

# State of the Art Green Entrepreneurship in Tunisia



Regional Activity Centre for Cleaner Production (CP/RAC)  
Mediterranean Action Plan



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for Cleaner Production





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Perspectives for economy, employment and education

A study conducted by the Regional Activity Centre for Cleaner Production RAC/CP

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## ACRONYMS

AHK	Chambre de Commerce Tuniso-Allemande
ANGed	Agence Nationale de Gestion des Déchets
ANME	Agence Nationale pour la Maîtrise de l'Énergie
ANPE	Agence Nationale de Protection de l'Environnement
APAL	Agence de Protection et d'Aménagement du Littoral
ATFP	Association Tunisienne Formation Professionnelle
AVFA	Agence de la Vulgarisation et de la Vulgarisation Agricole
CEDEFOP	European Centre for the Development of Vocational Training
CENAFIFF	Centre National de formation des formateurs et d'ingénierie de formation
CFAD	Centre Formation et Appui à la Décentralisation
CFC	Chlorofluorocarbons
CFL	Compact Fluorescent Lamps
CITET	Centre International des Technologies de l'Environnement de Tunis
CJD	Chambre des Jeunes Dirigeants - Tunis
C.T.A.B	Technical Centre of Organic Agriculture
D3E (DEEE)	Déchets d'Equipements Electriques et Electroniques
ENVIROCRECRED	Ligne de Crédit Environnemental
FNME	Fonds National de la Maîtrise de l'Énergie
FODEC	Fonds de Développement de la Compétitivité Industrielle
FODEP	Fond de Dépollution
FTH	Fédération Tunisienne Hôtellerie
GDP	Gross Domestic Product
GEI	Green Economy Initiative
GIZ	Gesellschaft für Internationale Zusammenarbeit
HACCP	Hazard Analysis and Critical Control Points
I.A.C.E	Institut Arabe Chef d'Entreprise
IFEN	Institut Français de l'Environnement
INS	Institut National de la Statistique
ILO	International Labour Organisation
ISSET	Institut Supérieur Etudes Technologiques
ISFOL	Istituto per la Formazione dei Lavoratori
LMD	Licence, Master, Doctorat
MEDD	Ministère de l'Environnement et du Développement Durable
MEF	Ministère de l'Emploi et de la Formation
OECD	Organisation for Economic Cooperation and Development
ONAS	Office National de l'Assainissement
ONTT	Office National Tourisme Tunisien
PCB	Printed Circuit Board
PPP	Private Public partnership
PRO.NA.D.GE.S	Programme National Gestion Déchets Solides
PV	Photovoltaic
RAC/CP	Regional Activity Centre/Cleaner Production
R&D	Research & Development
ROME	Répertoire Opérationnel des Métiers et des Emplois
SAP	Strategic Action Plan
SWH	Solar Water Heaters

SONEDE . . . . . Société Nationale d'exploitation et de distribution des eaux  
TND . . . . . Tunisian Dinar  
TEM . . . . . Training Energy Manager  
UNS . . . . . United Nations System  
UNEP . . . . . United Nations Environment Programme  
UNFPA . . . . . United Nations Population Fund  
UNIDO . . . . . United Nations Industrial Development Organisation  
UNOPS . . . . . United Nations Office for Project Services  
VAT . . . . . Value Added Tax

**Current Exchange rate**

1 Tunisian Dinar = 1,9732EUR

1 Tunisian Dinar = 1,4637US Dollar

(Source : Banque Centrale de Tunisie, December 2011)

**«Conservation is everybody's Business»**

**EXECUTIVE SUMMARY**

The Regional Activity Center for Cleaner Production (RAC/CP) promotes the implementation of the Mediterranean Strategy for Sustainable Development approved by the Barcelona Convention in 2005. Consistent with its mission, the RAC/CP financed the execution of several State of the Art studies on Sustainable Entrepreneurship to sensitize and encourage the generation of 'green enterprises', 'eco-preneurs' and environmental employment in the Mediterranean Basin.

The purpose of this report is to picture the current status of Green Entrepreneurship in Tunisia across different economic sectors.

To accomplish this goal, three sources of information have been used.

First, a review of the local institutions, organisations, laws and incentive mechanisms that support green entrepreneurship and green employment in Tunisia; second, a thorough desk research of the studies and the reports conducted in the green sector and; third, face to face and phone interviews with various entrepreneurs and economic development actors to better understand the entrepreneurial climate in environmental sectors.

Special attention has been given to identify where interventions are needed to enhance use of existing structures and to identify spaces for green entrepreneurship to develop and for green jobs to boom.

An intangible but essential driver of this study was the firm conviction that the major challenges confronting a more responsible entrepreneurship can be turned into opportunities. Taking up this idea, efforts can be made and resources deployed to move towards more sustainable economies and eco-friendly ways of living able to generate activities that encourage the creation of jobs, whether direct or indirect, in sectors traditionally linked to environmental management and in emerging economic and productive areas.

