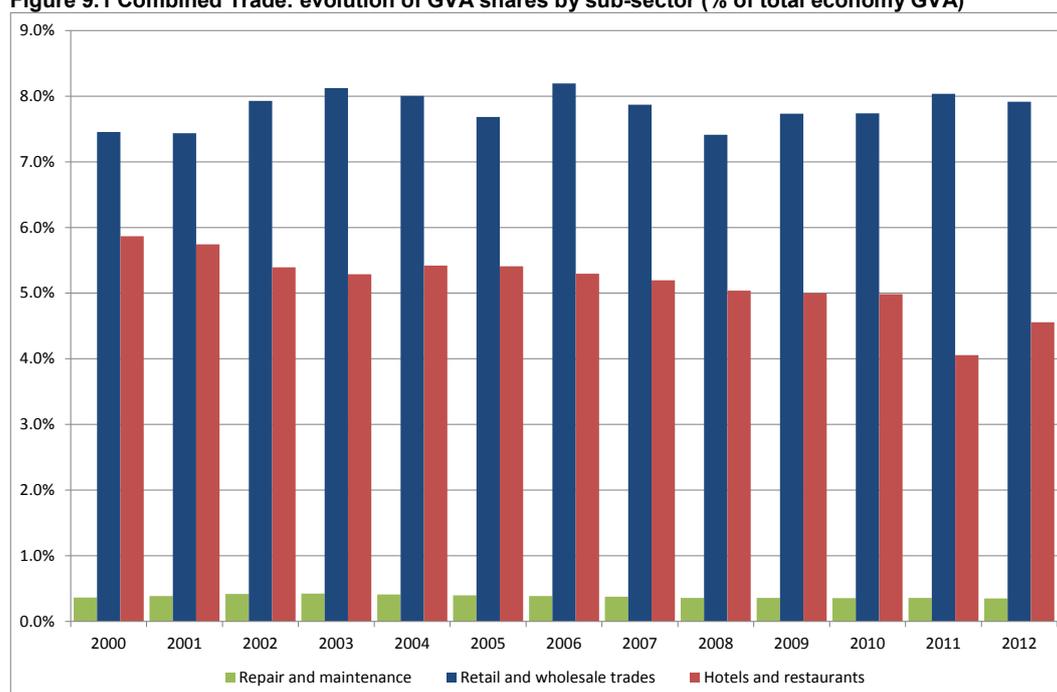
Source: Institut National de la Statistique (INS).

**Table 9.3 Combined Trade Sector: value-added by sub-sector**

	2011			2012		
	€ million	Share of total trade	Share of total	€ million	Share of total trade	Share of total
Retail and wholesale distribution	2,786	67.4%	8.4%	2,898	64.5%	8.3%
Repair and maintenance	119	2.9%	0.4%	123	2.7%	0.4%
Wholesale and retail trade	2,667	64.5%	8.0%	2,775	61.7%	7.9%
Hotels and restaurants	1,347	32.6%	4.1%	1,598	35.5%	4.6%
Total Combined Trade	4,133	100.0%	12.5%	4,496	100.0%	12.8%

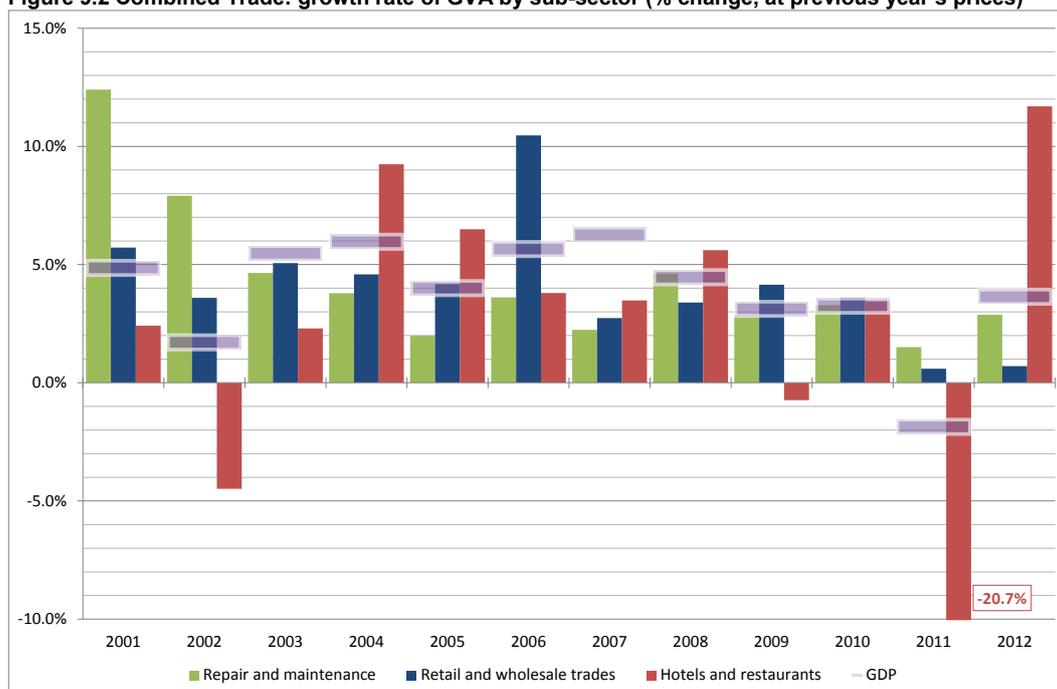
Source: Institut National de la Statistique (INS).

**Figure 9.1 Combined Trade: evolution of GVA shares by sub-sector (% of total economy GVA)**



Source: Institut National de la Statistique (INS).

**Figure 9.2 Combined Trade: growth rate of GVA by sub-sector (% change, at previous year's prices)**



Source: Institut National de la Statistique (INS).

## 9.2 The retail sector in Tunisia

### 9.2.1 Structure of the retail sector in Tunisia

As we have seen in the previous sub-section, the Tunisian retail distribution sector (excluding motor vehicles) is composed of over 200 thousand enterprises and has an estimated workforce of around 250 to 300 thousand persons. As has also been shown, the overwhelming majority of enterprises in the sector are very small, essentially consisting of individual family-owned 'traditional' shops. The small shops typically have a selling area of less than 50m<sup>2</sup> and cater to daily needs of clients from their local neighbourhood.

At the other end of the spectrum, the present evolution of modern retailing in Tunisia can be traced back to the turn of the millennium. The year 2001 saw the opening of the first hypermarket (Carrefour), with a second opened in 2005 (Géant)<sup>218</sup>. Alongside these two hypermarkets, the number of supermarkets (500-2,000m<sup>2</sup>) is estimated to be around 200. The opening of these hypermarkets and a number of new 'modern' supermarkets had repercussion throughout the grocery retailing sector. Specifically, it stimulated a general modernisation effort within the sector, both in terms of building renovation and investments in new equipment and in terms of improvements in customer services. Overall, this resulted in a general upgrading of standards within the 'modern' segment of the retail sector to somewhere approaching EU levels. At the same time, heightened competition in the sector brought about a wave of concentration, with many smaller business chains (e.g. with less than 3 or 4 supermarkets) being taken over or going out of business.

Today, three main companies have emerged as the market leaders the super/hyper market segment (*grande distribution*), namely Group Mabrouk (Monoprix, Géant), Ulysse Hyper

<sup>218</sup> Both these stores operate under licensing agreement with the French brand owners. Although there can be technical cooperation between the licence partners, the stores are owned and operated by independent Tunisian companies (i.e. they are not subsidiaries of the French brand owners).

Distribution<sup>219</sup> (Carrefour, Carrefour Market, Carrefour Express) and Magasin Général Group<sup>220</sup>. Both Group Mabrouk and Ulysse Hyper Distribution operate their store brands under licence from the respective French brand owners (cf. Casino and Carrefour). Jointly, these three leading Tunisian retailer groups are estimated to have a market share of over 90% of the modern grocery retailing sector. Despite this, it is estimated that share of modern retailing in the total retail market remains relatively small, at only 15 to 20 percent of total retail sales; see Table 9.4. for market share estimates of the leading retailers in Tunisia.

**Table 9.4 Top ten retailing companies in Tunisia, ranked by share of total retail sales**

Company	Main Brands	% retail value (excl sales taxes)	Outlets
Group Mabrouk	Of which:	4.2	71
	<i>Monoprix</i>	3.3	70
	<i>Géant</i>	1.0	1
Ulysse Hyper Distribution	Of which:	3.6	118
	<i>Carrefour</i>	1.7	1
	<i>Carrefour Market</i>	1.5	48
	<i>Carrefour Express</i>	0.3	15
Magasin Général Group	Magasin Général	2.3	54
Promogro Tunisie	Promogro	1.9	7
Group Poulina	El Mazraa	1.2	1250
Group Meublatex	Meublatex	0.7	110
Mabrouk Diffusion	Mabrouk	0.5	17
ZEN SA	Zen	0.4	12
Societe de Production Agricole de Teboulba SA	M'liha	0.3	525
Mercure Market	Mercure Market	0.2	2

Source: Euromonitor (2013).<sup>221</sup>

In response to growing concerns of the potential impact of increases in the number of hyper- and supermarkets and, also, in order to improve the retail business climate, the Tunisian Government issued a new law in August 2009 to organise the distribution sector. This law intended to help modernise the retail sector and promote its development. The law also regulates franchising and central purchasing in the retail sector. However, despite the proclaimed government support for the development of the retail sector, industry representatives indicate that the situation on the ground is not so positive. They point to the fact that no authorisations have been granted for the development of hypermarkets since 2005 and, equally, that projects for the development of large out-of-town commercial centres have been tied up in administrative red tape. In turn, alongside authorisation requirements applied to retail developments, the lack of expansion of new retail space has placed a premium on existing potential retail sites in urban areas, particularly those of sufficient size (e.g. 500-2,000m<sup>2</sup>) required for large modern retail outlets. The high premium on suitable commercial property raises costs of expansion of the modern retail sector and is argued to be an additional factor limiting the growth of new supermarkets and other large format retailing outlets.

<sup>219</sup> Ulysse Hyper Distribution is a subsidiary of UTIC (Ulysse Trading and Industrial Companies). Carrefour France is reported to hold a 20% stake in the company.

<sup>220</sup> Magasin Général Group was privatised in 2007 and was bought by a consortium composed of Poulina and Bayahi. These companies also own Promogros and Magro. In March 2012 it was announced that the French group Auchan had taken a 10% holding in Magasin Général Group.

<sup>221</sup> Euromonitor International (2013), 'Retailing in Tunisia'.

### 9.2.2 Growth and development of the retail sector in Tunisia

The recession of 2011 and 2012 had a negative impact on consumer spending which was reinforced by general price increases that reduced consumer purchasing power. Rising unemployment combined with price increases for basic items such as food and utilities (telecommunications, electricity, water and fuel) impacted negatively on the volume of retail sales and increased consumers' price sensitivity. Major retailers were, however, able to benefit to some extent from this situation through promoting lower cost own-brand (private label) products; though this resulted in some negative reaction from local manufacturers of branded products. At the same time, with smaller independent retailers struggling in the difficult economic environment, the recession has provided an opportunity for stronger major retailers to look to expand their number of outlets. Overall, while growth in the retail sector was close to stagnant in 2011 and 2012, the major retail groups were able to maintain positive growth (believed to be between 5-10%) and increase their market share.

Despite recent difficulties, and provided that the country avoids further political and social unrest, the longer term outlook for the Tunisian retail sector is quite positive. Expectations for growth of the retail sector (market) in Tunisia, as elsewhere, are linked to developments in the size and composition of the population and the evolution of household disposable incomes. The population of Tunisia, currently around 10.6 million, is projected to grow at a modest and declining rate of below 1% rate. At the same time the age composition is changing due, on the one hand, to the country's declining birth rate<sup>222</sup> and, on the other hand, increasing life expectancy which means that the average (median) age is expected to rise. Underlying this development are factors such as the changing social status of women, including their participation in the workforce, and the westernisation of Tunisian society, which have tended to push up the average age at which men and women get married. Overall this has led to families having on average fewer children, while raising the share of income that families and individuals can spend on discretionary (i.e. non-essential) items. Another feature has been the rapid urbanisation of the population, especially in key cities (e.g. Tunis, Sfax, Sousse and Nabeul), with a general movement of the population from more deprived rural areas towards the main population centres.

The direction of population changes within Tunisia are broadly favourable to the development of the retail sector, especially large-format modern retailing. In particular, modern retailers are able to take advantage of consumers requirements for greater shopping convenience and a greater 'consumerism' of society that they are able to some extent promote themselves; for example, higher concentration of the population in urban areas tends to enhance the cost-effectiveness marketing and advertising activities. It is also expected that the change in the political environment will favour a more equal distribution of wealth and incomes across the population in the longer term, which should raise disposable incomes across an increasing share of the population, making the market more attractive for the development of the retail sector, including entry of new retailers and greater diversification of retail formats and service innovations. In fact, factors such as a growing urban middle class and more sophisticated consumption patterns are seen as making Tunisia an attractive country for investment in the retail sector with more foreign retailers expected to enter the market over the next decade.<sup>223</sup>

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<sup>222</sup> The decline in the birth rate dates back to the post-independence era, where the first president of Tunisia introduced a family planning program to control the number of children per family.

<sup>223</sup> Source: USDA-FAS GAIN Report "2012 Tunisia Retail Foods".

## 9.3 Market access in the retail sector

### 9.3.1 Market access in Tunisia

Despite the appearance of Carrefour in 2001 and Géant in 2005 that challenged the market dominance of Monoprix, the presence of these familiar French retail brands reflects licensing agreements between Tunisian companies and the French brand owners. In fact, in common with most non-industrial investment projects majority shareholding of new ventures by foreign companies is limited to 49%. Exceeding this limit requires government authorisation, which is reported to be difficult to obtain. This appears – but cannot be explicitly confirmed – to be particularly the case in the retail sector where the Tunisian government has in the past sought to discourage foreign investment, along with other service sectors such as restaurants and real estate.

As noted earlier, there have been some efforts to relax some of the controls on foreign access to the Tunisian market, notably in relation to franchising. Until recently, franchise status was only granted to businesses on a case-by-case basis but new rules were set out in a new law regulating domestic trade in 2009 and in subsequent implementation decree issued in 2010. Essentially the law removes the need for prior authorisation across a wide range of retail segments but does not cover some important areas such as food franchising. Although the law is intended to encourage foreign investment, create jobs, and boost knowledge transfer it is too early to see whether it will have a significant positive impact.

### 9.3.2 Market access in the EU

There do not appear to be any major restrictions on market access by Tunisian retailers to the EU market. However, even the larger retail groups in Tunisia are small players in comparison to their EU counterparts and there appears to be no ambition for Tunisian retailers to enter the EU market.

## 9.4 Impact assessment for the retail sector

### 9.4.1 Results from the CGE model

Before going into the results of the CGE model it is good to note that statistics on services trade are relatively limited as compared to goods trade. The data in GTAP are based on Balance of Payment statistics but do not fully cover all modes of supply. In addition, the liberalisation scenario's for services are relatively modest in their level of ambition.

Table 9.5 provide a summary overview of the CGE results for the 'combined trade' sector, which as noted earlier covers retail and wholesale distribution and hotels and restaurants.<sup>224</sup> The results are broken down by the main drivers behind the overall (total) effects for the sector (i.e. tariff reductions, NTM removal, services liberalisation and spillovers). Overall, the model results point to a 12.1% increase in value added (and a 12.3% increase in output) in the long run. The model also predicts that employment of both skilled workers (2.7%) and less skilled workers (3.4%) will rise. Tunisian imports of trade services are also shown to rise significantly (+46%) while exports are predicted to decline both in total (-13.2%) and to the EU (-17%). The largest source of impact stems from reductions in tariff barriers, indicating that general equilibrium effects play an important role in the estimated effects. It should also be noted that the sector has strong downstream linkages (65% is accounted for by intermediate domestic sales). As other sectors expand, all of them put increased demand on this particular sector.

