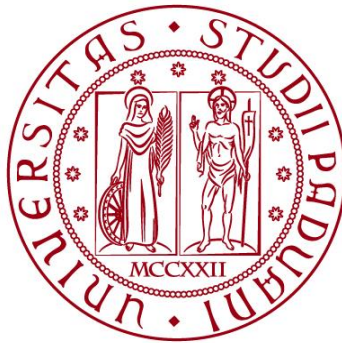


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**Master Thesis**

**Blended finance for climate change adaptation in  
developing countries: case study of Jendouba,  
Tunisia, T.R.A.C.E. project.**

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# RESEARCH QUESTION/OBJECTIVES

*“Can blended finance projects in developing countries be considered as good practice for climate change adaptation and the achievement of the SDGs?”*

International aids or finance for development projects have been always implemented in the developing world aiming at helping those countries in achieving the Sustainable Development Goals (SDGs) and, in general economic development. However, it is generally known that the classic development projects/ international aids, most of the time did not achieve the expected results for many reasons, creating a high grade of dependency between the beneficiaries and the donors, disadvantaging the beneficiaries. Therefore, in this regard, several questions came up in my mind:

- How could be possible help the most disadvantaged areas of the world, without creating dependency?
- Which could be a good practice for achieving the SDGs in the developing world?
- How is it possible to reduce the gender gaps? Could be by increasing the rate of employment?
- What does it mean blended finance? Which are its features and limitations? Is it working?

I did not know anything about blended finance before starting this research and therefore I wanted to find out if this innovative kind of development project had the needed features for answering to the above-mentioned questions.

Therefore, the main objective of this thesis is to find out if blended finance projects could be taken in consideration as a good practice for achieving sustainable development in developing countries, showing its strengths and its limitations.

# METHODOLOGY / RESEARCH DESIGN

The current thesis aims at showing how a blended finance project can enhance sustainable and rural development in developing countries, achieving the SDGs. In particular, the thesis takes as example of case study the T.R.A.C.E. project (Tunisian Rural Agricultural Chains of Employment) implemented in three rural provinces in Tunisia. The project is promoted by Microfinanza s.r.l. (Italy), ACK international (France), and AGER (Tunisia).

After my internship, I came in contact with Microfinanza s.r.l. for doing another internship, but it wasn't possible, so we decided together to make a collaboration using their project (TRACE) as case study for my thesis, since it was in line with my Master's topics and with what I was looking for my Master's thesis. The context in which Microfinanza is working (Province of Jendouba, Northwest of Tunisia) presents all the features that I wanted to investigate:

- Gender disparities in access to work and in the rate of employment
- Climate change is negatively affecting agriculture and in general, the entire region
- Jendouba is one of the most disadvantaged area in Tunisia

Therefore, it was perfect investigate a project of blended finance, which aims at enhancing sustainable development, in a region with the above-mentioned features, trying to understand its objectives and its currently results.

In order to study in the best way possible the project, I decided, agreeing with my supervisor and Katia Raguzzoni (the project manager who helped me in gathering all the information), to adopt a qualitative research. The entire thesis has been a research work, consulting papers, scientific articles,

websites, reports, and in the last chapter, I made a brief data analysis. The thesis has been structured in three chapters:

- 1) The first chapter is a literature review of three key concepts, extremely important for understanding the main objectives of the thesis. I started, reading articles and scientific papers about blended finance in developing countries. After the consultation, I report the main features of it, trying to point out what blended finance is, how it works and what are its strengths and its limitations. I made the same process for gender inequalities in developing countries, trying to focus on the disparities in access to work especially in rural areas. At the end of the first chapter, I dedicated a section to the environmental and social framework promoted by the World Bank, since the fund is managed by it. In this section, I tried to put the emphasis on the strengths and the limitations of the Environmental and Social Standards, since there exists a debate about its implementation in developing countries.
- 2) The second chapter aims at giving a framework of the territory where TRACE project is working. Here, it has been made an analysis of Tunisia and Jendouba, trying to describe the socioeconomic situation, the effects of climate change, and the microfinance context. This chapter is crucial for understanding why the project decided to work there and which are the main challenges of the territory.
- 3) The third chapter is a kind of “solution” of the described theme. Indeed, this chapter is a description of the project, which aims at solving or partially solving the issues presented in the thesis. Here, Microfinanza provided me all the reports and articles that I needed for gathering all the information for the description of the project. Moreover, they provided me the dataset with all the information concerning the beneficiaries of the project. The dataset presents information on the gender, marital status, education level, the kind of agricultural activity, the number of expected job places creation, the number of financing they receive, and the kind of employment they

are expecting to create. Having all these information, I decided to find an indicator, which indicates me the expected return of employment. This indicator, which I named ERE (Expected Return of Employment), provide the expected number of job creation every US\$ of financing. In order to finding it I used the following equation:

$$ERE = \frac{\sum_{k=24}^{24} \frac{e}{f}}{k}$$

ERE is the average of the sum of the division between the expected number of employment creation and the total financing of each beneficiaries. In the above-mentioned equation, “K” represents the number of beneficiaries who currently receive the funding; “e” represents the expected number of employment creation; and “f” represents the total financing they received. After calculating the ERE it has been possible to understand which was the most efficient sector concerning employment creation. Again, it has been calculated the ERE concerning only the financing from TRACE and, dividing the ERE with the TRACE’s ERE it was possible to know the multiplier effect in terms of employment creation.

It is important to report that I decided to find this indicator, it is not an indicator founded by Microfinanza’s consortium. The professor Lanzavecchia and I decided to find this indicator in order to understand how many new job places are expected to be created every US\$ of financing (based on the current data).



# LIMITATIONS:

The TRACE project started one year ago and it will finish by the end of 2023, therefore, currently, we are in the pilot phase with provisory results. This is the biggest limitation of the entire thesis, since every findings of the research is based on provisory results either on a small share of cases. Indeed, nowadays, the project is in the phase of finding the possible beneficiaries of the funding. In Jendouba they have found only 24 beneficiaries out of 100, therefore all the current results are not enough significant for a broader research in all its complexity.

Another limitation of the research could reside in the fact that I did not have the opportunity of going to Jendouba and make a fieldwork. A fieldwork could have gave me the opportunity of understanding with my eyes the territory, the opinions of beneficiaries concerning the project, make interviews, in order to provide a better description of the project. When I started to collaborate with Microfinanza s.r.l. we agreed on the fact that I could go with them in Tunisia. However, due to issues related to safety, political situation and language barriers, I did not have the opportunity of going there. However, thanks to Katia Raguzzoni, I was able to gather all the information needed for the scope of my thesis, even if further research and future monitoring are undoubtedly needed for having results more valuable.

# INTRODUCTION

The work I carried out consists of an analysis of a “blended finance” project implemented in the region of Jendouba, Tunisia, trying to show how it can be seen as a model of adaptation to climate change that aims at enhancing the reduction of poverty, creation of young and female employment and reduction of gender inequalities at a local level. The project is called “Tunisian Rural Agricultural Chains of Employment” (T.R.A.C.E.), promoted by Ager, ACK international, and Microfinanza s.r.l., which I collaborated with.

Climate change is undoubtedly the most threatening challenge humanity has to face and adaptation measures are more and more needed, especially in developing countries, where, climate change will be more impactful for several reasons. First, physical impacts are expected to be higher with an increase in temperatures and a decrease in rainfalls. Secondly, the majority of developing countries are highly dependent on agriculture, in terms of GDP and employment, which is the most affected sector by climate change. Thirdly, the poor people living in these countries are expected to be more vulnerable to climate change and, finally, the financial and technological capacity to adapt to climate change is generally more limited in developing countries (Mertz et. al., 2009). In developing countries, climate change will increase heat and moisture stresses, especially in the agricultural sector, contributing to an already long list of existing problems. The vulnerability of the agricultural sector in many developing countries is mainly caused by poverty and limited economic capacities, such as accumulating and selling products when prices are attractive. Therefore, the current socio-economic and technological drivers of change in agriculture have so far made climate change 'just' another stress factor in the system (ibid).

Therefore, adaptation measures are needed in order to fight climate change. According to the IPCC report, 2022, adaptation to climate change is “reducing climate risks and vulnerability mostly via adjustment of existing systems” (IPCC, 2022). Many adaptation options are used for managing the

already existing projected impacts, but their effectiveness depends on the capacity of the governance and decision-making processes of local governments (ibid). Therefore, adaptation measures could bring several benefits such as biodiversity conservation, increase in agricultural productivity, food security, and reduction of risks and damages (ibid).

In this context, it is relevant to report how blended finance projects in developing countries, such as the project object of this thesis, aim at enhancing the goals above-mentioned. Indeed, one of the main issues in the developing world is related to the fact that there is a lack of technologies for agricultural practices and financial power for trying to adapt to climate change. The most interesting aspect of blended finance is the fact that it aims at creating a condition of non-dependency with international financial aid. The following thesis aims at showing how the T.R.A.C.E. project could be seen as a good practice for adaptation to climate change, generating, of consequence, several added benefits to the local population.

The thesis is divided into 3 chapters and after that, there will be conclusions about the entire work.

The first chapter consists of a description of a conceptual framework concerning the theoretical themes handled by the T.R.A.C.E. project. It is divided into 4 sub-chapters:

- Literature review of blended finance in developing countries
- Literature review of gender equality in rural areas
- Description of environmental and social standards
- Dialogue between conceptual framework and case study.

The first two sub-chapters are quite similar since they consist of an analysis of two big themes through a literature review. The first sub-chapter discusses the importance of blended finance in the context of sustainable development for developing countries, pointing out its strengths and its limitations. The second sub-chapter analyses the issue of gender inequality in rural areas, to what extent it is a constraint to economic development, and why it is important to achieve gender equality in developing countries. After this, there will be the third sub-chapter, which is a description of the

environmental and social standards promoted by the World Bank. This brief analysis is strongly needed, since the entire project is managed by the World Bank and, therefore, it is important to understand how much the ESSs are efficient and how much they are binding for projects like this. Finally, the conceptual framework ends with a brief dialogue between the theoretical part and the case study, in order to better understand why these themes are important for the general aim of the thesis.

The second chapter consists of an analysis of the territory object of the T.R.A.C.E. project (Jendouba, Tunisia), in order to understand in which context the project is working, pointing out its threats and strengths. The second chapter is therefore divided into 6 sub-chapters, aiming at giving a correct framework of the territory:

- Tunisian socioeconomic situation
- Role of agriculture in the Tunisian economy
- Climate change and resource management
- Financial system
- Jendouba
- Dialogue between the second and third chapter

The first sub-chapter consists of an analysis of the Tunisian socioeconomic context, pointing out its economic structure and its biggest social threats. Since the project consists essentially in creating young and female employment in rural areas, the second sub-chapter will discuss the role of agriculture in the Tunisian economy, analysing its potential and its limitations. The third sub-chapter will analyse how and how much climate change is affecting Tunisian agriculture and Tunisian resource management. After this, there will be the fourth sub-chapter, which consists of a description of the Tunisian financial system, giving particular attention to the microfinance networks and commercial banks. The fifth sub-chapter will describe the context of the province of Jendouba, which is one of the province objects of the project. Finally, the last sub-chapter of the second chapter will be a dialogue between the second and the third chapter, trying

to create a link between the analysis of the territory and the third chapter, which is the core of the thesis.

Finally, the third and last chapter will describe the T.R.A.C.E project aiming at showing its potential, but also its limitations. The chapter is divided into 3 sub-chapters: First, there will be a general description of the project, starting from its objectives, then the stakeholders engaged, and finally, the approach implemented. Then, the second part of the third chapter will discuss the environmental and social risks management, with a particular focus on the framework management of the World Bank's ESSs. Finally, the last sub-chapter is dedicated to the analysis of the pilot phase, showing the provisory results and what is expected for the continuation of the project. In the very last part of the third chapter, I will explain the Data analysis that I made showing an indicator that I found, which basically allow to understand how many new job places are created every US\$ of financing.

In the very last part of the thesis, I will draw my conclusions on the project and its objectives, trying to point out if it could be taken as a model for adaptation to climate change project and trying to understand if it has the potential to reach its goals.