**Nature, Scope and Analysis of the Interview Process**

To gain greater insight into the entrepreneurial conditions in Tunisia, public institutions, economic development professionals, international development agencies and entrepreneurs were interviewed during the months of October and November 2011. The objective was to interview between two and three representatives from each selected sector with no expectation on statistical representativeness but rather to present successful testimonies.

Interviews have been conducted on energy conservation (renewable energy and energy efficiency), waste management and recycling, organic farming, sustainable tourism, natural resource management, consulting & services and civil society/NGOs sectors using a business cases interview form that was functional to gathering estimation data about the success factors and the constraints of businesses according to the following set of criteria:

- Turn over
- Employment generation
- Overall motivation of the owner
- Impact on the environment
- Generation of innovation

### **Moving towards a Green Economy**

A green economy is one that reduces carbon emissions and pollution, enhances energy and resource efficiency, and prevents the loss of biodiversity and ecosystem services.

In a green economy, the environment is considered decisive for production, economic stability and poverty reduction. Otherwise said, given that green economy promotes equitable growth and protects the poor communities whose livelihoods largely depend on natural resources, environment might be considered as an «enabler» of economic growth and human well-being.

According to the *United Nations Environment Programme*, a green economy is one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. Building on this definition, the green economy acts towards sustainable consumption and production and resource efficiency while contributing to environmental resources preservation.

The unsustainable exploitation of natural resources and environmental degradation also reduces the potential of employment creation in the long term particularly in natural resources based economies (African countries) and sectors (agriculture, fisheries, forestry and tourism).

For example, tourism that is one of the most important sources of employment all over the world relies primarily on natural resources and the effects of climate change and environmental degradation will affect the growth and the development of the whole sector.

Sustaining and enhancing our natural capital is therefore an important driver in efforts to achieve sustainable development and the protection of poor communities.

### **The Role of Green Entrepreneurship**

Given that environmental activities can be found in all industrial areas and sectors it is difficult to investigate them and to agree on a concordant definition and its nuances.

Generally speaking, a green organization is a business that produces or offers products, services or processes that preserve and benefit the environment by minimizing environmental impact.

*«The environmental goods and services industry consists of activities which produce goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes cleaner technologies, products and services that reduce environmental risk and minimize pollution and resource use<sup>1</sup>.»*

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<sup>1</sup> OECD definition

Since the 1990's, a growing literature attempted to find a common definition of green entrepreneurship and recent scholarship has produced a multitude of literature in an attempt to accurately categorize eco-preneurs.

Some schools of thought distinguish between two types of green businesses—either «green» or «green-green»<sup>2</sup>. «Green» businesses do not start with environmental concerns, but make innovations along the way for either marketing advantages or because of ethical concerns. The «ideal type» of green entrepreneur is the one who will start-up a «green-green business», that is one completely green since its inception.

In other words, for some entrepreneurs environment is not the main motivation and they only venture to cover a market need they have identified, others have discovered that there is a «green» application to a product that already exists and choose to approach green entrepreneurship from a less risky but still marketable perspective, a few others start a green business because their main driver is to do something concretely good for the planet.

Regardless the subjective drivers of ecopreneurs, the importance of green entrepreneurship for sustainable development, employment creation and fighting against poverty is incontrovertible. Green entrepreneurship is not only important because it provides new opportunities to young entrepreneurs but also because it may become a powerful force to mainstream a new paradigm of responsible business.

Entrepreneurs play a key role in market based economies; evidence of the economic benefits of green driven approaches may lead to quicker adaptations of government regulations and may push other entrepreneurs to go green. In fact, building on the evidence of efficiency gains and social stability, government policies and other incentive mechanisms can be reinforced for the benefit of communities at local, national and international levels.

### **Policies and Programs Fostering Green Entrepreneurship**

The role of government regulations in encouraging the start-up of green enterprises is crucial.

The current legal framework in Tunisia enhanced by incentives mechanisms and supporting institutions, has provided good support to the emergence of a new green market, and greater demand for green goods and services. For example, the introduction of additional fiscal incentives and investment subsidies in 2004 was crucial to the growth of the SWH market that led to an increasing of the installed solar collectors from 7,500 m<sup>2</sup> in 2004 to 81,000 m<sup>2</sup> in 2010. To date, the SWH market totalizes 47 manufacturers and importers and 1,100 installers. According to a recent study, the SWH sector ensures 1,400 permanent and direct jobs.

Indeed, many small firms report that this is the most important add-on in their decision to adopt an environmental program, and that they would usually not do so if such legal framework was absent.

While some sectors are well regulated by a comprehensive legal framework, some others in Tunisia still lack regulation and a control system. This is the case for the two economic pillars for the country - eco-tourism and organic agriculture.

<sup>2</sup> Isaak 2002

In Tunisia, it is probably appropriate to claim that if from one hand new green employment has not yet been created, environment has instead been integrated within the activities of traditional businesses; in other words, environmental jobs stem from traditional employment activities that have redefined a part of their function or have integrated an environmental component.