<sup>224</sup> The GTAP sector of Trade consists of all retail sales, wholesale trade and commission trade, hotels and restaurants, repairs of motor vehicles and personal and household goods, retail sale of automotive fuel.

In general, it is difficult to bridge the gap between the rather broad coverage of the combined trade sector used in the CGE model and the situation within the Tunisian economy at the level of the various sub-sectors that it covers. There is a lot of heterogeneity in the sub-sectors, not least in terms of a retail sector that is orientated towards domestic consumers and a hotels and restaurants sector for which certain parts are highly dependent on foreign tourists. In the following sub-sections we focus on the possible impacts of a DCFTA on the retail distribution sector which, as has been shown, forms the largest component of the 'combined trade' category.

**Table 9.5 Summarised CGE results for Tunisia ‘Combined Trade’ sector**

Indicator	Baseline	Measure	Short-run (% change)					Long-run (% change)				
			Tariffs	Goods NTMs	Services NTMs	Spillover	Total	Tariffs	Goods NTMs	Services NTMs	Spillover	Total
Changes in employment: More skilled workers	7.6%	Share of employment of skills category (based on wage bill)	4.84	0.03	-0.23	0.74	<b>5.38</b>	3.72	-0.01	-0.88	-0.12	<b>2.71</b>
Changes in employment: Less skilled workers	14.9%		5.49	0.03	0.38	0.24	<b>6.14</b>	4.36	-0.01	-0.29	-0.64	<b>3.43</b>
Changes in value added	19.2%	Share of total value added	6.25	0.03	0.50	1.03	<b>7.81</b>	8.03	0.10	1.56	2.39	<b>12.07</b>
Changes in output			6.40	0.03	0.54	1.09	<b>8.06</b>	8.16	0.10	1.58	2.44	<b>12.29</b>
Changes in total imports	157.7	€ million (gross value c.i.f.)	22.98	3.43	7.32	13.20	<b>46.93</b>	22.61	3.41	7.11	12.85	<b>45.99</b>
Changes in total exports	514.9	€ million (gross value f.o.b.)	-11.95	0.96	-1.35	-3.89	<b>-16.23</b>	-10.78	1.02	-0.56	-2.87	<b>-13.19</b>
Changes in total exports to EU	210.8		-15.78	2.24	-2.17	-15.66	<b>-31.38</b>	-14.44	2.37	-1.21	-3.83	<b>-17.11</b>
Changes in domestic producer prices	100	Base index	1.60	-0.01	-0.03	-0.35	<b>1.21</b>	1.39	-0.02	-0.16	-0.51	<b>0.71</b>
Changes in Tunisia Consumer prices			4.44	-0.05	0.58	1.43	<b>6.41</b>	3.95	-0.07	0.29	1.03	<b>5.20</b>

Source: CGE results.



#### 9.4.2 Economic impact

There are two key aspects to the development of the retail sector in Tunisia that would potentially be affected as a consequence of an EU-Tunisia DCFTA; first, in relation to changes in tariffs on consumer goods and, secondly, through relaxation of foreign ownership regulations in the retail sector. In addition, a more indirect but not unimportant effect follows from the expected income increase.

Changes (reduction) in goods tariffs on final consumption goods will impact on the relative prices of EU versus domestically produced products. In so far as this increases the relative price competitiveness<sup>225</sup> of EU products then *ceteris paribus* this is likely to increase the market share of imported EU consumer products. Clearly this could have important implications, for example, in processed food categories but also for non-processed foods (e.g. fruits, vegetables, meat etc.). In this regard, it is worth noting that currently the market penetration of imported food products in the modern grocery sector is relatively low; according to industry representatives imported products probably account for only 5 to 10% of total products sold through hyper- and supermarkets.

Relaxation of the rules on foreign investment in the retail sector is likely to encourage a greater presence of EU retailers in the Tunisian market. To date, the presence of major EU (and other foreign) retailers has been limited mainly to licensing and franchising arrangements and some minority share holdings. In terms of the impact on the domestic retail sector it is perhaps useful to make a distinction between two categories of retailers:

- For existing 'modern' retailers, the direct entry of much larger and financially powerful EU retail companies would pose a serious challenge. Although the sector has already undergone some consolidation over the past decade or so, particularly for grocery retailing, EU retailers are likely to be able to leverage their international-level buying power to undercut local retailers in an already highly price sensitive market. At the same time, local retailers point to the fact that existing administrative rules and lack of development of new retail sites have restricted possibilities to make investments in new outlets that would enable them to strengthen their market position and competitiveness vis-à-vis potential new entrants. All in all, it may be expected that the modern retail sector may push for a delay in opening up the retail market to foreign (EU) competition that – combined with a relaxation of existing administrative rules – would provide them with a 'breathing space' to implement further modernisation to bring them fully up to international standards and to allow further consolidation in the sector. Without this, it is arguable that full and rapid liberalisation – if simultaneously accompanied by a relaxation of other administrative rules hindering development of the sector – would see the disappearance of many Tunisian retailers, in a similar way as has occurred with the disappearance of smaller domestic retail chains over the past few years. In fact, the local modern retail sector may initially be more vulnerable than traditional retailing to the entry of foreign (EU) competitors. In particular, it is likely that new competitors will target the same demographic and social groups (e.g. high income earners) and the same geographical areas that provide the customer base of the local incumbent modern retailers;
- For traditional retailers, there has been a relatively steady but slow loss in their overall market, which is estimated to have gone from around 95% in the 1990s to its current level of around 80-85%. Although this also reflects changes in consumer behaviour and spending power which has favoured the development of modern retailing share, liberalisation of the retail sector and the possible entry of major foreign (EU) retailers would be expected to accelerate this trend. Although initially, it may be the local modern retail sector that is most affected, over time the impact on traditional retailers can be expected to increase. It is debatable whether such developments are in any case inevitable but, undoubtedly, given the importance of small

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<sup>225</sup> We note that the CGE model actually predicts an increase in consumer prices for the 'Trade' category.

traditional retailers in the fabric of Tunisian society and the large numbers of persons engaged in retail activities there are obvious reasons why this may be of concern (see next sub-section).

A further important aspect to consider is the impact that a DCFTA may have on consumers. On the one hand, increased competition in the retail sector together with efficiency improvements – for example in purchasing and logistics – should bring benefits in terms of lower prices for consumer goods and availability of a greater range of products. On the other hand, if the outcome is to further accelerate the disappearance of local neighbourhood shops, then this could have negative impacts in terms of convenience and availability of products at a local level.

The DCFTA is expected to lead to a significant increase in wages. This will increase the demand for consumption goods, which is likely to positively affect the retail sector.

#### 9.4.3 *Social impacts and human rights issues*

The main social impacts that can be expected to come about through shifts in employment in the retail sector. The CGE modelling results, for example, point to positive increases in employment for both more and less skilled workers. At the same time, the model predicts a much larger increase in value-added in the sector, which points to a significant gain in overall labour productivity.

Although the CGE results cover the broader ‘combined trade’ category, it is reasonable to expect that liberalisation in the retail sector could result in increases in productivity. However, the finding that a DCFTA will also result in a gain in employment may be more contentious. In this regard, it is probably important to distinguish between the numbers of persons in salaried employment and the number of persons occupied in the retail sector but not in salaried employment. Overall, if a DCFTA accelerates the growth of ‘modern’ retailing in the Tunisian economy then this can be expected to increase the number of employees in the sector. Moreover, as suggested by the CGE modelling results, the rate of growth will probably be higher for less skilled workers than for more skilled workers given the overall skill profile of workers in the retail sector.

On the other side of the coin, it is difficult to see that a DCFTA would have a positive impact on employment in the traditional retail sector, which intuition would suggest is likely to face increased competition and a loss of market share. As has already been seen, the Tunisian Government has already taken some steps to improve the general business environment for the retail sector but, taking account of the large number of persons that are engaged in the traditional retail sector, there are likely to be considerable concerns about the social impact of a DCFTA for the retail sector as a whole.

#### 9.4.4 *Environmental impact*

No substantial environmental impacts are expected for the retailing sector as a consequence of the DCFTA. It is possible to speculate on a number of environmental aspects that may be affected by a DCFTA, for example in terms of transportation or packaging. With respect to transportation, various dimensions enter into the equation, such as the potential impact on international transportation from an increase in imports of consumer goods or, at a domestic level, in relation to both the transport logistics of the retail sector and access to retail locations by consumers. In the area of packaging, there could potentially be an increase in volumes of packaging waste linked to an expansion of the modern retail sector and more heavily packaged goods. There is, however, insufficient information available to assess such impacts at this time.

## 9.5 Conclusions and recommendations

The retail sector occupies an important position in the Tunisian economy, accounting for two-fifths of all businesses and one eighth of employment. It is characterised by a relatively small ‘modern’ retailing sector and a predominant traditional retail sector composed largely of small individual shops and businesses. Although the Tunisian Government has affirmed a desire to modernise and stimulate development of the retail sector it has, as yet, shown reluctance to open up the sector to foreign businesses. In particular, the sector remains relatively closed to foreign investments as a result of limits on foreign ownership in the retail sector. Nonetheless, if there is a return to a more stable political and economic climate then the Tunisian retail sector could be potentially attractive for foreign investors and suppliers of consumer goods (and services). In this regard, there is much that could be achieved through an EU-Tunisia DCFTA that improves the access of EU firms to the retail sector. However, from a Tunisian perspective, there is an obvious political trade-off between the potential positive overall economic effects from liberalising access to the retail sector and the potential negative effects for Tunisian businesses, both in the modern and traditional retail segments, which could result from market opening. Not least, there are considerable concerns on the employment impacts (and consequential social impacts) that might result in the event of significant restructuring of the retail sector brought about as a result of improved market access for foreign retailers.

### Policy recommendations

The main policy related conclusions are as follows:

1. Although an obvious ambition for the EU is to remove the current limitations of foreign ownership in the retail sector and more broadly across other service sectors, other administrative barriers relating to the development of suitable retail sites need to be addressed if investment (both by domestic and foreign firms) in the retail sector is to increase. Addressing these administrative barriers should be an issue raised as part of the DCFTA negotiations;
2. To mitigate against the potential negative impacts on the traditional retail sector, consideration should be given to support measures that could assist the development and modernisation of traditional retailers. These may include addressing training requirements to raise business-related skills and other forms of business support tailored to small retail businesses. Also, measures could be taken to address the highly fragmented nature of the sector, for example through collective/centralised purchasing.

**Table 9.6**

Policy measure	Potential to address within DCFTA	Potential to address outside DCFTA
Remove (or reduce) foreign ownership limitations in the retail sector (and other service sectors).	✓	
Reduce administrative barriers hindering the commercial development of retail property.		✓
Support efforts to enhance competitiveness of small retail businesses and reduce fragmentation of the ‘traditional’ retail sector.		✓



# 10 Water scarcity and quality

## 10.1 Water scarcity and quality definitions

This chapter will analyse more in depth the issue of water scarcity and water quality in Tunisia. Water is a horizontal issue as all sectors can have an impact on water scarcity and quality. The majority of the sectors require water in their production process and can impact water resources either by consuming a large quantity such as agriculture for instance, and/or by altering its quality with water pollution for instance. The chapter will not specifically look at the impacts on population access to drinkable water, as the DCFTA's impacts on this issue are less direct.

Water scarcity is a relative concept that can occur at any level of supply or demand. It refers to 'the relative shortage of water in a water supply system that may lead to restrictions on consumption' (El Kharraz et al. 2012). The population-water equation is sometimes used to define water scarcity at the level where the annual water supplies are below 1,000m<sup>3</sup> per person. When the water supplies drop below 500m<sup>3</sup> it is defined as absolute scarcity, and when the level is below 1,700m<sup>3</sup> but above 1,000m<sup>3</sup>, the situation is defined as water stress (United Nations website). Causes of water scarcity are diverse. They can be anthropogenic, like population growth, and also natural like drought and climate change acting as an exacerbating factor by altering water supply pattern.

Next to availability, quality of the water used is important, for human consumption but also for industrial and agricultural use. Fresh water is defined as water containing less than 1,000 milligrams per litre of dissolved solids, most often salt; it only represents around 3% of all water on earth (U.S. Geological Survey website). Available fresh water quality can deteriorate locally for different reasons. Some of the main causes of alteration of water quality are pollution by chemicals, uncontrolled hazardous waste or landfills, but it can also be an increased salinity with flooding of fresh water by sea water in aquifers for instance. There are techniques for water retreatment and desalination but these techniques are still expensive and consume a high amount of energy, and can be harmful for the environment if not carefully managed. Research is being done in this area, notably in Tunisia where coupling of desalination with renewable energy is being investigated.

## 10.2 Water scarcity and water quality issues in Tunisia

### 10.2.1 Overview of the situation

Water scarcity is one of the main issues the country has to face. The annual average of water availability in Tunisia is 465 m<sup>3</sup> per capita which is well below the water poverty threshold of 1,000 m<sup>3</sup> per capita per year (FAO, 2009) and classifies the country in situation of absolute scarcity according to the scale mentioned in the previous section. The trend is not very positive for the future as the rising of living standards, population growth and accelerated urbanization will accentuate the stress on water resources. It is estimated that by 2030 the water availability per capita will drop to 315 m<sup>3</sup> per year by 2030 (FAO, 2009; Tunis International Center for Environmental Technologies, 2009). Even if the country can be divided into four climatic zones, 40% of the territory lies in the hyper-arid zone with uneven disparity of rainfall. On average, annual rainfall amounts to 220mm, but it varies between 1,500mm in the north to 50mm in the far South (World Water Assessment Programme, 2009). There are many depressions (landform sunken or depressed below the surrounding area) in the northern zone of Sahara, called *chotts* and *sebkhas* (cf. Figure 10.1) they fill with water in winter, but this water is highly saline, and they dry up in summer.

The water reservoirs in Tunisia are mainly of two sorts: the large dams and the aquifers (a body of permeable rock which can contain or transmit groundwater). There are 28 large dams in Tunisia that receive rainfall and run-off water, it is estimated that between 2000 and 2006 around 10 billion m<sup>3</sup> of overflow water has been let out (Besbes, 2011). The surface of aquifers in Tunisia is high, there are 470 aquifers covering 104,000 km<sup>2</sup> that represent two thirds of the underground of the country, and one hectare of aquifer per habitant (for comparison in France there is 0.4 hectare of aquifer per habitant).

Figure 10.1 Map of Tunisia water resources



Source: World Water Assessment Programme, 2009.

Water quality is also an issue in Tunisia, considering that less than half of the country's water resources contain 1.5g/l of salt or less and thus meet health and agronomic standards (El Hedi

Louati and Bucknall, 2010). The current average rate of exploitation of 106 percent has already resulted not only in depletion of aquifers, but also to increased salinity levels in coastal aquifers because of sea water intrusion (Tunis International Center for Environmental Technologies, 2009). This is notably the case in the South of the country where aquifers are at low levels, increasing the risk to draft sea water into these fresh water resources (Besbes, 2011). Water pollution, notably chemical and bacteriological contamination is another important issue in Tunisia. It is estimated that there are more than 750 sources of pollution, discharging annually around 155 million cubic meters of waste every year which are potential sources of contamination for both groundwater and surface water. Bacteriological contamination mainly comes from lack of chlorination in networks of drinking water in rural areas (Croitoru, Sarraf, 2010).