# CHAPTER 1: CONCEPTUAL FRAMEWORK

## 1.1 Literature review of blended finance for developing countries

Blended finance is an emerging approach in the context of finance for sustainable development and it is considered one of the most efficient tools concerning finance for development in developing countries. The idea of blended finance is not new, but it has become an important element in the development discourse recently, bringing to a debate from a theoretical point of view (Pereira, 2017). The aim of this section is to explain the main definitions and the mechanisms of blended finance, trying to point out why it is important and which sectors it can improve. There are several definitions of blended finance, and, generally, they diverge on the focus, which could be the aim, the mechanics, the nature etc. Nonetheless, most definitions share some common elements, which are the collaboration between the public and private sectors and the aim to enhance sustainability (Zheng et. Al., 2020). The most common definition of blended finance was coined in Addis Ababa Action Agenda in 2015 putting the focus on how it works:

*“Blended finance [...] combines concessional public finance with non-concessional private finance and expertise from the public and private sector” (Addis Ababa Action Agenda, 2015)*

Another important definition for the aim of this work was given by Havemann et. Al., in the article *“Blended finance for agriculture: exploring the constraints and possibilities of combining financial instruments for sustainable transitions”*, written in 2020, where blended finance is defined as:

*“The strategic use of concessionary funding mechanisms in order to mobilize additional private finance to achieve additional, measurable, non-financial development (impact) outcomes”.*

This definition presents three aspects important to highlight: First, it is inclusive concerning the source of concessional funding, recognising that this funding may be broader than traditional lenders and development tools. Secondly, it states that the main purpose is to mobilize additional finance. Finally, it states that another purpose is to have the additionality of non-financial impacts. Hence, it is referring to environmental and social impacts aiming at achieving SDGs.

In theory, the mechanics of blended finance are quite simple. Blended finance uses concessional finance, i.e. subsidies, in order to reduce the risk of an investment, aiming at attracting *additional* finance for development (Pereira, 2017). For instance, the subsidies can be used to absorb a share of the risk of the investment, usually, it can be achieved through the use of ODA (Official Development Assistance) (ibid). According to Attridge et. Al., in the article *“Blended finance in the poorest countries: the need for a better approach”* written in 2019, blended finance presents three key pillars. First, is the use of concessionary capital, which usually comes from the public sector. Secondly, the fact that such capital should stimulate additional finance, usually from the private sector. Finally, the fact that this mobilized capital will generate a development impact in the area (Attridge et. Al., 2019). Nevertheless, it exists different ways for the implementation of blended finance. Concerning that, in the report of 2021, *“The state of blended finance”* published by Convergence, the authors point out four common blended finance structures:

1. Public or philanthropic investors, provide funds on below-market terms within the capital structure to lower the overall cost of capital or to provide an additional layer of protection to private investors.
2. Public or philanthropic investors provide credit enhancement through guarantees or insurance on below-market terms.

3. The transaction is associated with a grant-funded technical assistance facility that can be utilized pre- or post-investment to strengthen commercial viability and developmental impact.
4. Transaction design or preparation is grant-funded (including project preparation or design-stage grants).

From a theoretical point of view, there are two key concepts, which are crucial in understanding blended finance: The concepts of “additionality” and “leverage ratios” (Attridge et. Al., 2019). Additionality refers to the added value of blended finance and is worldwide known that there exist two forms of additionality. 1) *Financial additionality*, which refers to the fact that a public investment generates private investments that would not have materialised otherwise; 2) *development additionality*, which refers to the fact that development impacts are secured in a commercial investment, which would not have existed without it (ibid). More specifically, in the context of ODA, additionality could be defined as:

*“The unique inputs and services that the use of ODA funds provided in addition to those delivered by market and non-market institutions”*  
(Pereira, 2015).

On the other hand, the other peculiarity of blended finance resides in the concept of leverage ratios. The concept of leverage ratios, in the context of blended finance, it is generally referring to the fact that concessional finance aims at creating a leverage effect concerning private investments (ibid). More specifically, it could be defined as:

*“The relationship between the amount of finance mobilised and the amount of finance that has been injected”* (Pereira, 2017).



Therefore, understanding these two concepts is crucial to better comprehend what makes blended finance approach distinctive and how it can bring added value to the development finance world.

In the scientific literature, there is a debate about the effectiveness of blended finance for development in developing countries. According to Freiburghaus et. Al., in the article *“Blended Finance How blended finance can close the prevailing investment gap and allow social enterprises to grow”*, written in 2016, there are potential opportunities and threats for both the donor and recipient side. From the donor perspective, blended finance is an important tool for increasing the leverage of ODA and of consequence, its effectiveness (European Commission, 2009). Because of this, the institution’s image in public could be strengthened and it can improve its position concerning the allocation of resources among policy sectors (Freiburghaus et. Al., 2016). Blended finance is, therefore, a flexible tool since it can fulfil the specific needs of the donor, the private sector and the project itself (ibid). From the recipient's perspective, the potential opportunities are more evident, since blended finance can help beneficiaries to have access to international markets and market knowledge (ibid). Especially for low-income countries, blended finance could play a crucial role in the access to international markets, since it exists an important lack of the access to capital markets (ibid). Finally, technical assistance can help these countries in improving their efficiency and securing international standards (European Commission, 2009).

However, blended finance has its limitations. According to Freiburghaus et. Al., there are threats both from the donor and recipient perspective. For instance, from the donor's point of view, the leverage ratio could turn into a threat, since it can reduce the contribution of public institutions restricting its influence on the project implementation (Eurodad, 2013). This can happen when the level of the leverage ratio is too high (ibid). Therefore, blended finance sometimes can create an institutional problem in developing countries from a decision-making point of view. “If a project develops in an

unintended direction that is not in line with the public institution's norms and conditions, taking corrective measures becomes increasingly difficult" (Freiburghaus et. Al., 2016). Another issue from the donor perspective could be generated by evaluating the exact amount of capital needed for a project to become attractive (ibid). A non-precise evaluation of the amount of capital could bring to under-over capitalization, leading to two different problems. Concerning undercapitalization, private investors will not be encouraged to invest capital, because it could be too risky. While, in the case of an overcapitalization, the public institution can exclude private investment due to crowding investment, leading to a deterioration of the leverage ratio and to market distortions (ibid). From the recipient's perspective, there are issues related to the fact that blended finance could involve a market-oriented approach which could lead to a conflict between businesses with different purposes (ibid). According to Jäger et. Al., in the article "*Integrated organizational identity: A definition of hybrid organizations and a research agenda*", written in 2014, the beneficiaries of the credit need to become more profit-oriented, disregarding social issues. Thus, can generate two different kinds of problems. On one hand, an organization can be not prepared for a change of strategy like that and, on the other hand, it could drift away from its original purpose (Jäger et. Al., 2014).

Concerning the agriculture sector, blended finance could play a crucial role, especially in developing countries, where agriculture, most of the time, is the main sector of the economy in terms of employment and contribution to GDP. In this context, agriculture has absorbed 15 – 21% of blended finance resources (Havemann et. A., 2020). There are many stakeholders, who believe that there is a need in mobilizing more investment for achieving SDGs, including sustainable agriculture (ibid). In this context, it is correct to argue that blended finance could improve the risk-return characteristic of investment, enabling private investors to make investments that they would not otherwise have done perceiving them as too risky (ibid). Blended finance could help to enhance sustainable agriculture, trying to solve common

issues such as remote locations, lack of information and very high opportunity costs (ibid).

Finally, there is general agreement on the fact that there is a need for additional investment to be addressed for achieving SDGs, including in the agriculture sector (Alliance, 2019). In this context, blended finance could be crucial concerning adaptation and resilience to climate change, because, if the public sector is exploited properly, it can encourage more private investments in the agriculture sector, which is crucial for the development of developing countries (ibid).

## 1.2 Literature review of gender equality in agriculture for developing countries

Agriculture is the largest employment sector in developing and least developed countries, where women count for 60 to 80% of the total employment (United Nations, 2015). The roles of rural women in the agricultural sector vary among different regions in the developing world, where economic social and environmental forces are changing the structure of the agricultural sector (FAO, 2011). The main activities of women in the agricultural sector are not considered “economically active employment”, but they are essential for the status of the rural households (ibid). These activities, usually, consist in producing agricultural crops, preparing food, or tending animals (ibid). It is quite evident that these kinds of activities are not as remunerative as those kinds of activities concerning management and selling of agricultural products. There is an evident global gender gap in agricultural activities concerning vulnerabilities, access to resources and productivity (Perez et. Al, 2015). Concerning the gender gap in agriculture productivity, it varies from 4 to 25 %, depending on the crop and the country (United Nations, 2015). In order to better understand how much important women are to the agricultural sector in developing countries and how much is important to close the gender gap in this context, it is important to report some key elements of the FAO report 2010-2011 (FAO, 2011):

- Women's contributions to agriculture in developing countries are crucial but their roles are significantly different by region and they are changing rapidly in some areas. The women labour force in the agricultural sector counts for 43% in developing countries, but this percentage changes from 20% in Latin America to more than 50% in Eastern Asia and sub-Saharan Africa. Women's contribution to agricultural work varies even more, depending on the crop and on the activity.
- By the way, women have less access than men to productive resources and opportunities. The gender gap can be found in many goods, inputs and services: land, livestock, labour, education, extension and financial services, and technology.
- Enhancing gender equality in agriculture would generate significant achievements for the agriculture sector and of consequence for the society. If women had the same access to productive resources as men, there could be a significant increase in yields on farms by 20–30 per cent. This could bring an increase in the total agricultural output in developing countries by 2.5–4 per cent, which could reduce, of consequence, the number of hungry people in the world by 12–17 per cent. The potential achievements would vary by region depending on the specific situation they face.
- Policy interventions in this context can help close the gender gap in agriculture and rural labour markets. Eliminating discrimination against women in access to agricultural resources, education and financial services, investing in labour-saving technologies to free women's time for more productive activities and, facilitating the participation of women in rural labour markets, are some of the priorities areas of intervention.

Therefore, it is evident that the issue of gender inequality in the agricultural sector is very impactful, presenting several problems and trying to solve them is crucial for socially and economically sustainable development. Before going more in depth in the analysis of gender equality in the

agricultural sector and its vulnerability to climate change, it is important to define what gender means and how we could define gender equality.

Quisumbin et. Al., in the article "*Closing the knowledge gap on gender in agriculture*", written in 2014, give an interesting definition of "gender" distinguishing it from the term "sex". While the term sex refers to its biological categories of female and male, the term gender refers to "*the social roles and identities associated with what it means to be a man or a woman in a given society or context*" (Quisumbin et. Al., 2014). Because gender is socially, rather than biological, it is affected by societal changes, such as norms, policies or contexts (ibid). Gender refers to the relationship between males and females, therefore, closing the gender gap, means reducing the differences between the two sexes, which, most of the time tend to encourage the male side (ibid).