This observation leads to further reflections concerning the need of an adequate classification of employment related to environment and the institution of an official nomenclature. Tunisia, has not yet adopted the official nomenclature of «green jobs» and many potential new employers still offer jobs generally defined as of «traditional» nature.

The opportunity exists for government and non-governmental actors to help boosting environmental business creation and its development in multiple sectors and to ultimately contribute to the saving of our planet.

### **Qualifying education and trainings**

The role of universities and professional training centres may also be critical to boost the environmental sectors.

The inclusion of environmental information within university curricula and the development of a wider range of training programs on environmental topics and practises can help developing a greater sense of environmental awareness among the students and trainees, and encourage them to apply these competences and skills in their business projects and professions.

Based on the available research, chapter 3 draws the current situation related to academic and professional 'Green trainings' in Tunisia where gaps of specialised skills development emerge, and focus remains on the diversification of existing skills applications.

An opportunity therefore exists for academics and professional training centres to develop new curricula and programs in this area, to involve students in environmental topics, and to assess what impact such courses have on their the future environmental engagement.

### **Facts and Fiction unveiled: Post Revolution**

When we refer to green economy and green entrepreneurship in Tunisia, it is important to point out some 'hidden factors' that most likely have contributed to slowing down the emergence of green businesses before the Revolution of 14th January 2011. It is a matter of fact that economic growth comes easier in democratic, transparent and participatory environments, something that Tunisia has never experienced before the fall of the former regime. Among the 'hidden factors' now publicly revealed are: 1. the top down approach used in implementing environmental programs, 2. the corruption practices that have contaminated and affected almost all economic sectors including the environmental sector, and 3. the vaunting of propaganda discourse showing positive indicators by way of manipulated information. Besides the considerable efforts made by Tunisia in the environment, it is expected that the democratic process, if correctly established, will speed up the emergence of green businesses in the country, where a huge potential is yet to be exploited.

For decades, Tunisia has demonstrated a steady commitment towards environmental protection through signing and ratifying most of the international conventions and treaties and

implementing several programs related to the environment, showing a genuine political will and interest towards environmental issues.

However, since the Jasmin revolution of January 2011, many voices (local populations, NGOs, media, trade unions...) continue criticizing the top-down approach of the former Tunisian government that used environmental policies as a means to sell the Tunisian image and attract the international donors and foreign countries. For instance, in many regions of the country, people have attacked national parks claiming their right over the land and criticizing the control of the public administration over their basic resources and livelihood. Thus, actions of vandalism such as burning or digging out trees, destruction of fences, massacring of fauna and demolition of public buildings, have occurred in several national parks (Ichkeul in the governorate of Bizerte, Bouhedma in Sidi Bouzid, Châambi in Kasserine). In addition, many centres of waste treatment have been blocked by sit-ins and demonstrations by local people. For example, in the case of the centre for hazardous waste treatment in Jradou, Governorate of Zaghouan, and the municipal waste centre of Béni Naïm, Bizerte, people in these areas are still claiming for better living conditions.

As a reaction, several initiatives have been launched to ensure environmental sustainability to the population. Amongst them, the Eco-Constitution Initiative, an informal proposal of an independent group of environmental activists, that urges the inclusion of the right to a clean and sustainable environment into the future new constitution -- to be established within the next year by the Constitutional Council. Economically speaking, such a right would certainly boost environmental opportunities and create additional markets for green businesses.

The most relevant fact that emerged in the aftermath of the revolution is the unimaginable degree of corruption and the systematic legitimization of corrupt practises in use in almost all economic domains (building, real estate, industry, trade...), which has also affected the environmental sector. Such practises have partly discouraged promoters and innovators to invest in the country and contributed to lowering environmental priorities in the political agenda. Thus, questions and criticism have been raised around the use of the eco-taxes and the negative environmental impacts of mega projects, such as the Bukhater City Sport planned to be implemented on a forested land in Tunis.

Last but not least, the post revolution unveiled the falsity of crucial indicators and data that have been disseminated and made public, most especially the unemployment rate and the nuisance indicators. The unreliability of statistics related to the environmental have been confirmed by experts, which served solely as an instrument of a political propaganda. The lack of independent evaluations of environmental impacts and the difficulty of access the original database of public bodies was a barrier in assessing the actual effect of governmental programs in the field of environment protection.





## INTRODUCTION

In the last two decades Tunisia has accorded a special place to the environment and to the adoption of strategic policies for environmental development, ensuring the protection of the environment and the preservation of its natural resources.

This approach has been implemented through development plans and former presidential programs, including the program «Tunisia of tomorrow» (2004-2009), which in 21 points primarily focused on the achievement of Sustainable Development and identification of the main principles needed to rationalize the sustainable exploitation of natural resources. The foundations of Sustainable Development have also been strengthened through a comprehensive regulatory framework and development of a perspective of the impact of economic and social activities in the medium and long term.