### 10.2.2 Impact of productive sectors on water quality and scarcity

Water scarcity is most significantly impacted by agriculture, as 80% of the water resource allocation in 2010 went to agriculture (World Bank, 2009 and Table 10.1). Although this share tends to decrease over the years, agriculture is still expected to represent 73% of the total water demand in 2030.

**Table 10.1** Water resource allocation

Sector	1996		2010		2020		2030	
	Million m <sup>3</sup>	%						
Agriculture	2,115	84%	2,141	80%	2,083	77%	2,035	73%
Drinking Water	290	11%	361	13%	438	16%	491	18%
Industry	104	4%	136	5%	164	6%	203	7%
Tourism	19	1%	31	1%	36	1%	41	1%
Total	2,528	100%	2,689	100%	2,721	100%	2,770	100%

Source: World Bank 2009.

More precisely, agriculture is responsible for 80% of the demand in “blue water”, i.e. coming from superficial or underground water, and for more than 90% of the total demand in water including “green water”, i.e. coming from rainfall, and “virtual water”, i.e. coming from imports of food products (Hamdane, 2012). It is estimated that the total water demand (including blue, green and virtual water) for satisfying food needs is about 14.5 billion m<sup>3</sup> per year in Tunisia. Of these, 2 billion m<sup>3</sup> come from blue water, 8 billion m<sup>3</sup> come from green water and the 4.5 billion m<sup>3</sup> missing are compensated by virtual water, essentially through imports of crops and vegetable oils (Hamdane, 2012 and cf. imports baseline in Table 10.2 in section 10.3.1). At the same time, Tunisia is also exporting virtual water through its agricultural products (mainly citrus, dates, olive oil etc.) for a virtual water amount estimated at 1.5 billion m<sup>3</sup>.

Dates and citrus fruits represent around 11 percent of food export products in value (Hamdane, 2012). They also represent 10 percent of the total irrigated surface and consume 25% of the water used for irrigation. Although these exports are good for Tunisia’s balance of payments and also help to generate employment, at the same time, it can cause some problems in terms of water resources. For example, citrus fruits are grown in areas that are overexploiting the water tables in the Cap Bon region. Multiple costly safeguard operations have already been carried out in the region with transfers of water from the North region. Dates cultivation is also leading to overexploitation of water resources; date-palm trees were developed in oasis thanks to quasi fossil water resources but currently signs of overexploitations are observed in some areas notably because poor planning of extension of the cultures and overuse of water (Hamdane 2012). Olive

cultivation also represents an important impact on water resources. It plays an important socioeconomic role in Tunisia; especially in arid regions as olive cultivation only needs limited water resources and has a high tolerance to drought and salinity conditions (Ahmed et al., 2011). However its extension faces a problem of scarcity of water resources and irregular rainfalls which leads to a growing use of marginal quality water such as saline water. The risks are that inadequate use of this type of water can lead to soil salinization and land degradation (Ahmed et al, 2011).

Tourism represents a large source of income for the country. This sector's consumption of water is low compared to agriculture, as it consumes around 25 million m<sup>3</sup> per year, namely 1 percent of the total exploited resource (World Water Assessment Programme, 2009). However with its significant expansion tourism still have an impact on water scarcity, especially at the local level. Tourism infrastructures, such as luxurious hotels or extended golf courses, are heavy water consumers. Specific water consumption of hotels includes two parts. The first one is a fixed part corresponding to the water used for cleaning or for watering gardens for instance, the second one corresponds to the consumption of the touristic users, which depends of the occupation rate of the hotel. In Tunisia it is estimated that a touristic resident consumes in average 550 litres of water per day, which is about ten times the average consumption of a Tunisian (Ghozzi-Nékhili, 2011).

Compared to agriculture, industry uses a relatively low amount of water, 5 percent of the total demand in 2010 (Table 10.1). It is estimated that industry consumes around 0.1 billion m<sup>3</sup> of water per year, around 60 percent coming from deep aquifers (World Water Assessment Programme, 2009). However industry has an important impact on water quality because of water pollution. Industry generates an important quantity of wastewater, they are obliged to pretreat them before releasing them in the sewage system but few of them do. As a result, they contribute to the saturation of the sewage treatment plants that already have scarce capacity (industrial wastewater represent around 20 percent of the used water that reaches sewage treatment plants). Industrial water waste has also been the cause of non-reuse of treated water for agriculture, notably because of the presence of chemicals non-compatibles with agriculture for instance.

Pollutants from industrial sources notably include heavy metals such as lead and mercury - they are non-biodegradable substances that lead to health and environment problems, nitrates and phosphates which are causes of eutrophication, which leads to depletion of oxygen in the water, inducing reductions in specific fish and other animal populations, and hydrocarbures. The most polluting activities in Tunisia include the chemical industry, producers of 45% of the toxic organic substances and of 25% if the metallic toxic substances and contributing to 70% to water pollution (World Bank in Investir, 2013), mining, phosphates transformation, textile and agrifood. They are localized on the coast and around large urban agglomeration: Bizerte, Tunis, Menzel Bourguiba, Sfax, Gabès, Gafsa, Kasserine. Examples of industrial pollutions are many, in the area of the Bizerte lake for instance, where many industries discharge their wastewater, the negative impacts on the fauna and quality of water can be seen. One of the most famous cases of industrial pollution in Tunisia is the one of phosphate. Tunisia's main natural resource, phosphate, is also Tunisia's most polluting industry. In 2011 the contribution of the mining led by phosphate was 7.5 percent of GDP and 10 percent of exports. Moreover the country has been developing the phosphate processing industry for many years, producing phosphoric acid and fertilisers. Tunisia is now the second largest producer in the world and first exporter of trisodium phosphate (TSP). It represents 21.7 percent of the global production and 31.2 percent of global exports (African Economic Outlook, 2013). Around 8 million tones of phosphate are produced annually in the seven open pit mines and the one underground mine of the country. They are located around Gafsa and operated. 85 percent of the production is processed in Tunisia by the Tunisian Chemical Group (GCT) (state-owned) in factories located in the coast in Sfax, Gabès and Skhira. The GCT group employs more than 10,000 people in the Gabès area. It is estimated that for nearly four decades the company

discharges 13,000 m<sup>3</sup>/day of waste gypsum which led to very high levels of pollution in the Gulf of Gabès affecting the fishing industry and the local population's health (GWI, 2012).

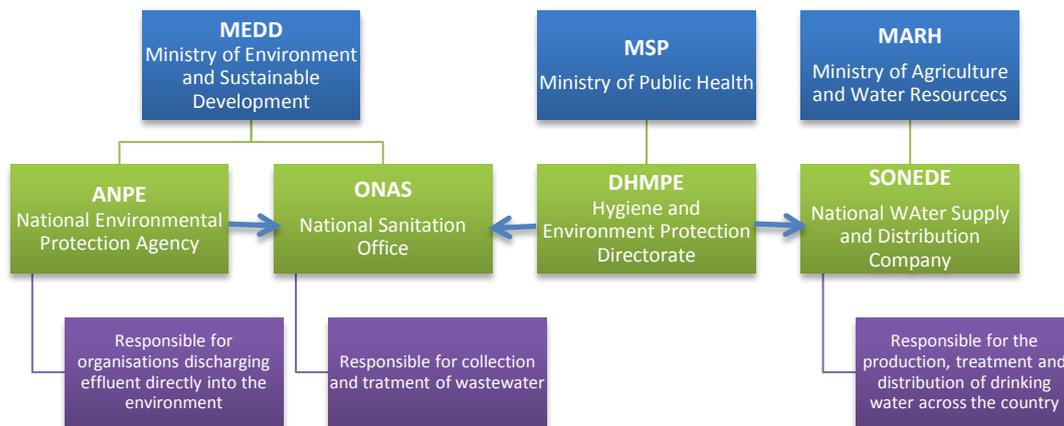
### 10.2.3 *Current policies and likely transition effects*

The overarching legislation in the water sector in Tunisia is its Water Code (31 March 1975). It introduces six principles of 1) protection of water resources as a public good, 2) government responsibility in supplying water and in planning and monitoring water use, 3) the necessity of water conservation to alleviate scarcity, 4) recycling of treated wastewater in agriculture, 6) private sector involvement in managing non conventional resources. There is currently a project to reform the Water Code notably in order to introduce a more decentralised administration system with a progressive disengagement from the State and a stronger involvement of the users and private operators (Ministry of Agriculture, 2012). Currently, the stakeholders involved in the management of water resources in Tunisia are many. Three ministries are involved, with their own agencies and Directorates:

- Ministry of Environment and Sustainable Development (MEDD): regulations for pollution reduction, sanitation and wastewater recycling:
  - The National Sanitation Utility (ONAS) is the major agency responsible for the protection of water environment and for pollution abatement. The utility was created in 1974 and operates under the authority of the Ministry of Environment. One of its responsibilities is the collection and treatment of wastewater (Tunis International Center for Environmental Technologies, 2009). Since its creation, the ONAS has made remarkable progress: In 2006, 87 percent of the total Tunisian population were connected to public sewerage and a total of 97 wastewater treatment plants existed. More than 90 percent of the wastewater collected by ONAS is treated and more than 20 percent of treated wastewater is reused (European Commission, 2006).
- National Environmental Protection Agency (ANPE) is the agency in charge of preventing and controlling pollution in Tunisia;
- Ministry of Agriculture and Hydraulic Resources: regulations for water resource management, including irrigation:
  - SONEDE (Société Nationale d'Exploitation et de Distribution des Eaux), is responsible for the production, treatment and distribution of drinking water across the country (Tunis International Center for Environmental Technologies, 2009). While the Ministry of Agriculture and Hydraulic Resources is covered by the Ministry of Environment (World Water Assessment Program, 2009).
- Ministry of Public Health: formulates standard for drinking water and effluent discharge in the environment, focusing on human health:
  - Hygiene and Environmental Protection Directorate (DHMPE): regularly analyses samples of drinking water and treated wastewater to ensure they comply with the standards.

Figure 10.2 below presents the main institutions in charge of water management in the country. It is not a comprehensive view as there are other stakeholders involve such as the Agency for Coast Management and Protection (APAL – Agence de Protection et d'aménagement du littoral), the International Centre of environmental technologies of Tunis (CITET-Centre International des technologies de l'environnement) and the National Commission for Sustainable Development which role is to integrate environment into development. Programmes are developed jointly, for instance the MED POL, which is the National Programme of continuous monitoring of the quality of the marine environment is coordinated by the ANPE, but also involves the National Sea Institute of Sciences and Technologies (INSTM-Institut National des Sciences et Technologies de la Mer) and the DHMPE.

**Figure 10.2 Main institutions in charge of water resources management in Tunisia**



➔ **Monitoring**

Source: GWI, 2012 and Ecorys.

For the past three decades, Tunisia’s water resource management policy was mainly aimed at reducing the risk and impact of droughts and has thus focused on mobilizing the country’s limited water resources as much as possible. To this end, a significant amount of water infrastructure has been developed (El Hedi Louati and Bucknall, 2010). Even though current water-related legislation is mainly focused on the exploitation of water resources, water policies are increasingly focusing on demand management also. The emphasis is thus shifting to changing water users’ behaviour, encouraging more efficient resource use and maintaining a sustainable consumption level. To this end, measures have been implemented towards water conservation and rational water use in the agricultural sector, like charging user fees and providing incentives for investment in resource-efficient irrigation. These measures have led to a stabilization of water use for irrigation despite an increase in irrigated land. Furthermore, a monitoring network has been established throughout the country to assess and monitor water availability and quality (Tunis International Center for Environmental Technologies, 2009; World Water Assessment Program, 2009).

Many standards exist for the quality of water. For instance, standard NT106.02 (1989) applies for non-domestic influent discharge. The wastewater has to meet certain criteria before being discharged in the wastewater networks or it should be pre-treated. In practice the law is rarely respected, and infrequently enforced. In addition many of the wastewater treatment plants are aging and show sign of saturation. As a result, ONAS reported that for 2010 the compliance rate with NT106.02 was 85% in average, the rate being lower, 81%, in saturated treatment plants (notably in coastal areas form tourism) and treatment plants that suffered industrial contamination (GWI, 2012). ANPE, who is in charge of compliance of direct emitters with standard NT106.02, estimates that on average only 40-45 percent of emissions comply with it (ANPE, 2011 in GWI, 2012). The plans to improve the compliance with this standard include a rehabilitation and extension programme of the existing wastewater treatment plants and a programme to collect treat industrial effluents from 10 industrial zones separately from domestic effluents (GWI, 2012). In the case of the phosphate industry, its history goes back to the 1970’s when little regulation existed. When the standards came into force in the 1980’s, the high costs of investments needed to comply with the standards were prohibitive, resulting in only little action taken. Phosphate being a major source of income for the country, and GCT being supervised by the Ministry of Industry and

Technology, no strong measures to enforce the law and regulation in the phosphate industry were taken in the past. Currently there is more and more pressure on the phosphate industry, notably because Tunisia signed the Barcelona Convention to prevent pollution in the Mediterranean Sea, but also because after the revolution, the local population got mobilized and took actions to protest against pollution from the industry. The ANPE is working on a decontamination plan but again the costs are prohibitive (USD 871 million). There are plans under study to relocate the entire site 20km inland, with new treatment facilities (GWI, 2012). An “Integrated intervention programme for the depollution of the basin bordering the Bizerte lagoon and its surrounding areas, for the restoration of the variety and quality of its water and ecosystems” was set up as part of the Horizon 2020 Initiative in 2012.<sup>226</sup> For the future, Tunisia is also focusing on water reuse. The country’s objective is to reuse 50% of the treated wastewater by 2014 and to reach 60% by 2016 while the levels for 2012 were around 30% (GWI, 2012).

The impacts of the revolution on the protection of the environment, hence impacting water resources, have until now not been very positive. It contributed to exacerbate governance problems and created more difficulties for law enforcement. Moreover the priorities of the revolution focus more on socio-economical issues such as education, employment and regional disparities, leaving environment in the background. As a consequence over exploitation of natural resources and poor waste management for instance could be observed. But there are positive signs for the future, notably in emerging movements from the population who call for a better management of environment and natural resources asking for instance for equal access to drinking water and better waste management, and in the new draft Constitution that institutionalises the right for environmental protection and sustainable development, which can only have a positive impact on water quality and scarcity issues in Tunisia.

### 10.3 Impact assessment of DCFTA in relation to water scarcity and water quality

#### 10.3.1 Summary of sector level impacts from CGE model

Table 10.2 displays the sector specific changes in Tunisian output and trade, in the long run. The sectors having most impact on water quality and scarcity are highlighted in red.<sup>227</sup>

**Table 10.2 Sector specific changes in Tunisian output and trade, long run setting**

Sector	Baseline share of total VA	% change in VA	Baseline share of total exports (in %)	% change in total exports	Baseline share of total imports (in %)	% change in total imports
grains and crops	0.76%	-13.91	0.11	-9.45	4.06	17.93
vegetables and fruit	8.09%	4.73	1.47	2.83	0.25	41.76
other crops	0.25%	-9.93	0.07	-19.07	0.65	9.56
animal products	2.27%	-4.29	0.06	-2.79	0.38	72.87
forestry products	0.00%	2.68	0.02	10.60	0.05	-6.28
fisheries	0.62%	0.33	0.21	2.30	0.15	32.67
primary energy	5.51%	-1.42	7.31	9.75	1.32	15.60

<sup>226</sup> See [www.enpi-info.eu/files/features/TUNISIA%20-%20Lake%20Bizerte.%20a%20natural%20wonder%20to%20be%20preserved.en.pdf](http://www.enpi-info.eu/files/features/TUNISIA%20-%20Lake%20Bizerte.%20a%20natural%20wonder%20to%20be%20preserved.en.pdf) and [www.h2020.net/en/news-and-events/news/95-the-lake-bizerte-charter-a-step-towards-its-sustainable-development-horizon-2020-enhances-stakeholder-participation-for-the-integrated-management-of-lake-bizerte-in-tunisia.html](http://www.h2020.net/en/news-and-events/news/95-the-lake-bizerte-charter-a-step-towards-its-sustainable-development-horizon-2020-enhances-stakeholder-participation-for-the-integrated-management-of-lake-bizerte-in-tunisia.html).