Achieving gender equality in the agricultural sector is crucial for enhancing economic development, especially regarding Sustainable Development Goals. In this context, Ester Boserup wrote a breakthrough article "*Woman's role in economic development*" in 1970. She stressed the point that the division of labour in traditional and modern agricultural systems is a gender issue. She continues arguing that women and men are affected by modernity in different ways, saying that gender differences in the labour market were due to social constructions rather than biological factors (Boserup, 1970). Concerning economic development, she stressed the point that it is crucial to recognize the so-called "hidden contributions" of women, such as unpaid work, for achieving sustainable rural economic development (ibid). Therefore, the literature on this topic agrees with the fact that gender inequalities in employment negatively affect economic development. In this regard, gender gaps in employment could reduce the pool of talent from which employers can pick, bringing a distortion of the economy (Klasen & Lamanna, 2009). These distortions of the economy would not only negatively affect employees, but could also affect the self-employed in the agricultural and non-agricultural sectors, where unequal

access to resources could lead to a reduction in the average productivity of these enterprises, thus reducing economic growth (ibid). Another consideration about gender inequalities and reduction in economic development concerns demographic aspects (ibid). This consideration points to the fact that gender inequalities in employment could lead to higher levels of fertility and therefore it reduces economic development (ibid). Finally, there is emerging, but still not consistent literature, about the fact that gender gaps in employment could lead to governance-related issues. This refers to the fact that female workers tend to be less prone to nepotism and corruption, therefore, greater female employment could bring economic performance benefits in this sense (ibid). Another important issue to point out refers to the correlation between gender gaps in education, and employment, and how they negatively affect each other. For instance, gender gaps in employment could lead to gender gaps in employment and pay, especially in the formal sector, where employers will prefer to hire educated women while not-educated women (ibid). By contrast, if there are difficulties in access to work for females, families will not be incentivised to educate their female children, because it is not convenient, leading to gender gaps in education (ibid). Therefore, according to Klasen and Lamanna (2009), there is considerable literature regarding the fact that gender gaps in education and employment are barriers to economic development and economic growth of a cross-country, especially in developing countries where gender gaps are more exacerbated. It has been shown how much it is important to reduce gender gaps in employment, especially in the agricultural sector (which is the most important economic sector in developing and not-developed countries), but it hasn't been shown the existence of gender gaps also in the context of climate change. It is worldwide established that climate change will have increasingly impacts on agriculture and on vulnerable people and communities (Huyer, 2016). Women, in developing countries, are important stakeholders of innovation concerning climate change adaptation in agriculture (Denton, 2012). Their local environmental knowledge is an important tool for resilience and

adaptation to climate change (Huyer, 2016). But, financial and resource constraints, as well as, a lack of access to information could bring to an exacerbation of gender gap issues in the agricultural sector of developing countries (ibid). Rural women are more vulnerable to climate change since they are experiencing a strong intensification of household workloads, due also to a male's migration from rural areas (ibid). In addition, it is relevant to state that women are negatively affected by climate change also for the fact that they are spending more energy on affording safe and healthy food and water, which are less and less affordable (ibid). In order to mitigate and adapt properly to climate change, improving access to knowledge and information could be crucial for enhancing gender equality (ibid). Consequently, women could be able to control and use assets and resources, purchasing more power in the decision-making process and increasing their confidence and their status (ibid). However, sometimes, having access to knowledge and information could be not sufficient, and, according to Huyer, rural women need access to technologies and tools to implement for benefit from climate-smart agriculture practices. Another important issue concerning gender inequalities in rural areas is the access to credit and microcredit, which is, most of the time difficult for rural women. Indeed, women face difficulties to have access to credit, especially in developing countries, where they are considered more risk-averse than men do (ibid). This is quite relevant since microcredit and micro insurance could play a crucial role as a tool for financial support to smallholder farmers who are facing climate change in the developing world (ibid). Finally, to sum up, it is important to list which are the main issues that women smallholders in rural areas have to face. According to the article "*Closing the gender gap in agriculture*", written by Huyer in 2016, these issues could be summarized as follow:

- a. Technology alone is not sufficient, but it needs to be conceptualized in the context of local knowledge, culture, gender relations, capacities, and ecosystems. The old transfer of technology approach is inadequate for developing countries.

b. Technology is not gender-neutral, but it can exacerbate the already existing gender imbalances.

c. Gender roles and relations are changing according to socio-economic and environmental changes, affecting employment and technology patterns.

Huyer finishes the paper by arguing that there is a strong need for the adoption of technologies to support resilience and adaptation to climate change, which of consequence, could bring women's empowerment in the agricultural sector in developing countries (ibid).

### 1.3 World Bank's Environmental and social framework:

In this last section of the first chapter, there will be a brief focus on the environmental and social framework (ESF) promoted by the World Bank in 2016 and officially implemented in 2018. The implementation of ESF implies that every project funded by the World Bank, through Investment Project Financing (IPF) is required to meet the Environmental and Social Standards. (World Bank, 2017). These standards concern 10 themes, which set out the requirements to apply to borrowers and they could be summarized as follow:

1. Assessment and Management of Environmental and Social Risks and Impacts
2. Labor and Working Conditions
3. Resource Efficiency and Pollution Prevention and Management
4. Community Health and Safety
5. Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
6. Biodiversity Conservation and Sustainable Management of Living Natural Resources
7. Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities



8. Cultural Heritage
9. Financial Intermediaries
10. Stakeholder Engagement and Information Disclosure

Every Environmental Social Standard set out the obligations required to the borrowers, in order to avoid or minimize the environmental and social risks, linked to each ESS (World Bank, 2017). The aim of the Environmental and Social Standards is, therefore, to try to help Borrowers to manage the risks and impacts of a project and improve their environmental and social performance. The way in which the ESSs have to be implemented and the way to achieve the objectives are described in the objectives of each ESS (ibid). The aim of the ESSs developed by the ESF is, therefore, to protect the environment and local populations from development finance projects (Jokubauskaite, 2019). The new ESSs are without any doubt, something really innovative, important and for some aspects quite tangible and binding. Indeed, they have a direct impact on the projects by including their dispositions in the agreements they do with the borrowers' states (Brunori, 2019). Nevertheless, despite this, there exist a debate on how much the Environmental Social Standards (ESS) are efficient and binding on the projects financed by the World Bank. In this regard, the ESSs guide the negotiations among the World Bank, its borrowers and private investors, but they do not generate legal obligations for the Borrowers' states (Jokubauskaite, 2019). Therefore, obligating borrowers to respect every ESSs is quite difficult and monitoring their effective applications in the projects over the years is even harder.

For the purpose of this thesis, it is important to focus only on six Environmental Social Standards, which the project T.R.A.C.E. considers relevant for its objectives. These ESSs are the "Assessment and Management of Environmental and Social Risks and Impacts" (ESS1); "Labor and working conditions" (ESS2); "Resource Efficiency and Pollution Prevention and Management" (ESS3); "Community Health and Safety" (ESS4); "Biodiversity Conservation and Sustainable Management of Living

Natural Resources” (ESS6); “Stakeholder Engagement and Information Disclosure” (ESS10) (World Bank, 2017).

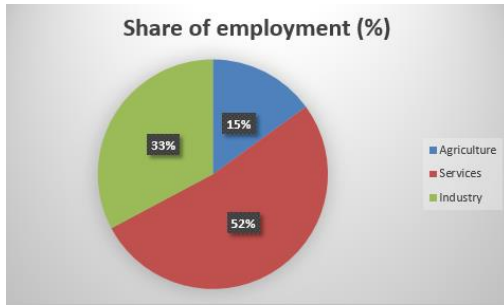
- The ESS1 is universal for every project since it sets out the responsibilities of the borrower in assessing, managing, and monitoring environmental and social risks associated to the project.
- The ESS2 is crucial for the purpose of the project T.R.A.C.E. since it is founded on the recognition of the importance of employment and income generation for enhancing poverty reduction and economic growth.
- The ESS3 is as well universal nowadays, since it recognizes the fact that, often, economic activities and urbanization generate pollution, undermining the environment. Therefore, mitigation technologies and practices have to become more accessible and achievable.
- The ESS4 puts emphasis on the fact that the implementation of the project could exacerbate community exposure to risks and impacts related to climate change. Therefore, a particular attention in this regard is needed.
- The ESS6 is as well crucial for every kind of project since it states that every project has to have biodiversity conservation and sustainable management of the resources, as a priority.
- The ESS10 finally, points out that an effective stakeholder engagement is fundamental for every kind of project in the sustainable development framework.

Here, it has been explained only the general idea of some of the ESSs, but in the “Environmental and Social Framework”, it is possible to find all information related to the ESSs and all the steps needed for achieving the goals of every ESSs.

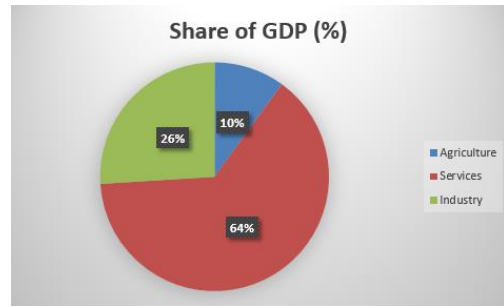
# CHAPTER 2: ANALYSIS OF THE TERRITORY

## 2.1 Socioeconomic situation:

Tunisia has an enormous economic potential concerning several aspects. It has a good road infrastructure, linking well the majority of urban centres; it has a good number of ports and airports; it has good access to electricity and drinkable water; and its strategic position gives to Tunisia good access to the huge European market (Nucifora et. Al., 2014). Although, its economic potential, the Tunisian economy experienced a low economic development in the past 10 years, due to its political instability (ibid). Before the January 2011 revolution, Tunisia had benefited from a generally favourable economic and financial situation. However, economic growth remained average, not- reaching its full potential. Between 2000 and 2010, real per capita growth was 3.5%, while it reached 5.2% for upper-middle-income countries. Moreover, the distribution of growth has been uneven, particularly in terms of economic opportunities and employment, contributing to the popular uprising. After the 2011 revolution, Tunisia is experiencing strong social tensions and slow economic growth, due also to continuing structural challenges and an economy heavily dependent on external sources of income (World Food Programme, 2021). As evidence of its socio-political instability, it is important to report that Tunisia has had 13 different governments (ibid). In 2020, Tunisia had the 95<sup>th</sup> highest Human Development Index out of 189 countries and the 102<sup>nd</sup> highest Human Capital Index out of 173 countries (ibid). The major contributors to GDP are the service sector (64% of total GDP), industry sector (26% of total GDP), and agricultural sector (10% of total GDP) (ibid).



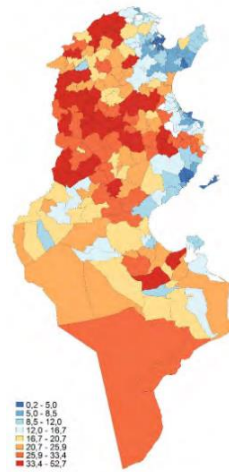
**Fig.1**



**Fig.2**

(World Data Bank, 2018)

Tunisia's economy has been stagnant since 2011. In 2015, the annual GDP growth slowed down to 1.2 percent and, since then, Tunisia's annual economic growth has fluctuated between 1 and 2.6 percent (ibid). In 2020, due to the COVID-19 pandemic, the economy had a contraction of 8.8 percent (ibid). Tunisia made huge progresses concerning the fight against poverty, slowing down the poverty rate from 32.4% in 2000 to 15.5% in 2010 (INS, 2012). Despite this increase, after the revolution, in 2011, the poverty rate increased once again to 17.5% in 2020 (Dridi, 2021). Notwithstanding, Tunisia is experiencing significant improvements in terms of monetary income, access to social services health, and education, these information are hiding significant regional and social disparities. Indeed, poverty rates exceed 30% in the most disadvantaged regions of Tunisia.



**Fig.3**

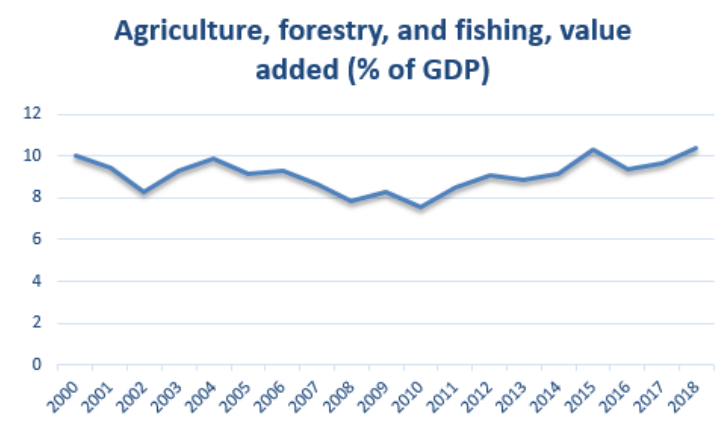
Regional differences in poverty rate (*Rapport de l'INS et la Banque Mondiale sur la pauvreté, 2020*)

Another important issue of the Tunisian socioeconomic system is related to the informal sector, which is unlikely to contribute to an important part of the Tunisian workforce. Indeed, in 2019, 44 % of the total workforce were employed in the informal sector, where 49.5 % of the total male workforce and 32% of the female workforce, were employed in the informal economy (World Food Programme, 2021). Moreover, it is relevant to state that 86% of the agricultural sector's workforce belongs to the informal sector (ibid). This is a relevant issue for the general economic development of the country, especially, considering the fact that informal workers tend to be more vulnerable to socioeconomic changes. Concerning unemployment, Tunisia experienced a high rate in the past 30 years, with an average of 15 %, which differs by region and by gender (ibid). Indeed, women's unemployment counts for 22.5%, while men's unemployment counts for 12.4 %, demonstrating that Tunisia presents several gender issues (ibid). The differences in this context are even more emphasized in rural and internal areas, where female unemployment arrives even at 35% (ibid). In this regard, it is important to report that Tunisia ranks the 124<sup>th</sup> place concerning gender equality when in 2006 it was at 90<sup>th</sup> place (Global gender gap report, 2020). This is one of the major barriers to the economic

development of the country, causing discrimination against women and girls concerning political empowerment and economic participation (World Food Programme, 2021).