Giving special attention to environmental issues is crucial to the development policies of Tunisia. Thanks to the modern environmental policies adopted in some core sectors, and the allocation of funds for the implementation of important environmental projects, many positive results have already been achieved. In addition, the Government provided incentives to address environmental issues and set up an integrated and adequate institutional and legislative framework.

In recognition of the many environmental achievements that Tunisia has had to date, the country occupies a privileged place at regional and international levels. The 9th world report on information technology and communications 2009-2010, prepared by the Davos World Economic Forum in collaboration with the European Institute of Business, ranked Tunisia first in the Maghreb and Africa, and 39th internationally, out of the 133 States mentioned in the report. Tunisia was also, for the second consecutive year, ranked by annual International Living at the top of the list of Arab countries for the promotion of living conditions and quality of life among 194 countries<sup>3</sup>.

As in many other countries, actions have been attempted to identify the impact of this progresses on the economy in general and on employment in particular.

However, prior to any evaluation of the impact, it is important to frame the basic concepts within the environmental domain in Tunisia and internationally.

Therefore, Chapter 1 will discuss the existing international and country definitions and the attempts that have been made to outline a nomenclature of «green jobs» in Tunisia, based on the experiences carried out in other western countries, particularly in France.

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<sup>3</sup> Rapport National sur l'état de l'Environnement, 2009 – Ministère de l'Environnement et du Développement Durable

## 1. Definitions: Green economy, eco-preneurship, green jobs

### 1.1. Not easy to be 'green': International definitions

As the Rio+20 world summit approaches and will focus on green economy (including poverty eradication) all developed countries will be called on to take up the challenge and responsibility to move towards a greener economy.

Discussions around green economy face two challenges: 1. the way to cut resource use and environmental impacts from production and consumption activities, and 2. the challenge of maintaining the structure and functions of ecosystems that support our economy and well-being without collapsing into a different environmental state. Associated to this discussion is also the reflection on how a transition to a green economy may also support and advance human development and well-being.

In an undoubtedly difficult time of economic transition, many countries have increased public expenditure to boost growth, while also taking the opportunity to orientate national economies towards long-term sustainability and «green growth».

In this context, the reflections on green entrepreneurship move from being simply «fashionable» to being essential for policy guidance<sup>4</sup>.

The definition of 'green economy' has attracted a lot of attention in recent years after that the UN 'Green Economy Initiative (GEI)' was launched. Although the definitions of 'green economy' (or 'green growth') differ the general tendency in international green economy concepts is *'to identify the complementarities between economic and environmental challenges in a way that highlights the opportunities for new sources of economic growth'* (OECD)<sup>5</sup>.

The United Nations for Environment Programs, (UNEP) defines a green economy as the one that results in *'improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities'*.

A green economy, in the UNEP definition, is *'low carbon, resource efficient and socially inclusive'*<sup>6</sup>.

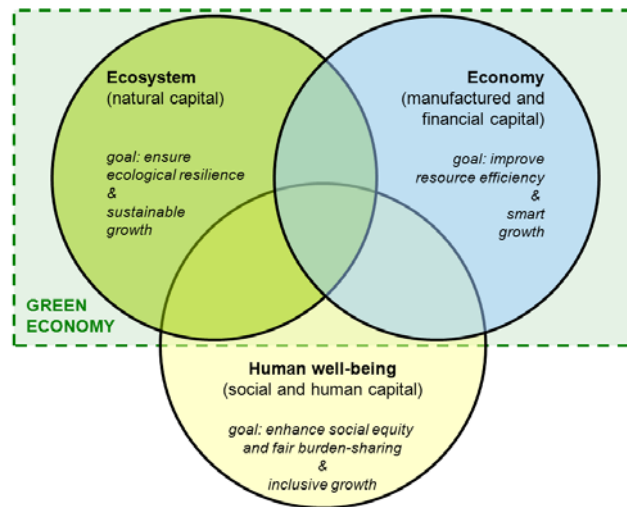
Prior to the emergence of a revived interest around the topic, the term 'green economy' was also used in the context of sustainable development: the 1989 report on *Blueprint for a Green Economy* highlights that the report aim is *'to investigate some of the economic underpinnings of the idea of sustainable development'* (Pearce et al., 1989).

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<sup>4</sup> Entrepreneurship at a Glance 2011 © OECD 2011, Measuring Green Economy

<sup>5</sup> Towards a Green Economy in Europe, European Environment Agency

<sup>6</sup> UNEP, Green Jobs: Towards decent work in a sustainable, low-carbon world

**Figure 1: A conceptual framework of Green Economy**

The current literature describing business processes offers a variety of definitions for *entrepreneurship*. The earliest definition dating from the eighteenth century described entrepreneurship as the process of bearing the risk of buying at certain prices and selling at uncertain prices. Other successive commentators broadened the definition by including the concept of bringing together the production factors. This definition led to further reflections whether there was any unique entrepreneurial function or whether it was simply a form of management. Early this century, the concept of innovation was added to the definition of entrepreneurship. Innovation can include process innovation, market innovation, product innovation, factor innovation, and even organisational innovation.