<sup>227</sup> Tourism is not a separate sector in GTAP. We have highlighted here the sector Trade, which includes hotels and restaurants.

Sector	Baseline share of total VA	% change in VA	Baseline share of total exports (in %)	% change in total exports	Baseline share of total imports (in %)	% change in total imports
other minerals (including phosphate)	3.89%	0.75	0.85	-2.01	1.36	15.79
processed meats	0.44%	1.50	0.12	-3.82	0.12	194.08
vegetable oils	0.15%	222.63	1.84	238.66	1.27	19.07
other processed foods	0.51%	-4.50	2.34	8.85	1.87	24.17
beverages and tobacco	1.43%	3.74	0.24	-0.94	0.57	28.65
textiles	1.67%	-15.56	4.74	-3.52	9.17	7.72
wearing apparel	2.22%	-2.40	13.43	0.30	1.55	25.42
leather goods	1.10%	-11.09	3.99	-2.47	1.98	22.67
lumber, paper	1.96%	-6.70	2.12	-4.46	3.09	23.64
petrochemicals	0.51%	-14.81	0.54	4.41	8.20	7.06
chemicals, rubber, plastics	2.30%	-5.56	8.03	24.23	10.85	21.28
non metallic mineral products	0.27%	-14.58	0.97	3.12	0.82	18.37
metals	0.62%	-0.97	1.54	35.12	7.72	13.59
fabricated metals	0.37%	9.82	2.03	34.14	2.24	20.54
motor vehicles	0.55%	-0.20	2.09	36.16	5.14	21.73
other transport equipment	0.44%	19.89	1.48	62.17	1.30	37.49
electrical machinery	0.98%	17.96	4.96	38.42	4.86	22.99
other machinery	0.87%	47.00	17.96	62.02	19.91	12.37
other manufactures	0.17%	3.16	0.82	29.34	1.16	25.54
utilities	2.52%	1.20	0.13	-7.25	1.20	19.76
construction	5.86%	3.18	0.74	-9.65	2.09	27.27
trade	19.17%	12.07	2.90	-13.19	0.75	45.99
inland transport	5.65%	-2.70	5.15	-7.18	0.68	33.71
water transport	0.25%	-1.37	0.68	0.09	1.04	3.46
air transport	1.68%	-5.79	4.76	-4.26	1.14	16.58
communications	2.05%	0.06	0.70	-13.06	0.17	39.64
finance and insurance	4.87%	1.41	1.53	-14.94	0.87	41.34
ICT other business services	4.53%	1.98	1.80	-13.41	0.82	27.86
consumer services	0.03%	7.86	0.23	1.41	0.35	3.87
public and other services	15.46%	2.04	2.06	-21.77	0.84	40.10

Source: IIDE CGE modelling calculations.

According to the modelling results, production of vegetables and fruit – the most important agricultural products, contributing eight percent to total value added in Tunisia in the baseline – will increase by four percent, while other agricultural activities, on average, decrease slightly (Table 10.2). With fruit and vegetables among the most intensely irrigated agricultural products in Tunisia, this suggests that the pressure on Tunisia's scarce water resources, on particular blue water, will increase due to the DCFTA (FAO, 2012). However, while looking at the imports and exports for grains and crops, a significant increase in import can be observed with a slight decrease in export. Grains and crops currently represent 4 percent of total imports and only 0.1 percent of the exports, in the long run the CGE model predicts an increase of 18 percent in imports is expected along with

a decrease of 9.5 percent in exports (Table 10.22). It is relevant to look at grains and crops trade because they contain a large part of the virtual water that is traded. Importing products containing virtual water means that the country is not using its “own” water resources (blue and green water) to produce the products it is consuming so the import of products with high content of virtual water contributes to, at least, not increasing pressure on the country’s water resources. Therefore, the possible increased pressure on water resources in the vegetables and fruits sector triggered by the DCFTA can be partly compensated by the higher expected import of grains and crops that contains virtual water, hence saving the consumption of this water for Tunisia.

Tourism is the other sector that will grow in value added and that can impact the availability of water. However, as seen previously the impacts will be mainly local as water consumption for tourism only represent about 1% of the total water demand, which is limited compared to agriculture that represents 80% of the demand (cf. section 10.2.). Therefore, the two sectors that will grow that need important water resources are agriculture and to a less extent tourism. Water scarcity could be a factor that could restrict the expected growth as modelled here. However, the current policies developed by the government, notably on irrigation and water reuse, aim at ensuring a more sustainable management of the water resources, hence allowing for the growth in these two sectors.

Regarding water quality, the DCFTA can have negative and more positive impacts. Negative impacts come partly from increased outputs in agriculture. Indeed increased outputs in sectors such as fruits and vegetables can lead to increased salinization and to pollution. Increased salinization of freshwater resources can be caused by high water demand given that extensive irrigation contributes to lowering the levels of aquifers. This is a problem in coastal aquifers where too low level of freshwater can lead to a draft effect of sea water flooding into the aquifers freshwater. Agriculture can also impact water quality with an increased use of fertilizers to increase production. Fertilizers, notably because of infiltration of nitrates and phosphates in the ground and water tables, impact negatively land and water quality. Other negative impacts come from increased in added value in other minerals, which includes phosphate. However, given the strategic position of the phosphate industry for Tunisia for already several decades, and the low level of increase, 0.75 percent in the long run, it is unlikely that the DCFTA will really impact the trend of phosphate production and how it is managed. Increased air pollution (cf. **Chapter 2**) as a result of the DCFTA can also alter the quality of water because of acidification. On the more positive side, the CGE results predict reduced outputs for most of the polluting industrial sectors such as textiles (-15 percent in added value compared to the baseline), leather goods (-11 percent), lumber, paper (-7 percent), petrochemicals (-15 percent), chemicals, rubber, plastics (-6 percent). In this sense the DCFTA can have a positive impact on water quality by reducing outputs in the most polluting industries.

### 10.3.2 Social impacts

The DCFTA will increase pressure on water resources, notably through increased outputs in agriculture and tourism. While the socio-economic impacts can be positive as revenue generation is expected to be higher, the social impacts resulting of increased water consumption highly depends on how the water resources are managed. Indeed if the water resources are managed more sustainably and more efficiently, which is what the government is currently looking for, the increased consumption of water can be compensated partly by the savings resulting from this more sustainable management. However if water resources are not managed carefully and if water resources keep being overexploited, social impacts resulting from water scarcity can be important. Historically water has played an important role in socio-economic development through the development of irrigated agriculture for instance that contributed to food security and poverty

alleviation. Water scarcity can stand in the way of poverty alleviation in the sense that irrigated agriculture is often the first sector to suffer from water scarcity which results in a reduced capacity to maintain per-capita food production while meeting other water needs (UN-Water, FAO, 2007). Moreover, in areas of high scarcity, households will tend to store water which provides breeding ground for mosquitoes which are carriers of many diseases (WHO, 2009). Water quality has indeed crucial social impacts. The DCFTA can have impacts on two elements, water salinity and water pollution. As explained above, higher water demand can lead to salinization of coastal aquifers, which in turn lead to reduce availability of drinkable water. Water contamination is a key issue, for instance the area of Gabès, affected by the phosphate industry, has the highest rate of cancer in Tunisia (Hyatt, 2013). The DCFTA will lead to a slight increase in outputs in other minerals sector, which includes phosphate, but given the long history of the phosphate industry it is unlikely that the DCFTA will directly impact the pollution issues in the sector. In the other hand, the DCFTA will lead to reduced outputs in some of the most polluting industries, hence also contributing to reduce the saturation of wastewater treatment plants and contributing to better quality of water.

## 10.4 Conclusion and policy implications

Tunisia is a country with scarce water resources that has to face many water resources management issues. Overall wastewater services are very well developed in Tunisia, especially compared to other countries in the region, but some issues still require attention, such as increasing the capacity of wastewater treatment plants for instance. Compliance of industry with standards is also a key issue where progresses have been slow in the past, notably because the investments needed to comply with the standards were often too high and prohibitive. The revolution contributed to exacerbate the already existing governance problems and did not make law enforcement easier, notably in waste management. However the situation is evolving, and measures are being taken for better water resources management, such as the reform of the Water Code for instance. The DCFTA impact key sectors for Tunisia, such as agriculture, phosphate mining and tourism for instance. The correct balance should be found between economic growth and sustainable exploitation of the water resources. The following measures can contribute to reach this balance, however most of them are difficult to address within the DCFTA specifically.

**Table 10.3 Policy recommendations**

Policy measures	Potential to address within DCFTA	Potential to address outside DCFTA
Law enforcement for industry compliance to standards		√
Improved water treatment and recycling		√
Development of less water resources consuming strategies in agriculture		√
Promote sustainable water resources management in the tourism sector		√

### 1. Law enforcement for industry compliance to standards

As seen previously, the standards for wastewater discharge exist but they are often not respected. The ANPE estimates that on average only 40-45 percent of emissions comply with them (ANPE, 2011 in GWI, 2012). The level of law enforcement is currently very low and should be reinforced. The DCFTA can have a positive impact on this as part of the general trend for norms approximations. Stricter requirements on environmental management of industrial plants for instance, such as the norm ISO14001, can be pushed as a result of the DCFTA. Moreover the DCFTA can represent an additional pressure on the country to respect its international agreements, such as the Barcelona Convention to prevent pollution in the Mediterranean Sea.

## ***2. Improved water treatment and recycling***

With higher economic growth triggered by the DCFTA, it is expected that the amount of wastewater will also increase. The current system for wastewater treatment currently shows some weaknesses so it is worth investing in strengthening it. The Tunisian government is currently making important efforts in this direction; these efforts should be sustained. It is important to invest in wastewater treatment plants, and to enforce existing laws. Indeed, water treatment and reuse is an important issue, especially in a water-scarce country. Recycled water, if it meets the right standards, can be used for irrigation for instance, hence releasing the stress on fossil water resources.

## ***3. Development of less water resources consuming strategies in agriculture***

Fruits and vegetables are one of the major country exports. The DCFTA will contribute to the sector growth and hence increase the pressure on already scarce water resources. In order to not impede the growth of the sector, and to ensure it is done in a sustainable way, development of alternative strategies in order to reduce the sector impact on water resources can be developed. In addition to strengthen the current efforts in better irrigation management, development of alternatives ways for cultivation could be supported and looked into. For instance, currently part of Tunisia's olive oil exports come from olive groves cultivated using dry-farming (for more details refer to Hamdane 2013). This has many advantages; one of the most interesting one is that it doesn't affect the water resources (blue water) of the country. Investigations in technical improvements and investments in these kinds of measures could be strengthened. Moreover Tunisia could also look to develop a strategy where imports of food products containing high amount of virtual water and exports of food products with high added value but low level of water are maximized.

## ***4. Promote sustainable water resources management in the tourism sector***

Tourism is a strategic sector for the Tunisian economy. The DCFTA will contribute to its growth. However it should be ensured that the expansion of the tourism sector is done sustainably with an adequate water resources management. Indeed, In Tunisia it is estimated that a touristic resident consumes in average 550 litres of water per day, which is about ten times the average consumption of a Tunisian (Ghozzi-Nékhili, 2011) so expansion of tourism in these conditions would not be sustainable, especially because it has high impacts on local areas. Measures that can be taken to promote more sustainable water resources management are notably awareness raising of the professional of the sector, the development of environmental norms and standards for management such as the ISO 14001 for instance, and the development of more indicators and monitoring of the sector. The latter is important as currently data on impacts of the tourism sector on water is scarce; implementing monitoring with specific indicators would allow to follow the evolution of the sector and its impacts on water resources.



# 11 Conclusions

The main conclusions from our preceding assessment of how the trade and trade-related provisions under negotiation could affect economic, social, and environmental issues in the EU and Tunisia are summarised and presented in this chapter.

## 11.1 Economic impact

From an economic perspective, the DCFTA between the EU and Tunisia are estimated to result in overall positive effects for both trade partners. That is, the results at the macro levels are on average positive for both regions. Studying the economic effects of the DCFTA in more detail for specific economic sectors shows that some sectors are expected to increase output and exports as a result of the DCFTA, whereas others will experience a decline in the main economic indicators (e.g. output, value added, employment, exports).

### Main results on a macroeconomic level

The DCFTA between the EU and Tunisia is expected to have a significantly positive effect on national income for both trading partners. As Table 11.1 shows, the estimated annual gains for national income are €1.3 billion in the long run. However, given the size of its economy this increase is, negligible in percentage terms (zero per cent). The national income gains for Tunisia are even higher in absolute size, €2.5 billion in the long run, and translate into a significant 7 per cent increase in GDP. The effects on third countries are negative but close to zero in percentage terms.

**Table 11.1 Main macroeconomic effects of the DCFTA for the EU and Tunisia**

Variable	EU	Tunisia	EU	Tunisia
	Short Run		Long Run	
National Income, Million €	640	1,834	1,344	2,498
GDP, % change	0.0	4.1	0.0	7.4
Consumer prices, % change	0.0	2.6	0.0	2.3
Wages, less skilled % change	0.0	7.0	0.1	9.9
Wages, more skilled % change	0.0	7.6	0.1	10.5
Total Imports, % change	0.3	13.9	0.5	17.7
Total Exports, % change	0.3	17.7	0.5	20.4

The effects on Tunisian trade flows are significant, with a 20 per cent increase in exports and a 19 per cent increase in imports in the long run. These combined effects thus lead to a relative improvement in Tunisia's overall trade balance. Also average wages are expected to increase significantly by approximately 10 per cent in the long run, while consumer prices are expected to increase by a little over two per cent. Overall, these effects lead to an increase in purchasing power for an average Tunisian citizen. The effects on trade, wages and prices for the EU are negligible.

### Main results on a sector level

On a sectoral level, the overall gains of concluding the DCFTA can be split into sectors that are likely to gain from the DCFTA and sectors that are likely to see output decline. For the EU, the

changes in production at sector level are close to zero. In Tunisia, the most significant effect is expected in the sector Vegetable oils, with an increase in value added of 223 per cent, mainly resulting from reduced EU tariffs and a subsequent rise in exports. Vegetables and fruit, one of the biggest sectors in Tunisia in terms of value added and employment, is estimated to expand by 4 to 5 per cent in terms of value added. In the manufacturing sector, Other machinery (+47 per cent), Other transport equipment (+20 per cent) and Electrical machinery (+18 per cent) see the largest increases in value added, while most manufacturing sectors also experience an increase in exports. In services, the largest service sector Trade is also expected to expand most (+12 per cent). Exports are expected to decline in most service sectors.

Sectors that are negatively affected are textiles, non-mineral products, petrochemicals (all three around – 15 per cent) and leather goods (-11 per cent). The in-depth assessment of the Textile, clothing and leather sector (chapter 8) has however demonstrated that the estimated reduction in output for these sectors might not fully materialise. Primary energy, Animal products, Wearing apparel, Chemicals, rubber and plastics and Inland transport experience a more modest decrease, but are relatively important sectors in the Tunisian economy.