## 2.2 Role of agriculture in the Tunisian economy:

In Tunisia, the agricultural sector has great socio-economic and political importance due to its contribution to the achievement of national objectives in terms of food security, income generation, employment, closing the gap among regions, and natural resource management (Chebbi et. Al., 2019). The share of agriculture, forestry, and fishing contributes 10.4% to Tunisian GDP and, it has increased slightly recently despite a relative decline in its contribution to the GDP until 2010 (World Data Bank).



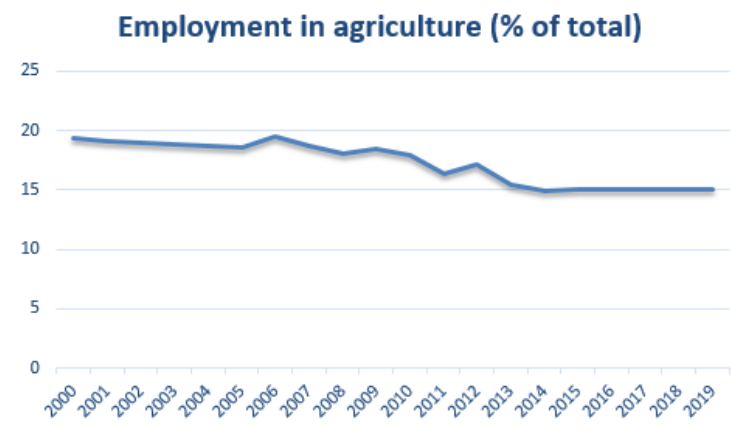
**Fig.4**

(World Data Bank,2018)

From the chart, it is possible to note a certain grade of resilience from the agricultural sector to the crisis that happened in 2011, despite some difficulties. Indeed, during the political crisis, the agricultural contribution to GDP growth rate was the highest in the country, and it was the only growing sector, while the industrial and market services were in sharp decline (Chebbi et. Al., 2019).

### 2.2.1 Employment in the agricultural sector:

Despite its relevant contribution to the national GDP, the net job creation in the agricultural sector is negative and the share of this sector in national employment has decreased significantly (ibid). Indeed, the percentage of agriculture employment on total employment has decreased significantly in the past 20 years, passing from 19.3% in 2000 to 15% in 2019 (World Data Bank).



**Fig.5**

(World Data Bank,2018)

This decline in the creation of employment in the agricultural sector at the national level is strongly linked to regional disparities in terms of access to services, land use planning, and access to employment. It reflects a strong rural exodus and internal migration movements between large regions and sometimes emigration outside the country (Chebbi et. Al., 2019). The rural-urban migration that started in 2011 is mainly due, to the decline in agricultural productivity and income, and the increasing fragmentation of agricultural land (Zuccotti et. Al, 2018). This migration happened especially from extremely poor provinces such as Jendouba, Siliana, and Mèdenine, to more attractive provinces, such as the district of Tunis and the eastern provinces (ibid).

## 2.2.2 Agricultural production:

Tunisia has 10.4 hectares of arable land, which counts for 63% of the total surface of Tunisia, but only 4 million hectares are effectively productive agricultural land (Chebbi et. Al., 2019). In addition to that, it is important to report that the arable land is not equally distributed, as well as, big agricultural companies, with more than 50 hectares, are only 3% of the total (ibid). While, small agricultural enterprises, with less than 10 hectares, are 75% of the total (ibid).

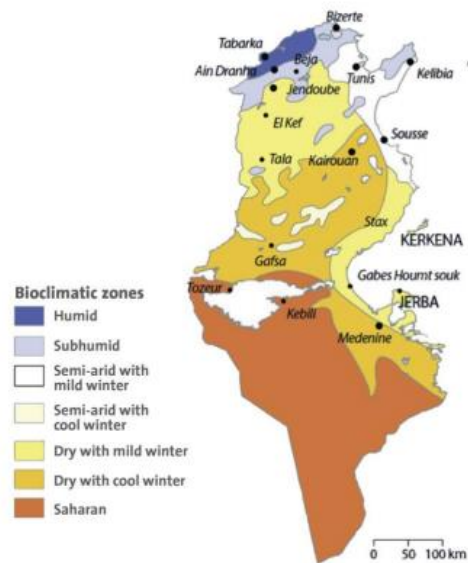
In Tunisia, there exists, essentially, two kinds of agriculture, which comprehend 84% of the total arable land: 1) arboriculture, which includes olive growing, phoeniculture (production of dates), and citrus fruits, and it counts for 57% of the total arable land; 2) cereals growing, which counts for 27% of the total arable land (ibid). Another important agriculture sector is milk production, which started to become auto-sufficient in the late 90s and it counts for 11% of the total agricultural production (ibid). Production of dates, olive growing, and citrus fruits accounts for almost 20% of the total agricultural production, while cereals production accounts for 8.6 % of the total agricultural production (ibid). Therefore, these sectors are crucial for the national agricultural economy, in terms of production and employment and as sources of nutrition for the entire population of Tunisia. However, all of these kinds of agriculture are threatened and negatively affected by climate change, which is undermining the potential of Tunisian agricultural production.

## 2.3 The impact of climate change in Tunisia:

Tunisia is considered as one of the most vulnerable country to climate change in the Mediterranean area, due to its geographic position (Knaepen, 2021). Indeed, its climate is really variable, with a temperate climate in the north and in the coastal areas and a hot and dry climate in the south (ibid). Several impacts are already tangible and visible for years, such as



increases in temperatures, sea levels rising, floods and droughts, which are negatively affecting the agricultural sector. These impacts are expected to increase dramatically in the next years. Indeed, concerning temperatures, it is predicted a rise in temperatures between 2.1°C and 2.4°C by 2050, and between 4.2°C and 5.2°C by the end of 2100 (Chebbi et. Al., 2019). While concerning precipitations, it is expected a decrease in annual precipitation totals ranging from -1% to -14% in 2050 and from -18% to -27% in 2100 (ibid). All of these climate changes are affecting and will affect more the already disadvantaged regions in the south of the country and less the more advantaged regions in the North and coastal areas (ibid). The strong dependence of the Tunisian economy on agricultural productivity makes Tunisia one of the most vulnerable countries at global scale (Knaepen, 2021). According to the country index of the Notre Dame Global Adaptation Initiative, developed by the US-based University of Notre Dame, Tunisia ranked 64<sup>th</sup> out of 181 countries, which makes the country one of the most vulnerable to climate change (ibid). This index does not look only at climate change impacts on the country, but it looks also at its readiness to improve resilience and to its adaptive capacity to climate change (ibid). The main issues concerning Tunisia's climate change vulnerability are more related to the fact that the country needs to improve its capacity to convert leverage investments into adaptive capacity (ibid).



**Fig.6**

(Knaepen, 2021)

In the Tunisian political agenda, resource management and climate change adaptation are playing a central role more and more, and the two main threats concerning this context are water management and land degradation, which are both linked to the decrease in precipitations (Chebbi et. Al., 2019). Indeed, The decrease in precipitation would lead to a decrease in water resources estimated at 28% in 2030, which would mainly affect groundwater (MDD, 2014). The deep non-renewable aquifers in southern Tunisia would be the most affected. Surface water is expected to decrease by 5% by 2030. These projected decreases in rainfalls will lead to a degradation of the quality of water and to an increase in the price of access to water (Chebbi et. al., 2019). In turn, the increase in temperatures and the decrease in rainfalls will bring an accentuation of land erosion and desertification, creating direct impacts on land fertility and, of consequence, agricultural productivity (ibid). In this context, it is important to note that Tunisian agriculture is expected to suffer a loss of 2-2.7 billion USD between 2000 and 2030, due to the increase in global food prices and the stagnant crop yields (USAID, 2018). Especially, the Tunisian economy will suffer future losses regarding two key products of the country’s agriculture: wheat

and olive oil. Wheat plays a crucial role in the national diet in Tunisia, and in its labor market, therefore, its vulnerability to climate change is dangerous for the health of the country. The wheat production surface area is expected to experience a reduction of 20% by 2030 in the southern regions of Tunisia (Verner et. al., 2018). This growing decrease in the crop yield of wheat will have several negative implications for the national agricultural production and, in turn, for the Tunisian society (Chebbi et. al., 2019). In the same context, also olive sector is dangerous for the Tunisian economy since the country is one of the most important exporters of olive oil and olive products in the world, where almost 50 percent of the production of the olive-related product is aimed at exports (ibid). Moreover, it is important to report that the olive sector is particularly vulnerable to climate change since it is extremely dependent on rainfalls (FAO, 2015). For instance, the oil production in 2016 suffered a decrease of 28 percent due to extreme droughts in Tunisia and future scenarios predict a loss of 50 percent in the olive oil production due to growing and heavier droughts (Chebbi et. al., 2019). It has been shown to what extent climate change could affect the agricultural sector in Tunisia and of consequence, the entire economy. Therefore, adaptive measures need to be implemented. In this context, there would be a need for an improvement of methods of production and technical assistance, such as the implementation of drought-resistant varieties in the crop (ibid). Concerning that, Ben Zaied et. Al., 2016, in their article *“Impacts of Climate Change on Tunisian Olive Oil Output. Climatic Change”*, they suggest to implement already existing drought-resistant species of olive trees, which could play a crucial role in the climate change adaptation of production of olive-related products.

Since the democratic transition in 2011, the national government adopted several measures to try to mitigate and adapt to climate change. Tunisia embeds climate change in its constitution as something to defeat. Indeed, article 44 says that the State must: *“provide the means necessary to guarantee a healthy and balanced environment and contribute to the climate’s integrity”* (Ministry of Foreign affairs the Netherlands, 2018). The

adopted measures for adapting to climate change cover several aspects of the Tunisian economy, including agriculture, which is the most threatened sector. In this context, it is important to report that all the actions for the adaptation and mitigation to climate change focus on capacity-building and institutional development measures (ibid):

- Adapting irrigation in the central region;
- Adapting mixed farming-livestock production to climate change in vulnerable regions;
- Updating the agriculture map to take into account the impacts of climate change;
- Introducing climate monitoring and early warning systems, as well as an insurance mechanism against climatic hazards due to climate change;
- Conserving and exploiting genetic heritage to adapt cereal crops to climate change, developing innovative systems for arable crops (ibid).

In order to adopt these kinds of actions, there exists a financial need for creating employment and alleviating the poverty rate in the poorest rural regions, where the awareness about climate change implications and climate change potential adaptive measures is extremely limited (ibid). Again, Tunisia proposed to introduce in the agricultural sector, more sustainable practices, such as changing the diets of domestic animals, promoting biological agriculture or conservation-oriented agricultural practices, aiming at reducing carbon emissions and conserving better the environment (ibid). Therefore, in the agricultural sector, the planned actions concern essentially capacity building and institutional development measures, for instance adapting irrigated crops in the central region or adapting mixed farming-livestock production to climate change in vulnerable areas (UNFCC, 2015). Nevertheless, these adaptation measures require a high additional cost of almost 2 billion dollars, whereas Tunisia is asking for support from the international community to cover the additional cost (ibid).