Later definitions describe entrepreneurship as involving the creation of new enterprises and the entrepreneur as the founder<sup>7</sup>.

Entrepreneurship is the act of being an entrepreneur that is «one who undertakes innovations, finance and business acumen in an effort to transform innovations into economic goods». This may result in new organisations or may be part of revitalizing mature organisations in response to a perceived opportunity. The most obvious form of entrepreneurship is that of starting new businesses (start-up company). In recent years, the term has been extended to include social, environmental and political forms of entrepreneurial activity.

### Green Entrepreneurship

A green entrepreneur can either be one who makes his/her business «green» or who simply enters a «green business». In other words, green entrepreneurship could be defined in terms of the technology used for production in any sector of the economy, or in terms of the sectors firms are active in<sup>8</sup>.

Since the 1990's, the concept of green entrepreneurship is receiving significant attention. A growing literature on the topic has been issued and a number of new terms have prolif-

<sup>7</sup> Defining Entrepreneurship, Paul Di-Masi

<sup>8</sup> Measuring Green Entrepreneurship – Entrepreneurship at a glance 2011 ©OECD 2011

erated, ecoentrepreneurship, ecopreneurship, environmental entrepreneurship, sustainable entrepreneurship, ecological entrepreneurship, enviro-preneurship or sustainopreneurship in the attempt to find a common definition of green entrepreneurship.

However, many questions are still in search of clear answers; how does the concept of green entrepreneurship can be translated into green activities and green jobs? What makes an entrepreneur a 'green' entrepreneur? Should a green job be directly related to environmental protection? Etc....

Given that environmental activities are found in all industrial areas and sectors it is difficult to investigate them and to agree on a concordant definition and its nuances.

Much of the exiting reports on green entrepreneurship, environment and green employment lack substantial empirical analysis. The theoretical debate that emerged in the last few years has undoubtedly contributed to a better understanding of the phenomenon but, due to the lack of essential information, the debate results still inconsistent, distant from reality and unable to offer concrete guidance to policy makers.

A green organization is generally defined as an organization that produces goods or services designed to minimize environmental impact.

The OECD/Eurostat (1999) proposed the following definition of environmental industry: «*The environmental goods and services industry consists of activities which produce goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes cleaner technologies, products and services that reduce environmental risk and minimize pollution and resource use*».

This definition does not differ much from the one adopted by the US Census Bureau (Becker and Shadbegian, 2008) in its one-time Survey of Environmental Products and Services that quotes:

«*The manufacture of products, performance of services and the construction of projects used, or that potentially could be used, for measuring, preventing, limiting, or correcting environmental damage to air, water, and soil, as well as services related to the removal, transportation, storage, or abatement of waste, noise, and other contaminants.*<sup>9</sup>»

## **1.2. Determinants of Green Entrepreneurship**

Unsustainable business practices are still prevalent—and often remain more profitable than green ways of doing business. Short-term pressures of shareholders and financial markets are not easily overcome. The early adopters of green business practices have to contend with companies—manufacturers and retailers—that command consumer loyalty through low prices.

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<sup>9</sup> Measuring Green Entrepreneurship – Entrepreneurship at a glance 2011 ©OECD 2011

However, ways to promote and encourage green entrepreneurship have been identified in the following indicators:

### **Selected Indicators<sup>10</sup>**

#### **1. Regulatory framework**

A combination of opportunity, capabilities and resources does not necessarily lead to entrepreneurship if opportunity costs (e.g. forgone salary and loss of health insurance) and start-up costs outweigh the potential benefits. The regulatory framework is therefore a critical factor affecting countries' entrepreneurial performance.

#### **2. Access to finance<sup>11</sup>**

Venture capital is a type of financing that has an important role for young companies with innovation and growth potential, as it replaces or complements traditional bank financing. The development of the venture capital industry is seen by policy makers as an important framework condition to stimulate entrepreneurship.

#### **3. Culture: the image of entrepreneur**

The entrepreneurial culture in a country affects the attitude that individuals have towards entrepreneurship, the likelihood of choosing entrepreneurship as a career, the ambitions to succeed and to start again after a failure, or the support provided to family and relatives planning to set up a business. All these aspects play a role, although there is scarce empirical evidence on their relative importance and differences across countries.

### **1.3. Defining Green Jobs**

While it is recognized that environmental services are key for maintaining life on Earth, decent employment is considered as central for human well-being. This includes enabling individuals «to build identities, to participate in and to contribute to society» (UN Environment Programme, International Labour Organization, International Organisation of Employers, & International Trade Union Confederation, 2008).