## 11.2 Social impact

Social implications of the DCFTA will be mostly determined by changes in the relative prices of consumer products and wages, job creation and shifts of employment between sectors. In addition, interactions of the DCFTA with domestic policies and external encouragement to foster the Decent Work agenda could be important effects of the DCFTA on the social landscape in Tunisia.

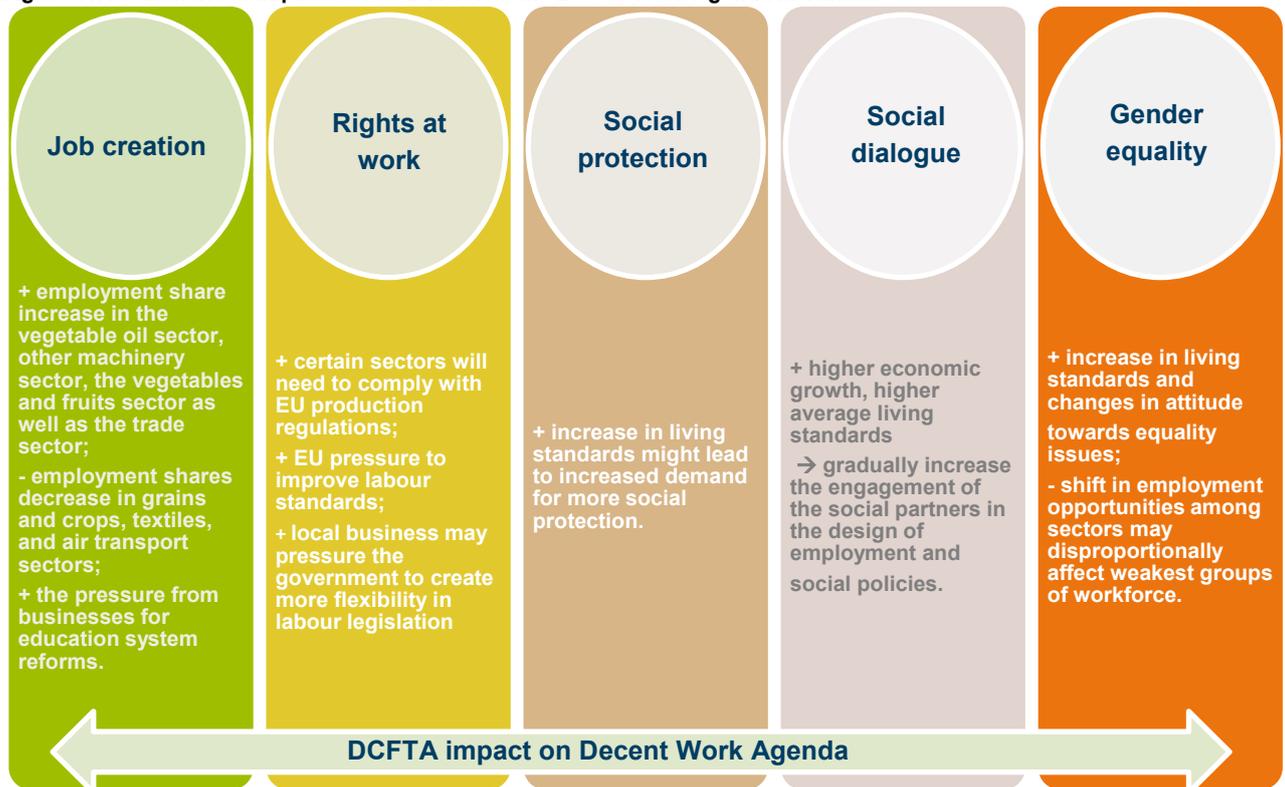
A more detailed analysis combining the CGE results with household survey data for Tunisia shows an increase in disposable income for all income groups. The gains for the richest strata of the population are somewhat higher than for the poorest strata: 7.8 and 6.5 per cent respectively. Although these figures suggest that inequality would increase as a result of the DCFTA, this increase is only marginal.

Poverty is also expected to decrease as a result of these changes in disposable income. People that are just above the poverty line but are unemployed are therefore most at risk as the increase in disposable income is mainly due to a rise in wages, while consumer prices go up.

Although the CGE model cannot predict changes in total employment (it assumes wages to adjust while assuming full employment), the significant income increase that is expected to result from the DCFTA according to the model may in part be due to job creation rather than wage increases given the unemployment in the country. Reallocations between sectors may, however, be difficult for some (especially more vulnerable) groups. The expected impacts of the DCFTA on the five pillars of the Decent Work Agenda have been summarised in Figure 11.1 below.

With respect to human rights, the DCFTA is expected to mainly affect economic and social rights and not cultural, civil or political rights. There are various channels through which human rights are affected. The overall effect of the DCFTA on the human rights situation in Tunisia is likely to be small but positive.

Figure 11.1 Summarised impacts of the DCFTA on the Decent Work Agenda in Tunisia



### 11.3 Environmental impact

The DCFTA is expected to have a combination of positive and negative environmental effects and the overall impact is difficult to predict. In some sectors that have a significant impact on Tunisia's environmental situation, the environmental repercussion of the DCFTA are likely to be positive albeit small (e.g. in some industrial sectors, such as textiles). In contrast, aggregate output of the agricultural sectors (driven by the increase in fruit and vegetables and vegetable oils production) is likely to increase a little, which increases the demand (irrigation) for already very scarcely available water sources.

The quantitative environmental analysis carried out shows that emissions of NOx and SOx decline following the implementation of the DCFTA in the short run, whereas PM emissions show a modest increase, mainly due a shift in economic activity (composition effect) from industries like primary energy, textiles, leather goods, chemicals and transport into sectors with lower air pollution intensities such as vegetables and fruit, trade and consumer services. In the long run, however, air pollution is expected to increase again, related to the overall growth in GDP and related production and consumption (scale effect). In monetary terms, the long-run negative effects on air pollution would lead to an increase in external costs of €40.2 million.

With respect to other types of environmental indicators, like waste, biodiversity and the green economy the impact of the DCFTA is likely to have mixed or only small effects. With respect to water, the environmental pressure is likely to rise as a result of the DCFTA. This is mainly due to the fact that 80 per cent of the water in Tunisia is used for irrigation, and the agricultural products that is expected to increase most significantly as a results of the DCFTA, fruit and vegetables – and in particular olives and palm trees, are among the most irrigation intensive agricultural products in Tunisia. Given that Tunisia is facing water shortages of increasing severity, and water quality is also

an issue, this is a serious risk. The estimated impacts of the DCFTA between the EU and Tunisia are shortly summarised per relevant environmental indicator in the figure below.

#### 11.4 In-depth sector analysis

Four sectors or horizontal (cross cutting) issues that are of particular importance to the DCFTA have been studied in phase 2 of the study to better understand the impacts of the DCFTA: Fruits & vegetables, Textile, leather and clothing, Retail trade and Water scarcity & quality.

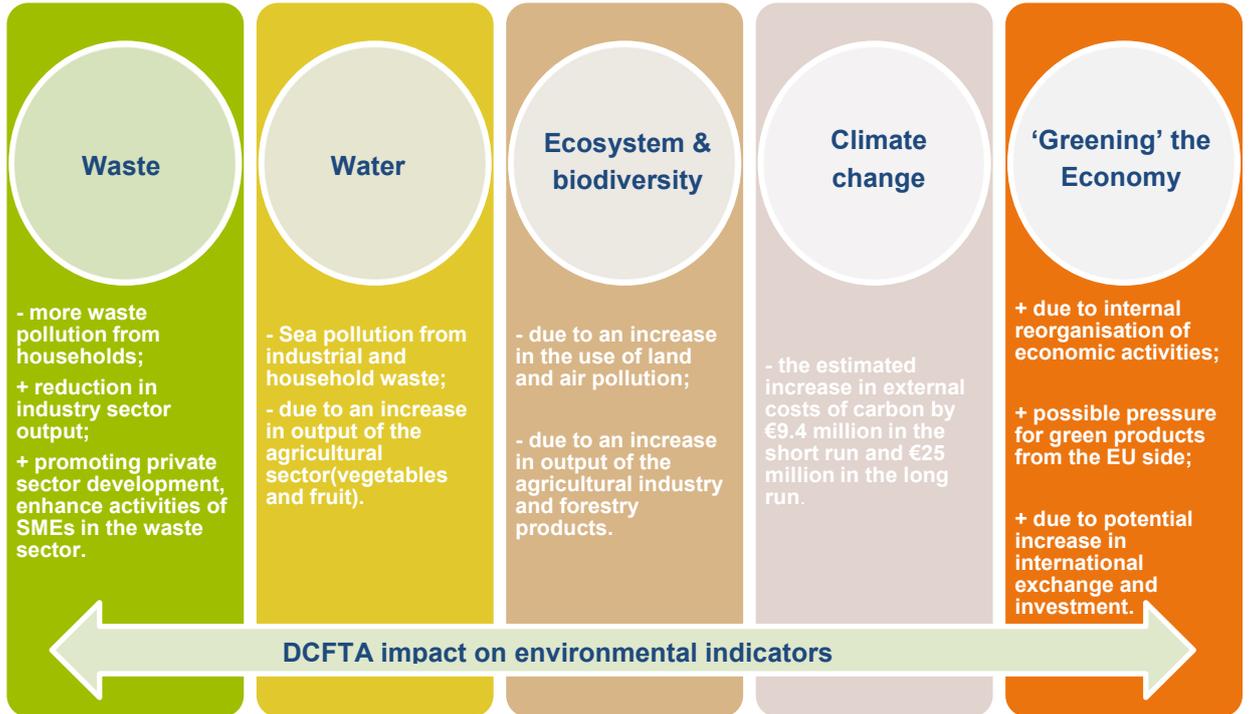
The **Fruits and Vegetables (F&V) sector** is a very large sector in Tunisia, both in terms of value added and employment. The expected rise in value added can be explained by an increase in exports due to increased market access opportunities (especially tariffs) and an increased domestic demand due to the expected income increase. However, as imports from the EU also increase, the trade balance for this sector slightly deteriorates (although this should be seen in the context of a strong improvement in the trade balance for the agricultural sector (incl. processed foods) as a whole). SMEs are likely to benefit, given that there are many SMEs in the sector. As the sector employs many unskilled workers, the expansion of sector may help to reduce poverty. The expected price increases in the sector will benefit the farmers, but may have some negative effects on consumers, especially on the urban poor. The main environmental effect is related to the increased demand for water resources associated with the expansion of the sector, which may further contribute to the water scarcity problem in Tunisia (see also below).

The **Textile, clothing and leather (TCL) sector** are predicted to contract as a result of the DCFTA by the CGE model. However, these results may not fully materialise as they partly stem from the general equilibrium nature of the model. As the sector is already relatively open and trades intensively with the EU, the effects of the DCFTA are likely to be relatively small for this sector. The main environmental issues related to textiles, leather sector and its use of chemicals and water in several processes, such as washing, dyeing and finishing of textiles and leathers. Further regulatory approximation in the sector as a result of the DCFTA may have some positive environmental effects. The use of chemicals falling under the REACH and Biocidal Product regulation could be expected to go down to ensure that Tunisian products can enter the EU market.

The **Retail sector** in Tunisia accounts for over 30 percent of all companies in Tunisia. This includes many small family-owned traditional shops. Since the start of the Millennium, larger, modern retailers have increased their share of the market. The DCFTA is expected to an increase in the value added of the Trade sector, which next to retail also includes wholesale and hotels and restaurants. The DCFTA mainly affects the sector through cheaper imports of consumer products, income gains which are likely to lead to more consumer spending and relaxation of foreign ownership regulations. No major social or environmental effects are expected to result from the DCFTA.

**Water scarcity and quality** are serious environmental issues for Tunisia, The annual average of water availability in Tunisia is 465 m<sup>3</sup> per capita which is well below the water poverty threshold of 1,000 m<sup>3</sup> per capita per year (FAO, 2009) and classifies the country in situation of absolute scarcity. Water pollution, notably chemical and bacteriological contamination is another important issue in Tunisia. The increase of the Fruits and vegetable sector is likely to further increase water scarcity, due to use of irrigation in the sector. The expansion of the sector may also negatively affect water quality, e.g. through salinization or increased use of fertilizers. On the positive side, some of the more polluting industries are expected to contract due to the DCFTA.

Figure 11.2 Summarised impacts of the DCFTA on the environment





## 12 Policy recommendations

This chapter presents proposals for policy recommendations. These are based on the results of the sustainability assessment of potential economic, social and environmental impacts that were discussed in detail in the preceding chapters of the report, and previous reports. The recommendations cover both supportive and preventative/mitigating measures, i.e. measures needed to reinforce any significant positive sustainability impacts and measures to prevent or at least mitigate negative sustainability impacts.

In formulating the policy recommendations, we distinguish between measures or initiatives that can be addressed within the DCFTA (i.e. those recommendations that are directly related to the trade provisions that are likely going to be included in the DCFTA) and those that would be addressed outside the DCFTA (i.e. non-trade related (accompanying) measures). The recommendations provided in this chapter (and report) are provided by the Ecorys study team and do not reflect any commitment from the European Commission or the government of Tunisia.

In this chapter, we first introduce the approach we use to support the formulation of policy recommendations. The second section presents the context in which the formulated policy recommendations should be viewed. Thirdly, the overall policy recommendations regarding the economic, environmental and social pillar of analysis are presented. Finally, the recommendations following the sector-specific analyses are provided in Section 12.4.

### 12.1 Approach

The results from the Trade SIA as presented in this report have shown the potential of the DCFTA to contribute to the sustainable development of the economies of the European Union and Tunisia. Specifically, it has presented the positive and negative effects of the DCFTA on the economic, social and environmental dimensions of sustainable development. In order to adequately advise the negotiating teams and policy makers on both sides, we use a tested and continuously developed approach to support the thought process of formulating the policy recommendations. This approach has first been applied during the Trade SIA for the FTA between the EU and Ukraine in 2007 and has continuously been updated since.

The overall and sector specific analyses conducted during this study give rise to **enhancing or mitigating or preventing measures** to realise the optimal outcome of the DCFTA. In order to realise the optimal outcome of the DCFTA, these measures can be translated into specific policy recommendations either through **a legal approach** or an **economic approach**. The legal approach aims to enforce certain behaviour through regulation ('the stick'), whereas the economic approach aims to realise the outcome through economic instruments that stimulate certain behaviour ('the carrot'). The legal approach includes:

- **Command and Control measures**, which are measures that rely on "regulation (permission, prohibition, standard setting and enforcement as opposed to financial incentives, that is, economic instruments of cost internalisation"<sup>228</sup>;
- **Negligence and liability rules**;
- The enforcement of particular **technical, sanitary and other standards**.