According to Knaepen in her article, "*Climate Risk in Tunisia: Challenges to Adaptation in the Agri-Food System*", written in 2021, there exist three climate-related development risks, which can cause instability, increasing Tunisia's exposure to climate change, and reduce its adaptive capacity:

1. The first climate-related development risk refers to the level of governance's efficiency, which is extremely low since the democratic transition in 2011 (Knaepen, 2021). Fragile government coalitions, limited decentralization, and a weak institutional framework for climate action characterize the political system. All of these conditions, bring political inefficiency and coherence, especially concerning climate-related issues, which require a strong and unified view (ibid). Since the revolution in 2011, governance in Tunisia has become more competitive and more democratic, but at the same time, it has lost political efficiency and it continues to have several forms of clientelism and several corruption issues (ibid). In addition, the fact that adaptive measures to climate change usually require additional costs, the political power is not incentivized to promote climate change-related policies, and therefore, these kinds of issues go to the bottom of the national political agenda (ibid). Finally, another important issue related to governance issues is the fact that Tunisia is extremely dependent on international aid concerning climate change. Indeed, Tunisia relies completely on external assistance concerning climate change financial aid for developing mitigation and adaptation actions to climate change (AfDB, 2018).
2. The second climate-related development risk refers to the fact that the country is highly food-import dependent, such as imports of cereals; and it is also highly dependent on exports, such as the olive sector (Knaepen, 2021). The olives and cereals sectors are crucial for the Tunisian economy, but for different reasons. Olives are the main export good and, at the same time, it is negatively affected by climate change, which is undermining olives' production. On the other hand, cereals are crucial for the Tunisian diet, but there exists

a lack of financial investments for increasing its national production, creating a dangerous dependency on imports (ibid). The question of the olives sector is different since it is based on production and therefore it is linked to internal problems. First, it is important to argue that big-size companies manage the entire olive sector and therefore, small and medium enterprises have several issues in access to financial capital, including loans and credit (Chebbi et. al., 2019). Secondly, the massive export of olives is overexploiting the land, reducing its fertility and its productivity. This linked with climate change (decrease in water availability and increase in droughts); will lead to a reduction in yields from olive trees (Ben Khelifa, 2020). Therefore, this high dependency on olives exports is something dangerous for the entire Tunisian economy.

3. The third climate-related development risk is related to territorial inequalities, between internal and coastal regions, characterized by high rates of unemployment, high grade of gender inequalities, and few agricultural livelihoods (Knaepen, 2021). The internal regions are the most disadvantaged areas in all of Tunisia and, at the same time, they are also the most affected by climate change. The lack of local financing in these regions is leading to further impoverishment where already existing issues are present (Newman, 2018). The two main problems in these regions are certainly, the high rate of unemployment, especially among educated young people, and the accentuated gender gap, where women are often object of violence and underpaid (Knaepen, 2021). It is evident that exists a lack of an integrated approach and political willingness to try to reduce the huge gap between the coastal areas and the internal areas.

The combination of these three different climate-related development risks, if they will not be taken into account, will lead to further issues and disparities, and, starting to give help and give more power to disadvantaged regions could be an essential first step (ibid).

## 2.4 Financial system in Tunisia:

Previously, it has been shown how one of the main issues in Tunisia is the access to credit, which could solve some of the problems explained before. The aim of this section is to show how the Tunisian financial system works, which are the actors engaged, who are the borrowers and who are the lenders, and how microfinance works in Tunisia.

The financial system is basically compounded by traditional banks, commercial banks, and microfinance institutions, but also leasing and insurance companies. Tunisia has 43 financial institutions, where 20 of them are universal banks, 8 are international banks, 11 leasing, and 2 factory companies (Firpo et. Al., 2011). Only 3 of these institutions are public and the capital is not shared equally, with the 10 largest banks that hold 80% of the entire amount of capital and the 3 state banks holding more than half (ibid). Financial exclusion is a big issue in Tunisia, indeed, out of a total population of 11 million people, 64% are excluded or poorly served. The rate of bank penetration has reached 66% for a banking network of 1,620 branches concentrated in the coastal areas (86%), a large part of which is in Greater Tunis (41%) (Banque Centrale de Tunisie, 2014). It is evident that in a system with a high poverty rate and high inequalities, having access to normal banking circuits is a big problem and the dependency on external aids is even more comprehensive. In this context, microfinance could play a crucial role since it aims to promote access to financial services for disadvantaged people excluded from the traditional banking system. Therefore, microfinance could be seen as a tool for reducing inequalities, particularly gender inequalities, in access to credit, which are the main issues of the Tunisian socioeconomic system (Bauwin, 2018). The labour force participation in Tunisia is extremely uneven, with rates of 71.3% for men, and 25.1% for women. This gap is one of the highest in the low middle-income countries and, for this reason, the microfinance sector in Tunisia has a huge development potential that, for the moment has not been explored

enough (ibid). The main microcredit actors could be summarized as follow (Zekri, 2013):

- National Guarantee Fund (NGF): NGF was established in 1981 in order to facilitate access to funding, guaranteeing loans and investments made by governmental initiatives. It aims at covering the interest created by the non-payment of the debt, or, the rescheduling, of between 50 and 90 percent of the debt which has not been paid (ibid). It covers also the costs of legal procedures for loans granted through government initiatives.
- Banks: The main bank providing microcredit is the *Banque Tunisienne de solidarité*, which is a deposit, governed by the Banking act, founded in 1997. The soul of the bank is social-based since its main features are the existence of subsidized rates and the lack of collateral requirements (ibid). It provides microloans to microfinance associations.
- Tunisian post office: It plays an essential role in the spread of saving products since it has an important extensive network and interesting tariff conditions for the customers (ibid). It is not exactly a microcredit provider, but it can provide several instruments related to the microcredit framework.
- Donors and investors: Donors and investors play a crucial role in the microcredit context since Tunisia is experiencing a growth in the number of investments in this regard. However, as it was already explained, this can create a dependency on foreign donors and investors.
- Microcredit Associations (MCAs): The main activity of microcredit associations is to manage the microcredit of the borrower, and, in Tunisia, the number of MCAs is dramatically increasing. From 6 MCAs in 1999, nowadays there are almost 180 working on the Tunisian territory (ibid). This testifies to the fact that microfinance is in constant expansion and it is an increasingly used practice.



- Informal sector: There is no data showing how much important the informal sector is, in the context of microcredit. Nevertheless, according to Zekri, 2013, supplier credit, moneylenders, and the help of friends and family, are something increasingly present in Tunisia.
- ENDA: ENDA is the biggest microfinance association that operates in Tunisia, with thousands of clients.

Despite all of these actors, microfinance in Tunisia has been almost dominated by the *Banque Tunisienne de solidarité*, which is a bank sponsored and funded by the government giving microloans to microfinance associations, where most of the time it provided credit to ENDA (Brandsma & Burjorjee, 2004). According to the law on Microcredit and Microcredit associations (July 1999), it was possible to understand under which rules an association can provide loans to borrowers (ibid). The Ministry of Finance has decided to set a fixed interest rate at 5% per year, the maximum period for repaying was three years, and the microfinance associations were not allowed to put further constraints or commissions (ibid). For these rules and for others, microfinance associations were not incentivized to foster their activities in Tunisia, and, the only microfinance association that had several clients and is well-settled in Tunisia is ENDA inter-Arabe (ibid).

ENDA inter-Arabe is an international microfinance NGO that works in the MENA region (Middle East and North Africa) aiming at protecting the environment and socially including the most vulnerable people, with a particular focus on women's inclusion (Bauwin, 2018). It was created in 1990 in Tunis, starting to offer microcredit to disadvantaged people in remote urban areas in 1995. Still, nowadays, it works also in rural areas, supporting the beneficiaries with financial and non-financial services (ibid). ENDA is active overall Tunisian territory with 79 different branches in 24 governorates, serving thousands of clients (ibid).

In 2015, 42% of ENDA's clients were clients living in rural areas, covering several economic sectors, not only the agricultural (ibid). Therefore ENDA serves different clients in different sectors and the interest rate does not

change from clients but from the characteristics of the product: The more the product enables to grant great amounts of money, the less the interest rate will be, and, vice-versa. As it has been reported before, ENDA presents as one of its priorities the environmental protection and conservation. In this regard, it is interesting to report another peculiarity of ENDA, which is the supply of *green credit* aimed at those micro-entrepreneurs who have waste management and reuse of recyclable materials as a priority (Abid & Kacem, 2018). But unfortunately, the number of granted loans in form of *green credit* has remained quite low, with 280 customers in 2015 and 235 in 2016 and a total amount of 750, 000 dinars and 505, 000 dinars, respectively (ibid).

ENDA has always wanted to empower women to work and start their own business through financial inclusion since it could bring several benefits for all the family because women will dedicate most of their income to the family itself (ibid). For this reason, ENDA has always given women *exclusivity* in terms of financial supply and the result was that 80.4% of the clients were women in 2007 (Bawin, 2018). In 2008, the NGO changed its policy, passing from the *exclusivity* in the access to credit for women to *priority* and, the result was that in 2015, only 65% of the clients were women. In addition, ENDA became private in 2016, allowing MFI to grant higher amounts of money, resulting in a further increase in males' share of clients, until becoming the majority nowadays (ibid). Nevertheless, women's empowerment is still the main objective of the NGO, but they decided to add to their policy, financial inclusion for rural and youth people (ibid).

Despite the fact that ENDA was the only microfinance actor who worked in Tunisia, from 2011 the situation started to change. Indeed, after the revolution, the Tunisian government implemented a strategic plan named "La vision concertée", where the government wanted to change the microfinance market, giving the possibility to other stakeholders to enter in the market. Indeed, the government wanted to create a "socially responsible and sustainable microfinance, which, through the access of the greatest number of people to quality financial services, contributes to the fight

against financial exclusion, to the harmonious development of regions, and to the consolidation of the economic fabric" (Raguzzoni, 2016). The plan was based on four strategic axes, strongly linked to each other:

1. Establish a regulatory framework and supervision that encourages the development of the microfinance sector.
2. Contribute to the development of priority regions and segments of the population: oversee a detailed market study to better understand the needs of the target clientele, put in place an incentive framework for the development of microfinance.
3. Structure the sector to ensure its long-term impact: Restructure the AMC (Autorité Contrôle Microfinance) and redefine the role of the BTS (Banque Tunisienne de solidarité) and the FNG (fonds national de garantie), better understand the role of the Post Office; gradually encourage the involvement of the private financial sector in refinancing microfinance.
4. Promote and support the responsible growth of the sector: set up an institutional infrastructure that can promote sustainable development of the sector.

The Tunisian financial ecosystem has evolved and now includes several operators who have developed a diversified offer of micro-credit, microfinance, and diversified credit, but insufficient in relation to the estimated demand (ibid).

Despite ENDA remain the main microfinance actor in Tunisia, nowadays; there are several other actors (like for example Autorité de contrôle Microfinanza, ACM), which are collaborating with international projects and different stakeholders. Therefore, the microfinance situation, after the revolution has been improved, but some important challenges remain. First, there exists a need for a better knowledge of the demand, particularly in terms of the breakdown of demand by population segments and their needs. Only this analysis can effectively address the evolution of supply and make it more effective (ibid). Secondly, a greater effort to eventually serve all

regions of the country and ensure that the financial inclusion strategy is translated into a lever for social and economic development at the local level. To achieve this, a balanced mix of technical and digital innovation and organizational models is needed. Some cultural and social blockages remain the major challenge to achieving significant results in terms of access to basic financial services (ibid).

## 2.5 Jendouba:

The governorate of Jendouba is one of the poorest and most underdeveloped governorates in Tunisia, having 21.5% of residents who lives under the poverty rate (Dridi, 2021). It is one of the three governorates at the centre of the project T.R.A.C.E.

The governorate of Jendouba is an area located in the extreme northwest of Tunisia bordering Algeria for 135 km from Malloula to Ghardimaou. It is limited to the North by 25 km of Mediterranean coastlines to the north, the governorates of Kef and Siliana to the south, and the governorate of Beja to the east. It is also located 150 km from the district of *Grand Tunis*, which is the richest region of Tunisia, offering several opportunities (ibid). Jendouba has a surface area of 3102 Km<sup>2</sup> representing 18.7% of the surface area of the North West region and occupying approximately 2% of Tunisian territory (Direction générale de l'aménagement du Territoire, 2012). The territorial distribution of Jendouba is mainly rural, having an urban population rate solely of 30.64%, instead of 67.7% of the national average (Dridi, 2021). The rural character of the region is not incentivizing external economic actors to invest in the governorate, even less, considering the size of the cities, which is extremely small (ibid).



**Fig.7** Jendouba province's geographical position (Direction générale de l'aménagement du territoire, 2012)

### 2.5.1 Socioeconomic situation:

The economy of the governorate is mainly dominated by the agricultural sector, and the other two important sectors are the industrial and tourism sector.