In the report «Green Jobs: Towards decent work in a sustainable, low-carbon world<sup>12</sup>» UNEP defines green jobs as «*work in agricultural, manufacturing, R&D, administrative, and service activities that contribute substantially to preserving or restoring environmental quality. Specifically, but not exclusively, this includes jobs that help to protect ecosystems and biodiversity; reduce energy, materials, and water consumption through high efficiency strategies; de-carbonize the economy; and minimize or altogether avoid generation of all forms of waste and pollution*».

The definition of green job is still an open debate. Not only the definition must take into account employment in «new» industrial sectors such as renewable energies, but also implies the redefinition of job profiles in traditional sectors.

<sup>10</sup> Entrepreneurship at a Glance, OECD 2011

<sup>11</sup> Venture capital is capital provided to young, unquoted firms with high growth potential. *Venture capital investment as percentage of GDP* measures the sum of seed and start-up capital and early development capital as a share of a country's GDP

<sup>12</sup> Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World, UNEP/ILO/IOE/ITUC, September 2008

Business Europe<sup>13</sup> also argues that there is no clear definition of green jobs and the distinction between green and more conventional sectors is artificial.

It is also recognised that many green jobs are of precarious, dangerous and often informal nature, e.g. in the recycling sector.

The Institut Français de l'Environnement (IFEN) has adopted several definitions to describe «green jobs»:

- *The posts covered in organizations for which environment represents the core business.*
- *Jobs created (or to be created) that take into account the environment in economic activities (whether commercial or not).*
- *Paid activities in a company for which environment is the main business and where specialisations are not necessarily linked to the field of environment (administration, technical jobs, sales etc).*

The French Ministry of Environment and Sustainable Development MEDD, defines environmental employment one that has as main purpose *«to protect and manage the nature and the environment while preventing and reducing pollution and associated risks for the sustainable development of territories and living environments, including through awareness raising and behaviour change»*.

A further study conducted by the Cedefop «Skills for green jobs» (a part of a broader study carried out jointly with ILO), looks at the skills needed to develop a low-carbon economy in six Member States (Denmark, Germany, Estonia, Spain, France and the UK). The study shows that the boundaries between what is and is not low-carbon work are becoming increasingly blurred. The perception of whether a job is a new green one or an existing one with new elements differs between the six Member States. As an example, an energy auditor in Estonia may be considered a new green occupation. However, in Germany, it can be seen as a change in the competences of an auditor, which is a long established occupation.

Building on the work completed by other organizations pursuing similar objectives, ECO Canada, a no-profit Canadian organization that supports the Canadian Environment Industry<sup>14</sup> defines a green job as one *that works directly with information, technologies, or materials that minimize environmental impact.*

This organization also recognizes that specialized skills, knowledge, training, or experience related to these areas are required.

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<sup>13</sup> Business Europe – the European umbrella organisation of national industry and employers federations – has provided policy feedback and inputs in a wide range of topics related to the Green Economy and Sustainable Development. It generally supports EU policy-making and considers itself a «solution provider.» While policymaking should be more transparent, open to stakeholder participation and less costly to businesses, Business Europe acknowledges it and underscores the economic potentials for European businesses and employees in responding to the manifold challenges of SD worldwide. SD is not only regarded as a great challenge, but as an area for future growth and employment. For this, investments in green research and innovation as well as higher spending in developing high-skilled labour are necessary.

<sup>14</sup> <http://www.eco.ca/>

**Figure 2: Canadian profile of environmental employment**

#### 1.4. Green Employment in Tunisia. Which definition?

The study 'Etude sur l'Emploi dans le domaine de l'environnement' conducted in 2002 by the National Agency for the Protection of the Environment (ANPE)<sup>15</sup> with the objective to picture the state of the environmental activities in Tunisia, the number and the nature of the jobs created by these activities, and to frame new perspectives for the development of these activities and the number of new jobs they might generate, bases its analysis on the definition of the «Statistics Canada», for which there is no 'universal definition of environmental goods, services or of the firms producing them'. The study builds the definition of environmental industry as consisting of «activities undertaken by firms in measuring, preventing, limiting or correcting environmental damage as well as those that engage in clean or resource-efficient technologies, that reduce emissions and/or minimize waste disposal problems» that «produces goods or offers services that contribute to the prevention, measure, restoration or reduction of air, water and soil deterioration or to remedial measures in these fields. This industry also offers services associated to collection, transportation, stocking and refining of materials that may damage the environment».

Building on the previous definitions, the study defines green activity as «an activity that aims at protecting and managing the nature and the environment while preventing and reducing the risks of pollution to develop the territory and improve the living environment in harmonious and sustainable manners.

The study organises the 'green activities' within three core areas:

- Conservation and sustainable management of natural resources.
- Pollution prevention and treatment, risks and nuisances.
- Planning and improvement of living conditions.

<sup>15</sup> ANPE/Etude sur l'emploi dans le domaine de l'environnement : Phase 2 : Recensement des emplois verts

According to the GEREP<sup>16</sup> study (2003) the number of green jobs in Tunisia is estimated in 96,079 including both permanent and occasional jobs of which 79% are in the public sector. The two-third of these jobs is in the field of natural resource management.