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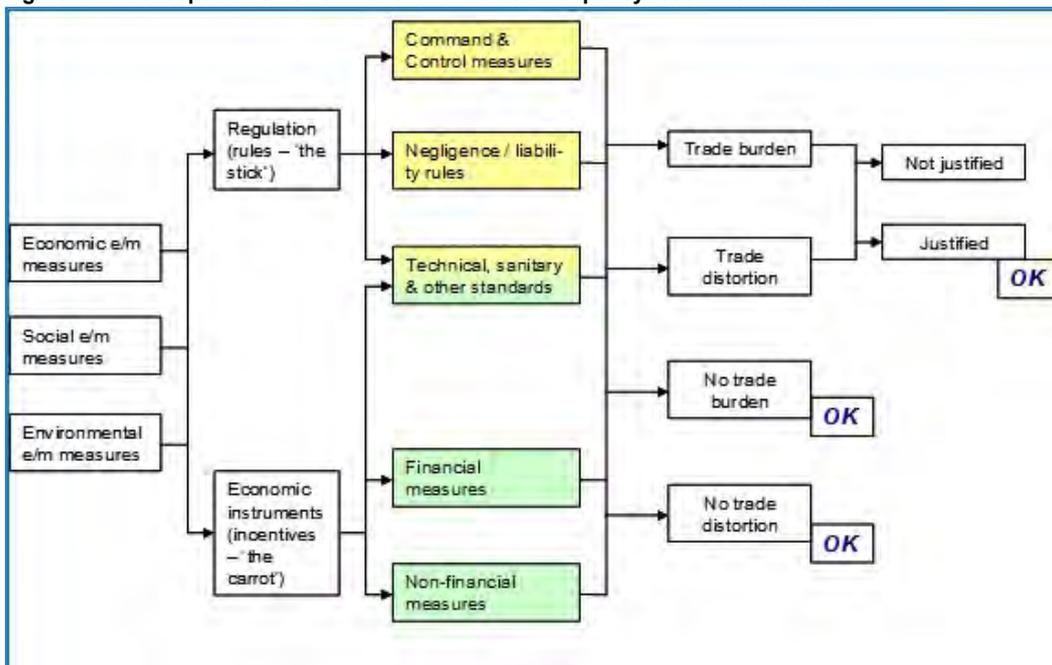
<sup>228</sup> The OECD definition of Command and Control (CAC) policy, available through [www.oecd.org](http://www.oecd.org).

The economic approach, on the other hand, includes:

- Financial measures; and
- Non-financial measures;
- Economic incentives to adopt certain technical, sanitary and other standards.

In turn, in order to formulate the appropriate policy recommendations we need to check whether these measures create trade burdens or trade distortions. In case a certain measure creates a trade burden or trade distortion, one needs to check whether the burden or distortion is justified. Subsequently, the preventative, mitigating or enhancing measures that do not impose an (unjustified) trade burden or distortion, qualify as policy recommendations. This process is schematically presented in Figure 12.1.

**Figure 12.1 Conceptual framework for the formulation of policy recommendations**



Source: Ecorys.

Several preventative, mitigating and enhancing measures which do not create trade burdens or distortions may be implemented. Several environmental and/or social regulations and economic instruments that may create trade distortions or burdens knowingly can also still be implemented provided that they fit in the ex-ante agreed decision making framework as 'justified'.

## 12.2 Context

Before presenting the policy recommendations and flanking measures, a number of issues need to be kept in mind.

### *Modelling assumptions*

The impacts identified in this TSIA are partly based on the CGE modelling techniques and additional quantitative analysis implying that they are influenced by the assumptions underlying the model. An important example of this is that the results generated by the model are based on the assumption that Tunisia approximates to EU regulations and standards, including in the field of SPS, TBT, etc. Whether these results are realised will therefore largely depend on the outcome of

the DCFTA negotiations and subsequent implementation of policies related to approximation in this domain.

#### *On-going structural adjustments*

The impacts assessed in this TSIA for the DCFTA between the EU and Tunisia should be seen in the context of on-going structural transformation at country level and global level. In line with this, some of the impacts expected by the DCFTA can be seen as a reinforcement or acceleration of already on-going structural adjustments, while other impacts of the DCFTA may (temporarily) ease this adjustment process. Likewise, policy recommendations should take these processes and the ensuing policies into account.

#### *Enhanced relations and dialogue between the two parties*

Finally, we should note that this DCFTA is clearly part of the general process of close economic, political, social and cultural cooperation and dialogue between the EU and Tunisia in the context of the European Neighbourhood Policy (ENP). The DCFTA aims at upgrading existing agreements, including the Association Agreement signed in 1995 that has been guaranteeing tariff-free trade for industrial products, and that included clauses providing for the establishment of an EU-Tunisia free trade area.

### 12.3 Overall recommendations

The findings of this study indicate that the DCFTA can help deliver important economic benefits to both the EU and Tunisia. It is essential, however, to note that this will be only achieved if carried out as part of a comprehensive development strategy in Tunisia, in combination with measures to achieve fuller economic integration. Also, it is worth taking into account the social, economic and policy context in which the DCFTA and its mitigating and enhancing measures will be implemented. Context factors (including political pressure, silent resistance, geographical distribution effects, etc.) may lead to different outcomes than expected. It is therefore crucial to:

- Involve relevant stakeholders (with varying interests being adequately represented) in the process in order to achieve the implementation of effective preventive/mitigating and enhancing measures for sustainable development;
- Clearly define the policy measures and develop them into action plans with clear economic social and environmental goals for both parties;
- Establish an institutional framework for adequate monitoring and evaluation to review the implementation of the actions plans and to ensure that policy measures are monitored, reviewed and if necessary amended. This body would provide for regular consultation with civil society in the EU and Tunisia, and would be required to report regularly, in a transparent manner, to high-level EU – Tunisia Association Agreement meetings;
- Within these reviews, refine the plans as necessary to ensure that the specific recommendations derived from the TSIA study are appropriately incorporated;
- Put in place flanking measures with appropriate pacing and sequencing of liberalisation and regulation to address potential adjustment costs related to the DCFTA, with the aim to achieving positive outcomes in terms of reconciling efficiency with social considerations.

#### 12.3.1 *Policy recommendations related to the economic pillar*

Although the DCFTA is expected to enhance economic growth in Tunisia, it is clear that many sectors and companies will benefit, but at the same time a number of sectors or individual companies may see their situation deteriorate. Table 12. 1 summarises the economic policy recommendations in the context of the DCFTA, which are subsequently explained in more detail.

**Table 12.1 Recommendations for the economic pillar**

Policy measure	Potential to address	
	Within DCFTA	Outside DCFTA
Allow for phasing in of tariff reduction or regulatory approximation at sector level, especially for those sectors where the economic impact will be high	√	
Facilitation of technical assistance and capacity building in the regulatory approximation process, based on a needs assessment	√	√
Develop a strategy to increase the value added of exports		√
Increase awareness of the DCFTA and its implications		√
Provide internationalisation support to SMEs		√
Stimulate on-going improvements in the business climate	√	√

The effects at sectoral level show that a number of sectors are expected to contract as a result of the DCFTA. Although for some sectors this may just speed up or enhance a process of structural transformation already underway, it could have significant economic, social and environmental effects in the short to medium term. By phasing in tariff reductions or regulatory approximation, the relevant sectors could get more chance to adjust, leading to more gradual effects. It would allow affected sectors to brace for increased competition or reallocate resources into more productive sectors, while providing time for developing institutional arrangements to meet the needs of a changing economic environment. Accordingly, it would be important to establish a timetable for phased reductions in tariffs and NTMs to allow for an orderly adjustment period in these sectors that are expected to experience substantial adjustment costs. The timing of reductions in tariffs and quota restrictions for sensitive products could be conditional on compliance with improvements in relevant legislation and its enforcement as well as a set of sustainability criteria.

The expected impact of the DCFTA presented in this study is based on the assumption of effective regulatory approximation, in areas like SPS and TBT. Without this, many of the benefits would not materialise. This effective approximation requires substantial investments, to change and enforce laws and regulations, to further develop a quality infrastructure (e.g. laboratories), to create awareness among producers of the changes, and to possibly support these producers in making the necessary adjustments. This is a timely and costly process. Given the limited technical and financial resources of Tunisia, donor support (EU or other donors) would help to achieve effective approximation. This assistance should take into account past and current initiatives, and be based on an assessment of remaining needs.

Although the DCFTA is expected to lead to a significant increase in exports, some of Tunisia' export activities are in products with limited added value (e.g. fresh fruits, clothing). In order to enhance the positive effects of the DCFTA, Tunisia could strive to increase the value added of their exports and domestic production more general, e.g. by promoting domestic processing, creating unique Tunisian characteristics of some products, or sectoral upgrading, with a focus on knowledge-intensive sectors. Overall, Tunisia should seek business upgrading: make better products, more efficiently, and move into more higher-skilled activities. Best practices and/or technical assistance of other countries in this respect could help to develop and implement appropriate strategies in this respect.

The consultation process as part of this study has revealed that the awareness of people about the DCFTA is rather limited, also because the negotiations have not started yet. Although based on the

SME survey, the awareness of companies seems somewhat higher, we note at the same time that they are not aware of the DCFTA exactly entails. For example, relatively few respondents think the DCFTA will address SPS or TBT issues. Awareness raising of the DCFTA is therefore important, both to get relevant inputs for the negotiations, but also to help people prepare for some of the changes the DCFTA will bring.

Another interesting finding of the SME survey is that SMEs indicate that in order to increase their exports to the EU, market access issues (tariffs, NTMs) are of concern, but other issues seem relatively more important, like a lack of information on export markets, or lack of access to credit. In order to reap the export opportunities provided by the DCFTA, SMEs could therefore benefit from internationalisation support measures. Linking SMEs to larger exporting companies may be part of these measures. These companies could also be prepared for increased competition on the domestic market, where enhancing or mitigating measures may furthermore include training or support for innovation.

An attractive business climate is also crucial for enhancing the benefits of the DCFTA, It helps to induce new investments, including foreign investment, and can also reduce the costs of doing business. Tunisia's rank in the World Bank's Doing Business indicators has dropped in 2013 from 45 to 50, although the position is still much higher than the regional average(98). Its position is relatively low in getting credit, dealing with construction permits, enforcing contracts and registering of property. These are therefore areas where improvements would be needed.

It should be noted that some of these recommendations are taken up in existing initiatives between the EU and Tunisia, or could be further promoted through these initiatives. Some of the main relevant initiatives include Euro-Mediterranean Industrial Co-operation, Missions for Growth to Tunisia and the EU-Tunisia Council for Entrepreneurship.<sup>229</sup>

### 12.3.2 Policy recommendations related to the social pillar

Table 12.2 present the social policy recommendations.

**Table 12.2 Recommendations for the social pillar**

Policy measure	Potential to address	
	Within DCFTA	Outside DCFTA
Allow for phasing in of tariff reduction or regulatory approximation at sector level, especially for those sectors where the social impact will be high.	√	
Support flexibility of the labour market- easing reallocation between sectors while ensuring that workers' rights are respected in law and practice.		√
Support education and training programmes to allow easier update and upgrade of human capital, with a clear link to labour market requirements, and promote life-long learning.		√
Further develop social protection system, with attention for coverage, financial management and		√

<sup>229</sup> For more information on these initiatives, see: [http://ec.europa.eu/enterprise/policies/international/promoting-neighbourhood/mediterranean/index\\_en.htm](http://ec.europa.eu/enterprise/policies/international/promoting-neighbourhood/mediterranean/index_en.htm); Link Missions for growth to Morocco and Tunisia [http://ec.europa.eu/enterprise/initiatives/mission-growth/missions-for-growth/antonio-tajani/africa/index\\_en.htm](http://ec.europa.eu/enterprise/initiatives/mission-growth/missions-for-growth/antonio-tajani/africa/index_en.htm); Link UE-Tunisia Council for Entrepreneurship [http://eeas.europa.eu/delegations/tunisia/documents/press\\_corner/cp\\_conseil\\_ecoconsultatif\\_nov2012\\_fr.pdf](http://eeas.europa.eu/delegations/tunisia/documents/press_corner/cp_conseil_ecoconsultatif_nov2012_fr.pdf).

Policy measure	Potential to address	
	Within DCFTA	Outside DCFTA
price levels.		
Prevent risks of pressures to lower the labour standards due to rising international competition, e.g. by effective implementation of relevant ILO conventions, and by approximating domestic legislation to the EU acquis in the area of labour.	√	√
Effective implementation of HR treaties, with a focus on vulnerable groups (e.g. children, women, minorities, disabled, etc.).	√	√
Consider creating monitoring mechanisms of the social (including human rights) impact of the DCFTA (and more broadly EU-Tunisia relations in these areas).	√	√
Promotion of social dialogue and civil society involvement.	√	√
Provide technical assistance in improving education as well as the institutional and regulatory environment in the social policy sphere.		√

In some sectors where reduction of trade barriers could lead to rapid deterioration in the situation of the Tunisian domestic sector, e.g. petrochemicals, animal products, the negotiators could consider reduce tariffs gradually and/or phase in regulatory approximation over a longer period of time. This would help to absorb the negative effects, allowing for more adjustment time. These cases would need to be analysed individually taking the pros and cons of delayed adjustments into account.

The CGE results showed that to reap the expected benefits of the DCFTA in the long run, significant reallocation of labour between sectors is required. To allow for this reallocation between sectors, it is important that the labour market is sufficiently flexible. Currently Tunisia has relatively strict labour laws, making it difficult to hire and fire employees. This also contributes to a larger informal economy. By creating more flexibility in the labour market, companies will be more inclined to hire people. At the same time, it is important to ensure that workers' rights are respected. This balance between labour market flexibility while securing workers' rights is also referred to as 'flexicurity.'

The reallocation of workers across sectors also gives rise to social concerns. Especially for people with low human capital and low skills it may be difficult to find new employment opportunities in other sectors. Tunisia also has high youth unemployment of high skilled people. Policy measures to foster the competencies are essential for facilitation of labour mobility (openness to change, basic IT skills, ability to work in teams). In addition, it is important that this training -and education more general- takes into account labour market requirements. Attention for entrepreneurship during education may also help to create more opportunities for the labour force.

In order to prevent that increased international competition as a result of the DCFTA would put pressure on labour standards in Tunisia, specific commitments in the area could be included in the DCFTA. In addition, domestic measures could help to prevent this. For example, by effective implementation of the ratified ILO fundamental, priority and other up-to-date conventions, by ratification and effective implementation of other relevant ILO conventions, and by gradual approximation of domestic legislation to the EU acquis in the area of labour. With respect to human rights more general, effective implementation of human rights treaties will help to uphold human rights. This is especially important for vulnerable groups, like children, disabled, women, refugees,

minorities, etc. For example, the expected increase in consumer prices needs to be taken into account in the social security system (indexation).

Given the scope for social and other sustainable development effects of the DCFTA (and EU-Tunisia relation more general) some monitoring mechanisms could be created in order to help both Tunisia and the EU in assessing policy implications of certain decisions and processes. It could help to identify essential policy measures and priorities for possible donor support (financial or technical support). In creating such mechanisms, it is important to take Tunisia's limited resources into account, and thus avoid complex institutional structures. Promotion of social dialogue, which has only recently been established in Tunisia after the revolution, and consulting civil society more general in the preparing for the negotiations as well as in the implementation of the DCFTA will also help to prevent and mitigate negative social effects of the DCFTA, while enhancing new ones.

### 12.3.3 Policy recommendations related to the environmental pillar

Table 12.3 present the environmental policy recommendations.

**Table 12.3 Recommendations for the environmental pillar**

Policy measure	Potential to address	
	Within DCFTA	Outside DCFTA
Create incentives for environmentally friendly production.	√	√
Maintain / further improve incentives to improve efficient use of water in agricultural and industrial production.		√
Improve waste collection and waste management systems.		√
Consider creating mechanisms for monitoring of environmental (and social) impact of the DCFTA (and more broadly EU-Tunisia relations).	√	

The extent to which the DCFTA between the EU and Tunisia contributes to 'greening' the economy can be reinforced through trade and non-trade related provisions. Tunisia can make economic growth greener by promotion of green practices, reduction of barriers to green investment and innovation and reduction of environmental risks. In policy terms actions supporting green growth should combine a range of instruments such as specific education and trainings, smart allocation of resource and land rights, creating conditions for behaviour change and facilitating businesses to fully integrate sustainability and equity concern. Other measures to foster the 'greening' of the economy include certification of sustainable production and trade, reform of payments for ecosystem services and others<sup>230</sup> At present, there is no integrated strategy for green growth in place in Tunisia and further knowledge creation is needed to match the requirements of green jobs with the available labour force.