The industrial sector is absolutely underdeveloped even if it has experienced a slight increase over the past 20 years. The number of industrial enterprises with more than 10 employees increased only from 31 to 62 in the period from 1982 to 2012. This lack of dynamism can be explained by several factors, such as geographical factors, particularly the isolation and remoteness of the main industrial centres, the weakness of local and regional markets, the lack of the labor force in the labor market, and the low qualification of this labor force (Direction générale de l'aménagement du Territoire, 2018). Food, textile, and mechanical industries are the three main activities of the industrial sector of Jendouba, employing together almost 83% of the total employers in the industrial sector (ibid). While the touristic sector presents several opportunities that are not well exploited, the entire sector is concentrated in the two districts of Tabarka and Ain Draham, which is seaside tourism (ibid). The most important economic sector of Jendouba is the agricultural sector, which is

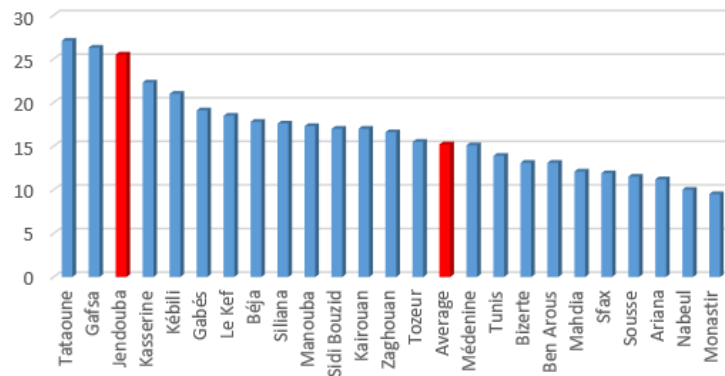
also particularly relevant for the purpose of this thesis. Agriculture in Jendouba is absolutely the main economic activity, employing 38.4% of the population of the governorate (Direction générale de l'aménagement du Territoire, 2012).. Even if it is difficult to calculate the exact percentage of agricultural employment since, in this sector, informality covers a big share of the total employment (ibid). Thanks to its potential in land and water resources, Jendouba plays a crucial role in the production of some specific products at the national level (Direction générale de l'aménagement du Territoire, 2018). For instance, 75.6 % of Tunisian cereals production comes from the governorate of Jendouba, covering 52% of the total agricultural land in Jendouba (Direction générale de l'aménagement du Territoire, 2012).

The two main issues of the socio-economic situation in Jendouba are unemployment and migration to other regions, which are both interconnected. Indeed, the unemployment rate in Jendouba is 25%, one of the highest in the country, considering that the average national unemployment rate is 15.2% (Dridi, 2021).

Gouvernorats	2019 <sup>a</sup>	2014
Tunis	17,8	13,9
Ariana	10	11,2
Ben Arous	17,5	13,1
Manouba	17,3	17,3
Nabeul	10,4	10
Zaghuan	10,4	16,6
Bizerle	10,8	13,1
Béja	18,1	17,8
Jendouba	24,6	25,5
Le Kef	17,8	18,5
Siliana	19,6	17,6
Sousse	10,2	11,5
Monastir	9,1	9,5
Mahdia	10,9	12,1
Sfax	10,7	11,9
Kairouan	16,1	17
Kasserine	22	22,3
Sidi Bouzid	15,1	17
Gabés	24,3	19,1
Médénine	18,7	15,1
Tataoune	28,7	27,1
Gafsa	25,5	26,3
Tozeur	24,8	15,5
Kébili	23,8	21
Moyenne	15,1	15,2

**Fig.8**

**Unemployment rate in the Tunisian governorates**



**Fig.9**

Unemployment rate in Tunisia (Dridi, 2021).

Unemployment in Jendouba is higher in the inland regions than in coastal areas. This could be explained by the concentration of job-creating activities, both industrial and service, in the coastal areas, such as the large agglomerations of Tunis and the Sahel. While the inland regions such as Jendouba, remain based on agricultural production, which creates mainly seasonal, non-stable, and low-paid jobs (ibid). Unemployment is even more exacerbated among graduated people, which is one of the main causes of the migration from Jendouba. In Jendouba, unemployment among graduates is relatively high compared to the national average, counting 34.37%, where 21.81% are men and 46.25% are women (ibid). In this context, it is important to report that professional unemployment and gender disparities in access to specialized jobs are a Tunisian issue, having 30.9% of graduated people without a job at a national level (ibid). Therefore, young people and graduated people, who prefer to improve their living standards

and have more opportunities, decide to quit Jendouba in order to go to coastal areas, which are more attractive (ibid). As a result, this rural exodus has contributed to the shortage of labour, and the regression of agricultural and forestry production, which are the main activities of the region (ibid).

### 2.5.2 Natural resources and climate change:

Since Jendouba depends on agricultural production and agricultural activities, the governorate is even more vulnerable to climate change, because of its dependency on natural resources (Direction générale de l'aménagement du Territoire, 2018). According to "*Schema directeur d'aménagement et de développement du governorat de Jendouba a l'horizon 2030*" published by Direction générale de l'aménagement du Territoire of Tunisia in 2018, climate change in Jendouba will result in an increase in average annual temperature, a moderate decrease in precipitation, and greater climate variability. All of this will have a dramatic impact mostly on water resources, ecosystems, and agricultural production. A decrease in rainfalls will lead to extreme salinization of water and to a dramatic decrease in agricultural productivity; while, an increase in temperatures, will lead to an increase in the probability of wildfires, threatening ecosystems (ibid). Especially, cereal production will be negatively affected by climate change, indeed, it is expected a decline in area and production on average by half (ibid). Jendouba is considered the Tunisian water tank, providing fresh water for all the country but also for croplands. Therefore, a reduction in water availability will have negative impacts not only on the agricultural production of Jendouba but will have negative impacts also at a national level (Direction générale de l'aménagement du Territoire of Tunisia, 2012). Because of its climate, the nature of its relief, and its geological structure, Jendouba is subject to various natural hazards, the effects of which are sometimes aggravated by geological structure, suffering various natural risks whose effects are sometimes aggravated by man activities that have not always taken them sufficiently into account in his strategies (ibid). The most important of some



natural hazards that are threatening the entire region are erosion, land instability, and flooding. Therefore, several adaptive measures are needed, accompanied by technical and financial assistance for enhancing the sustainable development of the region, which presents several potentials.

### 2.5.3 Conclusions on the governorate of Jendouba:

Therefore, it is possible, to sum up, arguing that internal regions, such as Jendouba present several constraints to their economic development. The exodus of young people and the shortage of labour force that characterize Jendouba, plus climate change, are the main causes of the decline in land productivity and the deterioration of rural soil fertility. This situation of degradation of natural resources, deterioration of social relations of production, and insufficient performance in terms of human development are still some of the main causes of poverty and social marginalization (Dridi, 2021). It has been shown how Tunisia is experiencing a concentration and polarisation of urban activities, which are the most remunerative, and how internal and rural areas are much poorer and mainly based on agriculture, and, therefore more vulnerable to climate shocks, which will threaten Jendouba for the next years (ibid). The urbanization phenomena resulting from the polarization of economic activities and their concentration in dynamic territories are perceived as a consequence of unequal development. Urbanization is a determining factor of regional disparities through its impact on the labour market and living conditions. Highly urbanized regions attract permanent migration flows, such as the district of Grand Tunis, which is the less poor district of Tunisia. This form of interregional migration and rural exodus aggravates spatial inequalities (ibid).

The governorate of Jendouba offers a great diversity of agricultural landscapes and land due to the great diversity of the relief made up of plains, valleys, hills, and mountains. The Governorate is distinguished by its important natural potential and agriculture plays an essential role in the

economy, both in terms of employment and income (Direction générale de l'aménagement du Territoire of Tunisia, 2018). Thanks to its land and water potential, the governorate participates in the national production of various products, in particular cereal production, market gardening, and the production of meat and milk (ibid). In addition, the governorate has the natural forestry potential of the country (ibid). The viability of agriculture is based on medium to large farms, which account for barely 15% of the total number of hectares (85% of farms are smaller than 10 ha and those smaller than 5 ha represent 61%). Thus, the land ownership structure is highly unbalanced, with the coexistence of large state and private sector plains farms and small and micro-holdings in the foothills and mountainous areas (ibid).

In conclusion, agriculture and livestock farming are marked by an archaic family-type production model characterized by the fragmentation of land, linked with problems of ownership due to inheritance, and the farms are usually quite small (ibid). Agricultural production remains uncertain, with high production costs even though inputs are locally abundant such as water and fodder. In some areas of Jendouba, the vegetation cover has disappeared because of land clearing, creating a barren landscape occupied by cereal crops associated with arable farming and extensive livestock (ibid).

# CHAPTER 3: CASE-STUDY

## 3.1 Description of the project:

The T.R.A.C.E. project (Tunisian Rural and Agricultural Chain of Employment) is a program funded by a grant from the Government of the Netherlands through a trust fund managed by the World Bank. It aims to create jobs, especially for youth and women, in the rural, agricultural, and agri-food sectors by increasing the productivity and resilience of small producers (Consortium Microfinanza s.r.l. et. Al., 2020). It aims also at strengthening the competitiveness of professional organizations and SMEs through improved access to knowledge, innovations, and financial services (ibid). The proposed interventions will be implemented directly by the World Bank in partnership with Tunisian public, private and professional institutions and in coordination with other complementary projects and programs. The project is taking place in three different governorates: Jendouba, Kairouan, and Gabes. But the focus of this thesis will be only on the governorate of Jendouba, which is the governorate where Microfinanza s.r.l. is working. TRACE aims at supporting producers and young agro-entrepreneurs to become economic actors who contribute to the growth of their region. This fund will support economic recovery and job creation in the rural, agricultural, and agro-food sectors. The fund will provide technical and financial assistance to producer organizations, small and medium-sized enterprises, and young entrepreneurs to develop their businesses, become professionals, and create jobs (ibid). This technical assistance consists of training and accompanying the beneficiaries of the fund in the elaboration of business plans, in the design and preparation of investment projects, in the search for grant and credit financing, as well as in the accompaniment in the implementation of these projects (ibid). The fund consists of 3,7MUS\$, and the project aims at financing 350 projects: 100 projects in

Jendouba, 100 in Gabes, and 100 in Kairouan, in order to create more than 3000 direct or indirect employees (ibid).

### 3.1.1 Objectives of the project:

The main objectives of the projects could be summarised as follow (ibid):

1. Manage the fund to support job creation in the rural entrepreneurship, agriculture, and agro-food sectors for each of the governorates targeted by TRACE.
2. Provide technical assistance to producer organizations (POs), entrepreneurs, and small-medium enterprises (SMEs) in order to prepare and select investment projects, which must be financially, environmentally, and socially viable.
3. Support the implementation of investment projects to ensure the sustainability of the activities and jobs created, and to help the professionalization of entrepreneurs, in particular by putting them in touch with specialized expertise and with economic operators who can stimulate and support the improvement of quality in relation to market requirements.

Microfinanza s.r.l. operate only in the governorate of Jendouba where they are planning to finance 100 projects (10 in 2021, 50 in 2022, and 40 in 2023). TRACE can provide up to 30% of the total investment, where 14% accounts for equity support (personal contribution), and 16% for technical services, such as training, administration, etc. To be eligible for the TRACE contribution, the investment project must therefore obtain credit from a financial institution. The objective for TRACE is to have a leverage effect: by co-financing 30% of a project, the program expects to facilitate substantial investments (1.2 million US\$ should enable to mobilize 4 million US\$ of funding) (ibid). The link between the private sector and financial institutions will thus be strengthened: the mechanism enables the project leader to consolidate his or her request for financing and to reassure the

financial institution, both financially (contribution to equity) and technically and economically (coach support and financing of services).

One of the main features of the project TRACE is that it aims at creating leverage on investment. This means that by financing the sub-projects, TRACE wants to improve the economic standards of the region, attracting further investments from local investors and improving, even more, the status of the region. This is why it is correct to consider the TRACE project as a blended finance project.

The project aims also at educating the beneficiaries on sustainable land use and resource management. In this sense, TRACE wants to educate the beneficiaries about the sustainability of production systems as well as social sustainability. This ambition needs to be clearly defined from the outset with the client, as it will determine the type of project to be supported. The focus that could be made on sustainable forms of farming and production systems is part of a universal call to maintain natural ecosystems and reorient economies toward responsible production and consumption.