A complementary study on environmental employment in Tunisia was conducted in 2005 by the ANPE. Based on the previous definitions, the study advances proposals on the definition of environmental employments and its specific nomenclature. The study relates to «green job» as the status of *any person engaged in paid activities pertained to environment protection, the conservation and preservation of natural resources.*

This type of job refers to all kinds of activities from the production of goods to the provision of environmental services, to a multitude of activities affecting the conservation and the preservation of natural resources and this activity can be carried out in a company that does not directly operate in the environmental sector.

This may raise the objection that many jobs may be considered as environmental without being directly or exclusively related to environment but this also applies for the case of the INS nomenclature of jobs in Tunisia for which only the garbage collectors, the street sweepers and assimilates are related to the environment.

In Tunisia, it is probably appropriate to claim that if from one hand new green employments have not yet been created, environment has instead been integrated within the activities of traditional businesses; in other words environmental employments are in most cases traditional employments that have redefined a part of their functions or have integrated an environmental component.

Inevitably, this ‘blurred’ observation leads to further reflections concerning the need of an adequate classification of employments related to environment and the institution of an official classification of environmental employments.

Tunisia, has not yet adopted an official nomenclature of «green jobs» and many potential new employments are still widespread in other jobs generally defined as of «traditional» nature.

## **1.6. Nomenclature of green jobs: International references**

### **1.6.1. The French nomenclature system: Rome**

The «Répertoire Opérationnel des Métiers et des Emplois»(ROME) is a practical jobs’ directory created by the Agence Nationale pour l’Emploi (ANPE- FRANCE)<sup>17</sup> with the objective to match employment opportunities with job applications and to guide job seekers throughout the labour market opportunities (see appendix 2).

The ROME includes more than 10,000 classifications of businesses and jobs and is broadcasted in 100 countries worldwide.

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<sup>16</sup> Gerep Environnement. Bureau d’étude de l’environnement et du Développement Durable

<sup>17</sup> <http://www.statistiques.developpement-durable.gouv.fr/>



Based on the ROME repertoire, France is one of the few countries to have developed a comprehensive specific classification list of environmental employments and professions.

In the ROME classification several varied green positions are identified within one environmental activity.

As an example, nine green jobs derive directly from the 'Maintenance of natural areas' sector:

- Agent for walkways, horse riding and mountain biking.
- Agent for the hedges and ditches.
- Agent for the maintenance of nature.
- Agent for the maintenance of rural areas.
- Agent for the maintenance of natural areas.
- Agent for the maintenance of rivers.
- Agent for the maintenance of coastal environment.
- Team leader for the maintenance of natural areas.
- Workman for the maintenance of natural areas.

Building on the same principle, the ROME classifies a number of jobs that may turn to be green employments (métiers verdissants/green shaded jobs) within a range of activities that do not directly relate to environment. (See Annex 2)

### 1.6.2. The Net-Guidance

The Net-Guidance<sup>18</sup> is a repertoire of jobs, professions and businesses providing useful information with regard to the available vocational trainings and education courses to upgrade knowledge or acquire new competences and skills.

In the section 'Jobs Guide', the job seeker can access different employment positions whether by «sector» or by «geographical area» and get a first idea of business, professional or employment opportunities and the level of education or training required to apply.

Some records are easily classifiable as green sectors as is the case of 'Quality, Environment', 'Industry, Energy, Quality' etc..., others are less evident but may contain environmental employment opportunities and the guide to the specific qualifications or skills required (see appendix 3).

### 1.6.3. The Italian case

To date, Italy has not adopted an official national nomenclature to classify environmental employments however, experiences have been carried out by ISFOL (Institute for the Development of professional training for workers)<sup>19</sup> with the coordination of the Italian Ministry of Employment that proposes a classification of environmental employments, the required qualifications, the available training courses, the career development and other helpful relevant information.

<sup>18</sup> <http://www.leguidedesmetiers.com/metiers>

<sup>19</sup> <http://orientaonline.isfol.it/index.scm>

**Figure 3: Classification of environmental employment in Italy**

Classification of Environmental Employment (ISFOL)	
	Expert in waste management Environmental Consultant Technician for environmental clean-up Managers of parks and protected areas Coordinator of civil protection Disaster Manager Volcanologist Seismologist Meteorologist Expert in Environmental Impact Assessment Expert in environmental communication and information Environmental trainer Technical environmental monitoring Environmental Auditor

#### 1.6.4. Tunisia: an official nomenclature needed

In 2008, The Ministry of Education and Training launched the study 'Etude sur l'état des lieux de la formation dans le domaine de l'environnement en Tunisie'<sup>20</sup> led by the CENAFFIF (Centre national de formation de formateurs et d'ingénierie de formation) and funded by GTZ (now GIZ), with the objective to match the offer and the demand of environmental profiles and to further identify the appropriate instruments to satisfy the market demand. The study underscored that the «Dictionnaire National des Professions et des Emplois de la Tunisie», a referential for the general classification of jobs and professions in Tunisia, does not include a specific nomenclature of environmental employments.