Access to water has been cited in this report as a constraining factor to development of the Tunisian economy and further improvement of living standards. Especially in the agricultural sector, the expected positive effect in some economic sectors might not fully materialise if the increased demand for water for irrigation purposes (e.g. in Vegetables and fruits) could not be met due the water scarcity problem. Specific trade provisions that eliminate existing barriers and duties to trade

<sup>230</sup> See OECD, Green Growth and Developing Countries. A Summary for Policy Makers June 2012, <http://www.oecd.org/dac/50526354.pdf> for more details. Accessed 22 May 2013.

in efficient and innovative equipment from the EU to Tunisia could contribute to alleviating the potentially negative effects of water scarcity. Tunisia has already started to increase water efficiency in the country through a number of initiatives, but increased technical assistance on water management could play a positive role in addressing the problem.

Thirdly, industrial, municipal and hazardous waste currently constitutes an environmental pressure in Tunisia as generated waste is not always collected and treated in an environmentally friendly manner. The impact assessment has shown that the generation of industrial waste could decline after the DCFTA, but municipal waste is expected to increase (in line with a growth in GDP). Effective enforcement of existing regulation is needed to prevent possible negative impacts of the DCFTA in this area, and possibly technical assistance could help to improve the situation.

Given the scope for environmental and other sustainable development effects of the DCFTA we recommend considering the establishment of simple and efficient monitoring mechanisms that would help both sides in assessing policy implications of certain decisions and processes. Lastly, on a more general note, (technical) assistance to support the design and implementation of environmental policy.

## 12.4 Sector-specific policy recommendations

Chapters 7 to 10 presented the in-depth sectoral analyses, which also included policy recommendations. These policy recommendations are presented here again, to provide a comprehensive overview of all recommendations.

### 12.4.1 Vegetables and fruits

**Table 12.4 Recommendations for Vegetables, Fruits and Nuts**

Policy measure	Potential to address within DCFTA	Potential to address outside DCFTA
Education of farmers about new technologies		✓
Financial support for investments in irrigation systems		✓
Environmental policies to prevent from further desertification, land erosion and depletion of water resources		✓

Productivity of the sector could be increased to make Tunisian VFN producers more competitive, for example through better education of the farmers and investments in irrigation systems. Solving the issue of access to finance for agricultural producers would also help.

Because desertification, land erosion, and water resources are already current environmental issues, attention must be paid to that as increased VFN production may enforce these issues.

#### 12.4.2 Textiles, clothing and leather

**Table 12.5 Policy recommendations for the textiles, clothing and leather sector**

Policy measure	Potential to address	
	Within DCFTA	Outside DCFTA
Monitor social and environmental effects in the sector.	√	√
Promote corporate social responsibility.	√	√
Promote investments in the sector to upgrade processes and products, potentially allowing for the move away from (dependent) subcontracting and consequently perform more activities along the value chain.		√
Establish streamlined support structures for Tunisian firms, particularly SMEs, to enhance their understanding of EU market access requirements.		√
Facilitate the sectoral upgrading process by providing suitable training and workshops that lead to more innovation and use of modern production techniques.		√

Given the uncertainty among the sectoral impact of the DCFTA and the current social and environmental issues in the sector, it would be important to monitor the social and environmental developments in the sector.

As outsourcing of EU companies to Tunisia is the main business model for the sector, the promotion of Corporate Social Responsibility could be a way to improve the labour conditions in the sector.

Given the price sensitivity of the sector and the limited added value, upgrading processes and products in the sector would help to increase the value added of the sector. This needs to be facilitated by measures that enhance the understanding of value creation by the means of innovation and use of modern production techniques. Tunisian companies need to be supported in building business models that tackle these challenges.

In addition, given the high percentage of SMEs in the sector, support measures need to be in place that increase the understanding of EU market access requirements. Typically, SMEs find it difficult to comply with these rules.

#### 12.4.3 Retail trade

**Table 12.6 Policy recommendations for retail trade**

Policy measure	Potential to address	Potential to address
	within DCFTA	outside DCFTA
Remove (or reduce) foreign ownership limitations in the retail sector (and other service sectors).	√	
Reduce administrative barriers hindering the commercial development of retail property		√
Support efforts to enhance competitiveness of small retail businesses and reduce fragmentation of the 'traditional' retail sector.		√

The main policy related conclusions are as follows:

1. Although an obvious ambition for the EU is to remove the current limitations of foreign ownership in the retail sector and more broadly across other service sectors, other administrative barriers relating to the development of suitable retail sites need to be addressed if investment (both by domestic and foreign firms) in the retail sector is to increase. Addressing these administrative barriers should be an issue raised as part of the DCFTA negotiations;
2. To mitigate against the potential negative impacts on the traditional retail sector, consideration should be given to support measures that could assist the development and modernisation of traditional retailers. These may include addressing training requirements to raise business-related skills and other forms of business support tailored to small retail businesses. Also, measures could be taken to address the highly fragmented nature of the sector, for example through collective/centralised purchasing.

#### 12.4.4 Water scarcity and water quality

**Table 12.7 Policy recommendations for water scarcity and water quality**

Policy measures	Potential to address within DCFTA	Potential to address outside DCFTA
Law enforcement for industry compliance to standards.		✓
Improved water treatment and recycling.		✓
Development of less water resources consuming strategies in agriculture.		✓
Promote sustainable water resources management in the tourism sector.		✓

As seen previously, the standards for wastewater discharge exist but they are often not respected. The ANPE estimates that on average only 40-45 percent of emissions comply with them (ANPE, 2011 in GWI, 2012). The level of law enforcement is currently very low and should be reinforced. The DCFTA can have a positive impact on this as part of the general trend for norms approximations. Stricter requirements on environmental management of industrial plants for instance, such as the norm ISO14001, can be pushed as a result of the DCFTA. Moreover the DCFTA can represent an additional pressure on the country to respect its international agreements, such as the Barcelona Convention to prevent pollution in the Mediterranean Sea.

With higher economic growth triggered by the DCFTA, it is expected that the amount of wastewater will also increase. The current system for wastewater treatment currently shows some weaknesses so it is worth investing in strengthening it. The Tunisian government is currently making important efforts in this direction; these efforts should be sustained. It is important to invest in wastewater treatment plants, and to enforce existing laws. Indeed, water treatment and reuse is an important issue, especially in a water-scarce country. Recycled water, if it meets the right standards, can be used for irrigation for instance, hence releasing the stress on fossil water resources.

Fruits and vegetables are one of the major country exports. The DCFTA will contribute to the sector growth and hence increase the pressure on already scarce water resources. In order to not impede the growth of the sector, and to ensure it is done in a sustainable way, development of alternative strategies in order to reduce the sector impact on water resources can be developed. In addition to strengthen the current efforts in better irrigation management, development of alternatives ways for cultivation could be supported and looked into. For instance, currently part of Tunisia's olive oil exports come from olive groves cultivated using dry-farming (for more details refer to Hamdane 2013). This has many advantages; one of the most interesting one is that it doesn't affect the water

resources (blue water) of the country. Investigations in technical improvements and investments in these kinds of measures could be strengthened. Moreover Tunisia could also look to develop a strategy where imports of food products containing high amount of virtual water and exports of food products with high added value but low level of water are maximized.

Tourism is a strategic sector for the Tunisian economy. The DCFTA will contribute to its growth. However it should be ensured that the expansion of the tourism sector is done sustainably with an adequate water resources management. Indeed, In Tunisia it is estimated that a touristic resident consumes in average 550 litres of water per day, which is about ten times the average consumption of a Tunisian (Ghozzi-Nékhili, 2011) so expansion of tourism in these conditions is not sustainable, especially because it has high impacts on local areas. Measures that can be taken to improve the sustainability of water resources management are notably awareness raising of the professional of the sector, the development of environmental norms and standards for management such as the ISO 14001 for instance, and the development of more indicators and monitoring of the sector. The latter is important as currently data on impacts of the tourism sector on water is scarce; implementing monitoring with specific indicators would allow to follow the evolution of the sector and its impacts on water resources.



# References

## Reference used in social and environmental quantitative analysis

Anthoff, D. (2007): *Report on marginal external damage costs inventory of greenhouse gas emissions, NEEDS Delivery n 5.4 – RS 1b.*

Anthoff, D., Hepburn, C., Tol, R. (2009): *Equity weighting and the marginal damage costs of climate change. In: Ecological Economics 68:3.*

Aquarone, M.C., Adams, S. and Mifsud, P., 2009. *Mediterranean Sea. In: Sherman, K. and Hempel, G. eds. The UNEP Large Marine Ecosystems report - A perspective on changing conditions in LME's of the world's Regional Seas [e-book], UNEP Regional Seas Report and Studies No. 182, Nairobi, pp. 189-199. Available at: <[http://www.lme.noaa.gov/index.php?option=com\\_content&view=article&id=178:unep-lme-report&catid=39:reports&Itemid=54](http://www.lme.noaa.gov/index.php?option=com_content&view=article&id=178:unep-lme-report&catid=39:reports&Itemid=54)>.*

Bertelsmann Stiftung, 2012. *BTI 2012 — Tunisia Country Report. Gütersloh. Available at: <<http://www.bti-project.org/fileadmin/Inhalte/reports/2012/pdf/BTI%202012%20Belarus.pdf>>.*

Chen, S. and M. Ravallion (2003): *Household Welfare Impacts of China's Accession to the World Trade Organization, Policy Research Working Paper no. 3040, The World Bank.*

Convention on Biological Diversity, n.d. *Tunisia - Country Profile [pdf]. Available at: <<http://www.cbd.int/countries/profile/default.shtml?country=tn>>.*

COWI, 2012. *Rapport de diagnostic sur la société civile tunisienne. Available at: <[http://eeas.europa.eu/delegations/tunisia/documents/projets/rapportdiagnostic\\_stecivile\\_mars2012\\_fr.pdf](http://eeas.europa.eu/delegations/tunisia/documents/projets/rapportdiagnostic_stecivile_mars2012_fr.pdf)>.*

Dabrowski, M., Dyker, D., Emerson, M., Izryadnova, O., Jarocinska, E., Kudina, A., Maliszewska, M., Ščasný, M., Volkov, Y., Volovik, N. (2009), *Free Trade Agreement between the European Union and the Russian Federation Economic, Social and Environmental Implications. Report prepared by CASE for DG TRADE, European Commission.*

De Janvry, A. and E. Sadoulet (2008): *Methodological Note: Estimating the Effects of the Food Price Surge on the Welfare of the Poor, mimeo, UC Berkeley.*

Daly-Hassen, H. and Mansoura, A., 2005. *Country Situations: Tunisia. In: Merlo, M. and Croitoru, L. eds. Valuing Mediterranean Forests - towards total economic value. Wallingford:CABI Publishing, pp. 105-131.*

Dasgupta, S., Laplante, B., Wang, H. and Wheeler, D., 2002. *Confronting the Environmental Kuznets Curve. The Journal of Economic Perspectives, 161, pp. 147-168.*

EC (2003). *External costs: Research results on socio-environmental damages due to electricity and transport. European Commission, Directorate-General for Research. Luxembourg: Office for Official Publications of the European Communities.*

*Ecorys and CASE (2012): Trade Sustainability Impact Assessment in support of negotiations of a DCFTA between the EU and Georgia and the Republic of Moldova. Final report. Funded by the European Commission.*

*EIM Business & Policy Research / Oxford Research, 2012. Survey on Sustainable Enterprise Development in the Mediterranean Partner Countries. Final Report [pdf]. Available at: <[http://ec.europa.eu/enterprise/policies/international/files/2012\\_survey\\_on\\_sustainable\\_enterprise\\_final\\_19\\_04\\_2012\\_en.pdf](http://ec.europa.eu/enterprise/policies/international/files/2012_survey_on_sustainable_enterprise_final_19_04_2012_en.pdf)>.*

*El Hedi Louati, M. and Bucknall, J., 2010. Tunisia's experience in water resource mobilization and management, WDR2010 Background Note [pdf]. Available at: <[http://siteresources.worldbank.org/INTWDR2010/Resources/5287678-1255547194560/WDR2010\\_BG\\_Note\\_Louati.pdf](http://siteresources.worldbank.org/INTWDR2010/Resources/5287678-1255547194560/WDR2010_BG_Note_Louati.pdf)>.*

*Emerson, J.W., Hsu, A., Levy, M.A., de Sherbinin, A., Mara, V., Esty, D.C. and Jaiteh, M. 2012. 2012 Environmental Performance Index and Pilot Trend Environmental Performance Index. [online] Available at: <<http://epi.yale.edu/epi2012/rankings>>.*

*Ernst & Young, n.d. Country focus: Tunisia. Available at: <<http://www.ey.com/GL/en/Industries/Power---Utilities/RECAI---Tunisia>>.*

*European Commission, n.d. European Neighbourhood and Partnership Instrument Tunisia / Strategy Paper 2007-2013 & National Indicative Programme 2007-2010 [pdf]. Available at: <[http://ec.europa.eu/world/enp/pdf/country/enpi\\_csp\\_nip\\_tunisia\\_summary\\_en.pdf](http://ec.europa.eu/world/enp/pdf/country/enpi_csp_nip_tunisia_summary_en.pdf)>.*

*European Commission, 1995. Association Agreement between the EC and Tunisia signed 1995 [pdf]. Available at: <[http://trade.ec.europa.eu/doclib/docs/2006/march/tradoc\\_127986.pdf](http://trade.ec.europa.eu/doclib/docs/2006/march/tradoc_127986.pdf)>.*

*European Commission, 2006. Support to DG Environment for the development of the Mediterranean De-pollution Initiative "Horizon 2020" - Review of Ongoing and Completed Activities [pdf]. Available at: <[http://ec.europa.eu/environment/enlarg/med/pdf/review\\_report08\\_en.pdf](http://ec.europa.eu/environment/enlarg/med/pdf/review_report08_en.pdf)>.*

*European Commission, 2013. Panorama of EU Regional Programmes and Projects. Southern Mediterranean [pdf]. Available at: <[http://www.enpi-info.eu/files/publications/PanoramaSouthMagEN\\_s42\\_v26\\_A4.pdf](http://www.enpi-info.eu/files/publications/PanoramaSouthMagEN_s42_v26_A4.pdf)>.*

*Eurostat (2009): "Manual for Air Emissions Accounts", Annex 1 "Correspondence between SNAP97 (CRF/NFR) and NACE rev.1.1" and Annex 2 "Correspondence between 1996 IPCC source categories (CRF/NFR) and SNAP97".*

*FAO, 2009. Groundwater Management in Tunisia - Draft Synthesis Report [pdf]. Available at: <[http://www.groundwatergovernance.org/fileadmin/user\\_upload/groundwatergovernance/docs/Country\\_studies/Tunisia\\_Synthesis\\_Report\\_Final\\_Groundwater\\_Management.pdf](http://www.groundwatergovernance.org/fileadmin/user_upload/groundwatergovernance/docs/Country_studies/Tunisia_Synthesis_Report_Final_Groundwater_Management.pdf)>.*

*FAO, 2010. Evaluation des Ressources Forestières Mondiales 2010. Rapport National Tunisie [pdf]. Available at: <<http://www.fao.org/docrep/013/al648f/al648f.pdf>>.*

*FAO, 2012. AQUASTAT. Tunisia Irrigated Crop Calendar [pdf]. Available at: <[http://www.fao.org/nr/water/aquastat/water\\_use\\_agr/CC\\_PDF/CC\\_TUN.pdf](http://www.fao.org/nr/water/aquastat/water_use_agr/CC_PDF/CC_TUN.pdf)>.*

FAO, 2013. *State of Mediterranean Forests 2013* [pdf]. Available at: [http://www.planbleu.org/publications/etat\\_foret\\_med2013EN.pdf](http://www.planbleu.org/publications/etat_foret_med2013EN.pdf).