### 3.1.2 Stakeholders:

In order to better understand how the program TRACE works, it is important to know which are the stakeholders engaged in the project and which financial institutions are cooperating with TRACE. The team that manages the fund is compounded by Microfinanza s.r.l., Italy, ACK, France, and, AGER, Tunisia (Microfinanza s.r.l., 2021). Together, they wish to establish a dialogue with financial institutions in order to identify and support project leaders who are likely to obtain a loan from these institutions and therefore be eligible for a contribution from the TRACE fund.

The project leader retains the choice of a financial institution, and the team promotes matching between project leaders and financial institutions through the use of the *Tamweeli.tn* platform (ibid).

There exist public partners, such as development agencies or any kind of authority, or private partners, such as professional organizations or chambers of commerce (ibid). These kinds of partners are locally based and they know the actors and companies in the area. They can therefore help to identify project leaders who are already advanced and eligible for the TRACE contribution and can relay communication to reach a wider audience. Other national and international partners will also be informed of opportunities to highlight any collaboration and synergy opportunities. Then, there exist two technical partners for the formation and the financial inclusion based in Jendouba (ibid). “The business centre” of Bousalem is a centre opened for the project leaders, aiming at financially educating them using the support of coaches. Finally, there is the Middle East Investment Initiative MEII, which is a non-profit organization that promotes the financial inclusion of SMEs in Tunisia in the MENA (the Middle East and North Africa) region (ibid).

In this context, MEII has set up the TAMWEELI program for Tunisian small and medium-sized enterprises (SMEs). The TAMWEELI program is based on two main services. On the one hand, there exists Tamweeli ASSIST, which consists of support for the improvement of communication and financial and accounting of SMEs by equipping them with adapted accounting or commercial management software, then by accompanying them in the use of this new tool and in the general understanding of its financial data (ibid). Secondly, Tamweeli PLATFORM is the first digital portal to link the actors of the supply and demand of financing in Tunisia. The Tamweeli.tn platform is used to facilitate the matching between supported project holders and financial institutions.

### 3.1.3 Approach:

The TRACE contribution, which is credit-based and compatible with other state support or other financial partners, grants, or subsidies, only works as long as the share of credit remains higher than the share of investment, and the project owner contributes 5 to 10% in equity (ibid).

To achieve this, the fieldwork includes active prospecting and continuous dialogue with banks and financial institutions in order to anticipate their expectations and start collaborative work. The TRACE fund aims at financing investment projects of between 25.000 and 100.000 US\$, i.e., 75.000 and 300.00 TND, that generate rural employment (agricultural, livestock, fishing, agro-food sectors, ecotourism, etc.).

In order to better understand how TRACE works it is important to point out the methodological approach for the management of the grant fund, which is based on certain principles and guidelines (ibid):

- The search for a leverage effect of the TRACE grant fund in order to mobilize credit or attract private investment;
- The development of a simulation table of eligible operations, selected by typology and size, in order to monitor operations and performance indicators;
- The provision of a financing mechanism (through subsidies) for up to 30% of the investment to the eligible project holders;
- Trust management of the professional support fund based on project accounting (with a dedicated accountant) and rigorous internal control (via a locally recruited auditor) to verify the proper use of grant funds. In order to avoid any misuse of funds, it is important to have this rigorous approach from the beginning.
- Different selection criteria are adapted to the Governorates according to regional development priorities.

The operational approach consists of three stages that accompany the project leader (ibid):

- First step, *identification*: identifying project leaders who can be supported by TRACE in the development of their funding applications (this is the current step). Identification can be carried out by coaches, financial institutions, and other locally-based technical and financial partners, or directly if the project leader presents himself or herself in person via social networks, business centre, Tamweeli.tn platform. It has been made communication campaign started at the end of November 2021, in order to facilitate this first step.
- Second step, *maturation*: The aim is to assist the project owner in preparing the financing request, matching with a financial institution and in submitting the loan application. A tripartite contract between the project leader, the coach, and the consortium aims to quantify and plan this support. The objective is to submit the financing request to a financial institution within a timeframe established by the parties.
- Third step, *financing, and monitoring*: The financial institution undertakes to analyse the funding request submitted. If the financial institution grants and signs the credit, then the TRACE contribution is paid into the account in the project leader's name. The same coach who helped the project leader to put together the funding application is mobilized by the consortium to accompany and monitor the project. Impact indicators, in particular job creation, are measured over a period of 6 months after funding.

The TRACE program complements and catalyses existing schemes, in particular, to facilitate access to finance for enterprises, but also to improve supply services, equipment, and input and consultancy support (ibid). Therefore, TRACE aims at improving and strengthening the links between SMEs with Financial institutions, producers, and service providers. In order



to maximize the impact in terms of direct and indirect jobs maintained or created, partnerships and dialogue are therefore essential to the success of the program. In addition, TRACE provides technical assistance to the beneficiaries of the fund, which consists in educating and accompanying them in the elaboration of the business plan, conception and preparation of investment projects, and the implementation of the project (ibid).

To be eligible for the TRACE contribution, the investment project must therefore obtain credit from a financial institution. As it has been explained before, the objective for TRACE is to have a leverage effect: by co-financing 30% of a project, the program expects to facilitate substantial investments (1.2 million\$ should mobilize 4million\$) (Consortium Microfinanza s.r.l., et. Al., 2020). The link between the private sector and financial institutions will thus be strengthened: the mechanism enables the project leader to consolidate his or her request for financing and to reassure the financial institution, both financially (contribution to equity) and technically and economically (coach support and financing of services) (ibid).

## 3.2 Environmental and social risks

In this section, there will be a focus on the environmental and social risks related to the TRACE project. In particular, there will be a description of the environmental and social standards of the World Bank; and how TRACE wants to prevent, manage and monitor the environmental and social risks.

### 3.2.1 Environmental and social standards (World Bank):

Since the World Bank manages the fund, the environmental and social review of the sub-projects will respond to the Tunisian national legislation and the requirements of the Environmental and Social Standards (ESS) of the World Bank's environmental and social framework applicable to the sub-projects. Based on the preliminary risk assessment of the program, made

by Microfinanza s.r.l. , the ESSs that tend to be relevant to the sub-projects are the following (Republic of Tunisia, 20201):

- ESS 1: ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS.
- ESS 2: LABOR AND WORKING CONDITIONS
- ESS 3: RESOURCE EFFICIENCY AND POLLUTION PREVENTION AND MANAGEMENT
- ESS 4: COMMUNITY HEALTH AND SAFETY
- ESS 6: BIODIVERSITY CONSERVATION AND SUSTAINABLE MANAGEMENT OF LIVING NATURAL
- ESS 10: STAKEHOLDER ENGAGEMENT AND INFORMATION DISCLOSURE

**ESS1:** In the phase of selection of beneficiaries, some standards have to be taken into account. The following activities are considered as not eligible for the funding (ibid):

- a. *Activities that have a significant, unprecedented, and irreversible impact on the health and safety of communities. Here it is meant activities that involve land-use changes, provoking floods, or exposing communities to external pathogens.*
- b. *Activities that have important impacts on natural habitats or on animal species in danger of extinction.*
- c. *Activities that comport land acquisition. Indeed, the ESS5 is not considered in the project TRACE.*

In addition to that, Microfinanza has established an organizational structure with qualified staff in order to manage in the best way possible Environmental and Social Risks. In this regard, Microfinanza has elaborated the Environmental and Social Management Plan, the Stakeholder Engagement Plan, and the Pesticide Management Plan, in order to give the

directives for good management and control of the Environmental and Social Risks.

**ESS2:** Microfinanza will have in place appropriate labour-management procedures which are prepared and disclosed prior to project appraisal, including procedures relating to working conditions and terms of employment, non-discrimination and equal opportunity, and the prohibition of sexual harassment and sexual exploitation and abuse, grievance mechanisms and occupational health and safety (ibid).

**ESS3:** Microfinanza will ensure that beneficiaries prepare, adopt, and implement resource efficiency and pollution prevention and management measures as well as measures to manage waste and hazardous materials (ibid).

**ESS4:** Microfinanza will ensure that beneficiaries develop, adopt and implement measures and actions to manage risks related to Community Health and Safety including traffic and road safety risks, labour influx risks, gender-based violence, sexual exploitation, and abuse risks (ibid).

**ESS6:** Microfinanza will ensure that beneficiaries develop, adopt, and implement measures and actions to manage risks related to Biodiversity conservation, including by implementing remedies measures and actions for biodiversity protection (ibid).

**ESS10:** Concerning this last standard, Microfinanza has developed a Stakeholder Engagement Plan, embedding every feature for a fair and sustainable stakeholder engagement (ibid).

Nonetheless, the implementation of the ESSs in the project TRACE presents some divergences from the Tunisian legislation. These divergences could be for instance the weakness of the environmental and social monitoring system after the implementation of a project; the lack of requirements for social impact assessment; a weak spread of environmental evaluation documents in order to provide free access to information; lack of complaint management mechanisms. In order to alleviate these

divergences, TRACE developed the “Cadre de Gestion Environnementale et sociale” for environmental and social management of the project, the “Procédure de Gestion de la Main d’oeuvre” for ensuring fair work conditions to every single employee, and the “Plan de Mobilisation des Parties prenantes” for a fair stakeholder engagement plan.

### 3.2.2 Cadre de Gestion Environnementale et sociale (Environmental and Social Management Framework):

The Environmental and Social Management Framework (ESMF) has been prepared in accordance with the World Bank’s Environmental and Social Framework (ESF) and has been prepared and implemented by the team selected as the operator of the fund to support the creation of agricultural and agro-food jobs in rural areas for the governorate of Jendouba. The ESMF presents the following elements (Microfinanza s.r.l., 2021):

- Procedures for identifying and managing the E&S risks and impacts of sub-projects;
- A description of institutional capacities and competencies;
- Mechanisms for monitoring and reviewing the E&S risks of sub-projects

The environmental and social management framework has to be applied to all rural entrepreneurship sub-projects financed by the funds supporting the creation of agricultural and agro-food jobs in rural areas. In order to better control and manage the fund from an environmental and social point of view, the sub-projects must embed some criteria. These criteria are the following (ibid):

- The sub-projects must be technically, economically, financially, and commercially viable and have the potential for creating jobs, growing the firm, exporting potential such as new products, bringing innovative potential, creating alliances with other producers, and having a strong leadership capacity to run the project (ibid).

- The sub-projects must ensure the applicability of environmental and social standards as outlined in the World Bank's Environmental and Social Framework (ibid).

Microfinanza will ensure these criteria through the deployment of “fiches signalétique”, which are information sheets of the beneficiaries, having all the necessary information regarding possible environmental and/or social problems in their project proposal.

More in particular, the assessment of environmental and social risks is done at two levels: 1) at the level of program implementation by Microfinanza and 2) at the level of sub-project implementation (ibid).

1. **At the level of programme implementation by Microfinanza’s consortium:** the risks identified at this stage include a) the lack of transparency in the beneficiary selection process which can lead to capture of the benefits of the programme by elites and b) the proliferation of complaints about the implementation of the programme (ibid).
2. **At the level of sub-project implementation:** The environmental and social assessment focused on the agricultural, agro-food, craft and forestry production sectors in Tunisia taking into account each phase of the project including: the preparatory phase, the works phase (construction) and the exploitation phase. The approach adopted was based on the analysis of a); risks of deviation from the six applicable World Bank’s Environmental and Social Standards (ESS) and b); the capacity of the organizations likely to benefit from the program to manage these risks (ibid).

The correct applicability and respect of ESMF are crucial for the good success of the sub-projects since climate change is undermining the existence of these kinds of agricultural activities. Without the correct applicability of these standards, the entire TRACE project could result efficiently only in the short time, while in the medium/long time adaptation

measures to climate change like these, are essential for the entire life of this economic sector (ibid).

### 3.3 Pilot phase:

The pilot phase started at the beginning of October 2021 and it finished in March 2022. From here, it is possible, to sum up, some results of TRACE, in order to find out how TRACE is working and if it has reached some important results. Before showing the current results, it is important to report what is the context nowadays in Tunisia and in Jendouba, and how it has changed since the start of the program. First, it is important to report that the post-crisis COVID situation and tensions in global supply chains have contributed to higher prices on international markets for energy, fertilizers, and food products (especially wheat, which is crucial for the Tunisian diet) which have risen rapidly since February 2022 since the start of the war in Ukraine (Consortium Microfinanza s.r.l. et. Al., 2022).

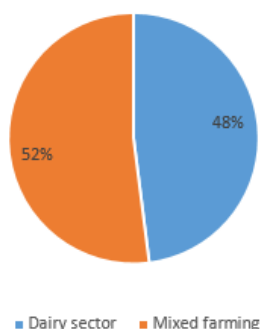
Concerning the temporary results, the program is in line with the expected results. At March 2022, the results are the following (ibid):

- More than 60 people asked for information about the program (in person, by phone, or by e-mail).
- 27 projects for which a “Fiche d’identification” (an identification form) has been prepared. 3 of them have been considered “not eligible” and 24 “eligible” for support of which 12 projects have been already financed.
- Five coaches have been trained since November 2021. Their work is well-considered from Microfinanza s.r.l. since they found 24 projects out of 27.

Therefore, for the moment, 12 projects have been financed, where 26 employees have been maintained and 21 new employees have been founded (ibid). In addition to that, there will be new seasonal employees, which are not counted. The big majority of the requests (17 out of 24) are

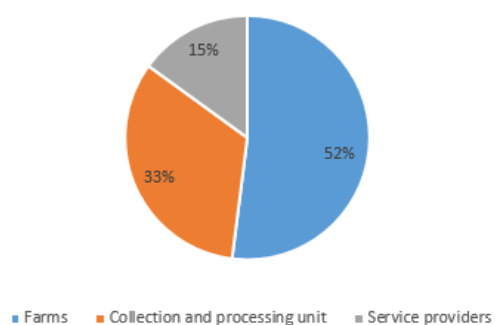
dairy farms with field crops and fodder production in irrigated areas, diversification into arboriculture, and/or market gardening. The other requests concern transformation of products (milk or olive oil) or services related to tourism (ibid).

**Kind of agricultural activities**



**Fig.10**

**Categories of activities**



**Fig.11**

Data on Beneficiaries' activities (Consortium Microfinanza s.r.l. et. Al., 2022).

Concerning the creation of female employment, the program is facing some issues due to cultural factors, indeed, for the moment, the program has financed only 7 female-leader projects out of 27 (ibid). Even if, as it will be specified in the next section, every project is aiming at creating 148 new female job places.

After the conclusion of the pilot phase, it is possible, to sum up, some conclusions, explicating observations and limitations (ibid):

- 9 out of 10 project leaders do not declare their employees and the monitoring/control of existing and new jobs is difficult.
- Agricultural producers and farms do not generate many direct permanent jobs. Only a few of them have a high potential for direct job creation
- Seasonal employment is consistent, but it is difficult to calculate, and, working conditions, in particular for females are not decent.

- The indirect employment generated by the work is important but remains to be measured.
- Some investments do not directly generate employment but are essential for maintaining activity and therefore existing jobs (e.g. environmental upgrading; fitting out of existing stables; farm equipment if the farmer already has a driver, etc.).

Therefore, it is correct to state that TRACE contribution is more efficient in supporting the already existing firms. It is particularly efficient concerning adaptation to climate change and reduction of environmental degradation.

Environmental resources are already overexploited and will be further degraded by the effects of climate and unsustainable agricultural practices. The depletion of resources such as water, soil, and biodiversity is alarming (ibid). The project team is trying to place these elements among the issues to be analysed, trying to make the project leader aware of the need to produce and process in a sustainable way, not only from an economic and financial point of view but also from an environmental point of view. These elements form the basis for daily sharing with the coach in terms of continuous training on not only procedural aspects but also those related to sustainable development (ibid).

### 3.3.1 Data analysis:

The database provided by Microfinanza s.r.l. presents data on 27 projects, of which only 24 projects are considered “eligible”. For every project, there are personal data (age, gender, marital status, education level...), kind of entrepreneurial activity, amount of total financing, TRACE contribution to total financing, expected employment creation, and other data not relevant for the purpose of this thesis.

This last section will discuss the expected return in terms of employment creation by the beneficiaries of TRACE contribution, in order to understand how many new job places are expected to be created for every US\$ of



financing. It will be taken into consideration only the 24 “eligible” projects (projects who get the financing). 6 projects out of 24 are female-leader, while the other 18 are male-leader, but the total expected creation of employment counts for 369 new employees (seasonal and permanent employees), where 110 are men (29%), 111 are young men (30%) and 148 are women (41%). On average, every project expects to create 15.38 new job places. (Microfinanza et. Al., 2022).

The aim of this section is to calculate and show the total expected return in terms of employment creation, but also for each category, in order to show which category is the most efficient concerning employment creation. To do this, an indicator was found, which will be named “Expected Return of Employment” (ERE). The indicator is based on the total funding received for each individual project. Consequently, it gives us the expected number of new jobs per US dollar of funding.

$$ERE = \frac{\sum_{k=24}^{24} \frac{e}{f}}{k}$$

Based on this equation (where “e” represents expected employment, “f” represents total financing, and “k” represents the number of beneficiaries), we will have an indicator that represents the average number of expected employees created out of the total amount of financing. This number is 0.00023 which says that, on average, every project is expected to create 2.3 new employees for every 10.000 US\$ of financing . But, considering only permanent employment creation, the ERE dramatically decreases to 0.000038 (0.38 new employees for every 10.000 US\$ of financing). The same operation has been made for every single category of entrepreneurial activity, showing significant differences among them. The three main categories are 1) farming/fishing; 2) services provider; 3) collection/processing unit.

<b>Farming/fishing</b>	<b>Services providers</b>	<b>Collection/processing unit</b>
1,043	2,267	4,246

**Tab.1** (ERE every 10.000 USD of financing)

Since, the main objective of TRACE is to create employment in the agro/agro-food sector, calculating the ERE indicator is important in order to understand which is the most convenient sector for creating more employment possible. This means that ERE's value provides the number of new job places based on the total financing. It does not provide the number of new job places. Indeed, as it will be shown after, the "extension" category has a lower ERE than "creation" category, even if it creates a lot more new job places than the "creation" category. As it is possible to note from the table, the "collection/processing unit" category is the best option for creating more employment with less money possible: 4.2 new employees every 10.000 US\$, while "farming/fishing" is the less convenient.

<b>Extension</b>	<b>Creation</b>
3,079	6,315

**Tab.2** (ERE every 10.000 USD of financing)

Another relevant distinction to mention is the difference between two other categories: "extension" and "creation". Credit beneficiaries are basically of 2 types: agricultural entrepreneurs who intend to start a business (creation) and agricultural entrepreneurs who already own a business (extension). It

is possible to notice that the ERE indicator is much higher in the “extension” category, creating more than 3 new employees every 10.000 US\$, while in the 'creation' category, less than 1 job is created for every US\$ 10.000 of funding. It is possible to evince that starting a new business in Jendouba could bring some difficulties while extending your already existing business presents benefits, considering that ERE is way above the average. While concerning gender differences there are not many differences in ERE (0.00019 for female-leader projects and 0.00024 for man-leader projects).

For the moment, in the equation, it has been considered the total financing at the denominator. The total financing includes the TRACE contribution to equity and services, accounting for 30%, and the other amount of financing from banks or other financial stakeholders. Therefore, if we consider only the TRACE contribution at the denominator, the ERE's value changes dramatically, from 0.00023 to 0.00083.

This is in line with what is expected from the TRACE fund, since it aims at creating a leverage effect on private investments. Therefore it is possible to calculate the multiplier effect (leverage effect) even on the ERE, by dividing the ERE with the TRACE's ERE. The result is 0.2714, which means that dividing  $1/0.2714$ ; it is possible to calculate the multiplier effect: 3.685. This means that every new job place created with the TRACE contribution, there will be 3.685 new job places from private investments. Therefore, there is evidence that the TRACE contribution is able to mobilize a leverage effect (or multiplier effect) even on job creation, attracting private financings.

# CONCLUSIONS:

This thesis focused on how blended finance for developing countries could be considered a good practice for adaptation to climate change and how it could help the achievement of the SDGs. In order to understand and answer these questions, it has been decided of using the T.R.A.C.E. project as a case study for giving more value to the general purpose of the thesis.

From the analysis of the project came up that the TRACE contribution is able to play an essential role in climate change adaptation, since it can provide technical and financial assistance to the beneficiaries of the funding, giving to them the essential tool for adapting to climate variability. Then, since the fund is partially managed by the World Bank, the organizations that provide technical and financial assistance (in the case of Jendouba is Microfinanza s.r.l.) have to let respect the Environmental and Social Standards, promoted by the World Bank, to the beneficiaries of the funding. This means that Microfinanza will train the beneficiaries to a more sustainable use of the land, to use more efficiently natural resources prevent them from pollution, improve the working conditions of the employees, and be more careful with biodiversity conservation.

In addition, another important aspect of the TRACE project is related to the fact that it plays an important role in the socioeconomic development of the province of Jendouba, without creating a dependency between the province and international aid. Indeed, its “blended” character allows, with a small donation, to create a leverage effect on it and thus attract significant private investment on the credit beneficiaries. In this regard, it has been shown, in the last section of the last chapter, the potential of the multiplier effect (one of the TRACE’s priorities), also on the creation of employment, which could play an essential role in the general socio-economic development of the province and on the reduction of gender inequalities. Concerning the reduction of gender inequalities, it has been demonstrated how TRACE could play an essential role in reducing them, especially concerning

employment. In a country like Tunisia, where women have many difficulties in access to work and in having good work conditions, and the agriculture is predominant by men, the results (or expected results), brought by TRACE are not game changers, but they are neither negative. Indeed, the project, for the moment, created six female-leaders projects out of 24, but the most relevant data is that they are expecting to create almost 148 new female employees out of 369, which is a surprising result.

However, it is important to report that these are general considerations. Indeed, there will be projects with different features among them, and, therefore, there will be projects with more potential than others.

Considering the provisory results of the TRACE project and the literature review about blended finance is possible to argue that blended finance presents all the premises for the achievement of the SDGs in an innovative way:

- It does not create dependency on international aid.
- It is a great tool for creating employment, especially in rural areas.
- It aims at achieving gender equality and sustainable development.
- It provides technical and financial assistance for adaptation to climate change.
- It creates leverage effects.

Nevertheless, further research and evidence are needed for providing better results on blended finance's efficacy, both from a theoretical and practical point of view. Indeed, a constant monitoring process is crucial for a better comprehension of the results in the mid-long term, since this entire research work is based on the provisory and expected results.

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# **ANNEX**

Database, having all the necessary data on the sub-projects, provided by Microfinanza s.r.l. (2022).

Database provided by the World Data Bank. (2018).



# FIGURES

**Figure 1:** Share of different economic sector in Tunisia in terms of employment (World Data Bank, 2018).

**Figure2:** Share of different economic sector in Tunisia in terms of GDP (World Data Bank, 2018).

**Figure 3:** Regional differences in poverty rate (Rapport de l'INS et la Banque Mondiale sur la pauvreté, 2020).

**Figure 4:** Agriculture, fishing and forestry value added (percentage of total Tunisian GDP) (World Data Bank, 2018).

**Figure 5:** Employment in agriculture (Percentage of total Tunisian population) (World Data Bank, 2018).

**Figure 6:** Tunisian bioclimatic zones (Knaepen, 2021).

**Figure 7:** Jendouba province's geographical position (Direction générale de l'aménagement du territoire, 2012)

**Figure 8:** Unemployment rate in Tunisia (Dridi, 2021).

**Figure 9:** Unemployment rate in Tunisia (Dridi, 2021).

**Figure 10:** Data on Beneficiaries' activities – kind of agricultural activities (Consortium Microfinanza s.r.l. et. Al., 2022).

**Figure 11:** Data on Beneficiaries' activities – categories of activities (Consortium Microfinanza s.r.l. et. Al., 2022).

**Table 1:** Differences in the ERE - Categories of entrepreneurial activity (Dataset, provided by Microfinanza s.r.l., 2022).

**Table 2:** Differences in the ERE – Extended or created activities (Dataset, provided by Microfinanza s.r.l., 2022).