Fattouh, B. and El-Katiri, L., 2012. *Energy Subsidies in the Arab World, Arab Human Development Report - Research Paper Series* [pdf]. Available at: <http://www.undp.org/content/dam/undp/library/Environment%20and%20Energy/UNDP-EE-AHDR-Energy-Subsidies-2012-Final.pdf>.

Fodha, M. and Zaghdoud, M., 2010. *Economic growth and pollutant emissions in Tunisia: An empirical analysis of the environmental Kuznets curve*. *Energy Policy*, 38(2), pp. 1150-1156.  
International Tanker Owners Pollution Federation Limited, 2011. *Country profile Tunisia* [pdf]. Available at: [http://www.itopf.com/\\_assets/country/tunisia.pdf](http://www.itopf.com/_assets/country/tunisia.pdf).

Global Fairness Initiative, ISTIS, TAMSS (2013) *Survey of informal workers in Tunisia, study report, June 2013*. Available at: <http://www.globalfairness.org/attachments/article/118/FINAL%20SURVEY%20REPORT%20ENGLISH.pdf>.

GIZ, n.d. *Implementing the United Nations Framework Convention on Climate Change*. Available at: <http://www.giz.de/themen/en/29182.htm>.

GTZ, n.d. *Supporting implementation of the United Nations Framework Convention on Climate Change (UNFCCC)* [pdf]. Available at: <http://www.giz.de/Themen/en/dokumente/en-brochure-unfccc.pdf>.

HM Treasury (2011): *The Green Book: Appraisal and Evaluation in Central Government*, London: TSO, [http://www.hm-treasury.gov.uk/d/green\\_book\\_complete.pdf](http://www.hm-treasury.gov.uk/d/green_book_complete.pdf).

Hunt, A. (2006) "General Issues in Costing Analysis: Units of account, Base years, and Currency conversion", Annex B to HEATCO Deliverable 5, University of Bath, Downloaded from [http://heatco.ier.uni-stuttgart.de/HEATCO\\_D5\\_Annex.zip](http://heatco.ier.uni-stuttgart.de/HEATCO_D5_Annex.zip).

INS (2012): *Mesure de la pauvreté, des inégalités et de la polarisation en Tunisie: 2000-2010*, National Statistical Office of Tunisia (INS)/ African Development Bank/ The World Bank.

IUCN, 2012. *IUCN Red List Version 2012.2 - Threatened species in each country totals by taxonomic group* [pdf]. Available at: [http://www.iucnredlist.org/documents/summarystatistics/2012\\_2\\_RL\\_Stats\\_Table\\_5.pdf](http://www.iucnredlist.org/documents/summarystatistics/2012_2_RL_Stats_Table_5.pdf).

Khamis El Sayyed, M., 2008. *Marine Environment*. In: Tolba, M.K. and Saab, N.W., eds. *Arab Environment: Future Challenges, 2008 Report of the Arab Forum for Environment and Development* [e-book], pp. 75-94. Available at: <http://www.afedonline.org/afedreport/english/book6.pdf>.

Larson, B.A., Nicolaidis, E., Al Zu'bi, B., Sukkar, N., Laraki, K., Matoussi, M.S., Zaim, K. and Chouchani, C., 2002. *The Impact of Environmental Regulations on Exports: Case Study Results from Cyprus, Jordan, Morocco, Syria, Tunisia, and Turkey*. *World Development*, 30(6), pp. 1057-1072.

Maliszewska, M., Jarocińska, E., Ščasný, M. (2010), *Modelling Economic, Social and Environmental Implications of a Free Trade Agreement Between the European Union and The Russian Federation*, No 93, CASE Network Reports.

McNeil, S.T. and Addala, R., 2013. *Pollution in Gabes, Tunisia's shore of death*. Al Jazeera, 14 June 2013. Available at:  
<<http://www.aljazeera.com/indepth/features/2013/06/20136913247297963.html>>.

Narayanan, B. et al. (2008), "Guide to the GTAP Data Base".

OECD (2013), *Renewable Energies in the Middle East and North Africa: Policies to Support Private Investment*, OECD Publishing [pdf]. Available at: <[http://www.oecd-ilibrary.org/finance-and-investment/renewable-energies-in-the-middle-east-and-north-africa\\_9789264183704-en](http://www.oecd-ilibrary.org/finance-and-investment/renewable-energies-in-the-middle-east-and-north-africa_9789264183704-en)>.

Preiss P, Friedrich R and Klotz V (2008). *Report on the procedure and data to generate averaged/aggregated data. Deliverable n° 1.1 - RS 3a. R&D Project NEEDS – New Energy Externalities Developments for Sustainability*. Prepared for DG Research. Available at:  
<<http://www.needs-project.org/docs/RS3a%20D1.1.zip>>.

Regional Activity Centre for Cleaner Production (RAC/CP), 2011. *State of the Art of Green Entrepreneurship in Tunisia*, Tunis. Available at: [www.cprac.org/docs/state\\_of\\_art\\_ge\\_tunisia.pdf](http://www.cprac.org/docs/state_of_art_ge_tunisia.pdf).

Republic of Tunisia, 2010. *XIIème Plan de Développement 2010-2014* [pdf]. Available at:  
<[www.mdrp.gov.tn/fileadmin/publications/XIIPlan\\_Global\\_FR.pdf](http://www.mdrp.gov.tn/fileadmin/publications/XIIPlan_Global_FR.pdf)>.

Stern, N. (2007). *The Economics of Climate Change: The Stern Review*. Cambridge: University Press.

Sweepnet, 2010. *Country report on the solid waste management in Tunisia* [pdf]. Available at:  
<<http://www.sweep-net.org/ckfinder/userfiles/files/country-profiles/rapport-tunisie-en.pdf>>.

Sweepnet, 2012. *Rapport pays sur la gestion des déchets solides en Tunisie* [pdf]. Available at:  
<[http://www.sweep-net.org/sites/default/files/files/Rapport%20FR%20TUNISIE%202012\(1\).pdf](http://www.sweep-net.org/sites/default/files/files/Rapport%20FR%20TUNISIE%202012(1).pdf)>.

Talhouk, S.N. and Abboudafed, M., 2008. *Ecosystems and Biodiversity*. In: Tolba, M.K. and Saab, N.W. eds. *Arab Environment: Future Challenges, 2008 Report of the Arab Forum for Environment and Development* [e-book], pp. 101-112. Available at:  
<<http://www.afedonline.org/afedreport09/english/Char8.pdf>>.

The Emissions Database for Global Atmospheric Research (EDGAR):  
<http://edgar.jrc.ec.europa.eu/overview.php?v=42>.

Tol, R. (2005): *The marginal damage costs of carbon dioxide emissions: an assessment of the uncertainties*. In: *Energy Policy* 33.

Tunis International Center for Environmental Technologies, 2009. *Institutional framework and decision-making practices for water management in Tunisia: Towards the development of a strategy for improved groundwater management* [pdf]. Available at:  
<<http://environ.chemeng.ntua.gr/ineco/UserFiles/File/Deliverables/Publishable%20Report%20-%20Tunisia.pdf>>.

Tunisian Ministry of Economy and Finance, n.d. Industrial depollution fund "FODEP" [online]. Available at: <[http://www.finances.gov.ma/portal/page?\\_pageid=93,17878092&\\_dad=portal&\\_schema=PORTAL](http://www.finances.gov.ma/portal/page?_pageid=93,17878092&_dad=portal&_schema=PORTAL)>.

Tunisian Ministry of Environment, n.d. a. Clean Development Mechanism CDM in Tunisia [online]. Available at: <<http://www.mdptunisie.tn/en/index2.php#>>.

Tunisian Ministry of Environment, n.d. b. Environment in Tunisia [online]. Available at: <[http://www.environnement.gov.tn/index.php?option=com\\_content&task=view&id=75&Itemid=94&lang=english](http://www.environnement.gov.tn/index.php?option=com_content&task=view&id=75&Itemid=94&lang=english)>.

Tunisian Ministry of Environment, n.d. c. Environmental policy [online]. Available at: <[http://www.cime-tunisie.nat.tn/index.php?option=com\\_content&view=article&id=54&lang=en&Itemid=0](http://www.cime-tunisie.nat.tn/index.php?option=com_content&view=article&id=54&lang=en&Itemid=0)>.

Tunisian Ministry of Environment, n.d. d. Espace ONGs [online]. Available at: <[http://www.environnement.gov.tn/index.php?option=com\\_content&task=view&id=71&Itemid=89&limit=1&limitstart=1](http://www.environnement.gov.tn/index.php?option=com_content&task=view&id=71&Itemid=89&limit=1&limitstart=1)>.

Tunisian Ministry of Environment, n.d. e. International conventions [online]. Available at: <[http://www.environnement.gov.tn/index.php?option=com\\_content&task=view&id=106&Itemid=128](http://www.environnement.gov.tn/index.php?option=com_content&task=view&id=106&Itemid=128)>.

Tunisian Ministry of Environment, n.d. f. Legislative and institutional framework [online]. Available at: <[http://www.environnement.gov.tn/index.php?option=com\\_content&task=view&id=59&Itemid=75&lang=english](http://www.environnement.gov.tn/index.php?option=com_content&task=view&id=59&Itemid=75&lang=english)>.

Tunisian Ministry of Environment, n.d. g. Vulnerability and Adaptation [online]. Available at: <[http://www.environnement.gov.tn/index.php?option=com\\_content&task=view&id=124&Itemid=146&limit=1&limitstart=0](http://www.environnement.gov.tn/index.php?option=com_content&task=view&id=124&Itemid=146&limit=1&limitstart=0)>.

Tunisian Ministry of Environment and Land Planning, 2001. Initial Communication of Tunisia under the United Nations Framework Convention on Climate Change [pdf]. Available at: <<http://unfccc.int/resource/docs/natc/tunnc1esum.pdf>>.

UNEP, n.d. Mediterranean Region [pdf]. Available at: <[http://www.unep.org/regionalseas/programmes/unpro/mediterranean/instruments/r\\_profile\\_med.pdf](http://www.unep.org/regionalseas/programmes/unpro/mediterranean/instruments/r_profile_med.pdf)>.

UNEP/MAP/MED POL, 2005. Transboundary Diagnostic Analysis TDA for the Mediterranean [pdf]. Available at: <<http://195.97.36.231/acrobatfiles/MAPDocAcrobatfiles/GEF/MedTDA.pdf>>.

UNEP and WHO, 1999. Identification of priority pollution hot spots and sensitive areas in the Mediterranean [pdf]. Athens: MAP Technical Reports Series No. 124. Available at: <<http://195.97.36.231/acrobatfiles/MTSAcrobatfiles/mts124Eng.pdf>>.

UN Sustainable Development Knowledge Platform, n.d. PROSOL- Solar Programme [online]. Available at: <<http://sustainabledevelopment.un.org/index.php?page=view&type=1006&menu=1348&nr=2021>>.

Van Acoleyen, M. and A. Baouendi (2011). *Analysis for European Neighbourhood Policy (ENP) Countries and the Russian Federation of social and economic benefits of enhanced environmental protection – Tunisia Country Report, funded by the European Commission, Brussels* [pdf]. Available at: <<http://www.environment-benefits.eu/pdfs/Tunisia-ENPI%20Benefit%20Assessment.pdf>>.

Van Breusegem, W. and Soulami, M. (2011). *Analysis for European Neighbourhood Policy (ENP) Countries and the Russian Federation of social and economic benefits of enhanced environmental protection – Morocco Country Report, funded by the European Commission, Brussels*.

World Bank, 2004. *Tunisie: Analyse de la performance environnementale* [pdf]. Available at: <<http://siteresources.worldbank.org/INTRANETENVIRONMENT/3635842-1175696087492/20441315/TunisiaCEA2004.pdf>>.

World Water Assessment Program, 2009. *The United Nations World Water Development Report 3: Water in a Changing World* [pdf]. Available at: <[http://webworld.unesco.org/water/wwap/wwdr/wwdr3/case\\_studies/pdf/Case\\_Studies\\_Africa.pdf#page=12](http://webworld.unesco.org/water/wwap/wwdr/wwdr3/case_studies/pdf/Case_Studies_Africa.pdf#page=12)>.

#### Reference used in the water sectoral analysis

Ahmed CB, Rouina, BB, Boukhriss M, “Tunisia: Salinization and Sustainability of Agriculture”, 2011 *African Economic Outlook, “Tunisia Country Note”, 2013.*

Besbes Mustapha, “L’eau en Tunisie: gestion de la rareté, conjecture de pénuries”, 2011.

Croitoru Lelia, Sarraf Maria, “The cost of environmental degradation: case studies from the Middle East and North Africa”, World Bank, 2010.

El Hedi Louati, M. and Bucknall, J., “Tunisia’s experience in water resource mobilization and management”, WDR2010 Background Note, 2010.

El Kharraz Jauad, El-Sadek Alaa, Ghaffour Noredine, Mino Eric, “Water scarcity and drought in WANA countries”, *Procedia Engineering* 33, 2012.

European Commission, “Support to DG Environment for the development of the Mediterranean Depollution Initiative “Horizon 2020” - Review of Ongoing and Completed Activities”, 2006.

FAO, AQUASTAT, *Tunisia Irrigated Crop Calendar, 2012*. Available at: [http://www.fao.org/nr/water/aquastat/water\\_use\\_agr/CC\\_PDF/CC\\_TUN.pdf](http://www.fao.org/nr/water/aquastat/water_use_agr/CC_PDF/CC_TUN.pdf)

Ghozzi-Nékhili Chiraz, “Quelle stratégie de développement durable dans les hôtels en Tunisie?”, *Vertigo*, volume 11, numéro 3, December 2011.

Global Water Intelligence (GWI), “Global water and wastewater quality regulations 2012”, 2012  
Hamdane Abdelkader, “Latriade “eau bleue, eau verte, eau vituelle” et la sécurité alimentaire en Tunisie”, 2013.

Hyatt Justin, "In Southern Tunisia, Pollution No Longer Swept Under the Rug", Inter Press Service News Agency, 7 June 2013.

Investir en Tunisie, "unisie: le taux de pollution risque de devenir incontrôlable", 8 June 2013.

Ministry of Agriculture, "Etude de révision et d'amendement du Code des Eaux", Avril 2012.

UN-Water, FAO, "Coping with water scarcity - Challenge of the twenty-first century", World Water Day, 2007.

World Health Organization (WHO), "Water scarcity – Fact Files", 2009.

World Bank, "Réflexion Stratégique sur l'Eau Potable et L'Assainissement en Tunisie", 2009.

World Water Assessment Programme, "The United Nations World Water Development Report 3: Water in a Changing World", 2009.

United Nations, "Water for Life Decade", [www.un.org/waterforlifedecade/scarcity.shtml](http://www.un.org/waterforlifedecade/scarcity.shtml).

US Geological Survey, Water Science School,  
<http://ga.water.usgs.gov/edu/watercyclefreshstorage.html>.



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