In the first part, this study attempts a preliminary classification of employments related to environment but given their rather confused definition and the extension of the number of areas related to environment it had to refer to a segmentation of «Environmental Areas», and their respective applications, on the basis of the French definition of environmental areas. As a matter of fact, in order to analyse the potential of environmental employments it was necessary to study the nomenclature used in other international classifications, namely the Net Guidance and ROME presented in the previous chapter.

Based on the ROME segmentation of environmental areas, the study attempts to identify the nature of employments related to environment by analysing the general classification of businesses used in the Tunisian National Dictionary of Employments and Professions.

Out of the almost 800 specific jobs grouped in 9 the sectors observed, only 5 can be considered as directly linked to environment given that the compilation of the dictionary did not include a specific approach to classify environmental employments:

- Dustman.
- Sewerman.
- Water Treatment Agent.
- Gardener.
- Ranger.

<sup>20</sup> GTZ : Etude sur l'état des lieux de la formation dans le domaine de l'environnement en Tunisie

The comparative analysis of these three main sources, the Tunisian dictionary, the NetGuide and the ROME allowed researchers to determine that the Tunisian classification does not include green jobs and that other specific employments may have also been missed.

The potential for green job creation is enormous – and the case for government support to drive this forward is clear – industry cannot do it alone.

## 2. Incentive mechanisms to promote green entrepreneurship

### Policies with an impact on green entrepreneurship

Government policies rarely target explicitly the birth of new enterprises in environmental sectors. A sequence that is commonly observed in the green part of the economy is the adoption of policies for the protection of the environment, which in turn create favourable conditions for investment, growth, and the development of new firms in environmental sectors.

The example of the water sector in Israel is typical of the type of impact environmental policies can have on entrepreneurship (OECD, 2010, Annex II.B). To address the scarcity of water in the country, over the past two decades the Israeli government introduced policies to encourage reduced consumption and recycling of water, as well as strong pricing signals. These policies included abstraction and supply, water transportation and distribution, and wastewater policies. These factors had an impact on the demand for water and innovation incentives in the sector. As of 2007, 270 water-technology companies operated in Israel, employing almost 8,000 people. About 60 companies among the 270 were start-up companies, established after 2001, and were involved in R&D. In addition, exports of the water technology sector grew from USD 700 million in 2005 to some USD 850 million in 2006, a 21% increase.

Source: OECD (2010), *Taxation, Innovation and the Environment*, OECD, Paris. (Entrepreneurship at a Glance, 2011)

### 2.1. Regulatory framework

As a signatory country of almost all the most important international conventions on environment protection, Tunisia has many regulatory frameworks related to environment preservation. These regulations aim at organizing economic sectors that could impact the environment and the quality of life. The environmental regulations in Tunisia support indirectly the creation of businesses in the environmental field or 'green business'. This is made possible through a number of mechanisms not specifically dedicated to the creation of green enterprises, but rather to ensure economic development that takes into account all dimensions of Sustainable Development.

Some of these regulations are general rules that encourage investments (such as the Investment Incentive Code) while others focus on the environmental sector specifically (the Energy Conservation Law or the Law on Waste Management).

### **2.1.1. The Investments' Incentive Code**

The Investments' Incentive Code in Tunisia is a general legal framework that establishes the rules for projects implementation and investment promotion in all economic activities. The Code provides different incentives to investors, particularly tax benefits. Thus, regulatory measures are adopted to encourage promoter's investments in sustainable development, especially in some remote regions of the country where economic growth is still low. The main purpose of the Investments' Incentive Code is to boost economic growth and job creation in several areas. Being the safeguard of environment one of those areas, special measures have been undertaken:

- Companies combating pollution or companies specialized in the collection, processing and treatment of wastes;
- Companies investing in energy conservation, research, production and marketing of renewable energy and research on geothermal energy.

As an example, in the contests of combating pollution and of environmental protection, Article 37 of the investment Code specifies the incentives provided to investments made by specialized businesses in collection, processing and treatment of wastes such as the exemption on import taxes and charges and VAT exoneration on locally manufactured and imported equipments (that have no equivalent in the local market).

The Investments Code sets out the conditions for companies to increase their investments in processing and treatment of wastes, such as tax benefits. For example, establishing a business in waste management (or increasing the capital) allows the company to deduct (for a maximum of 50%) the net profit of the investment from the taxable amounts.

### **2.1.2. Energy Conservation Law**

The law<sup>21</sup> was enacted in 2004 when Energy Conservation was recognized as a national priority as a key element of sustainable development. The law fixes the different actions of Energy Conservation, clarifies the mission of the National Agency for Energy Conservation and identifies the advantages granted to all energy efficiency measures. Also, the law defines the offenses and the penalties applicable to those who infringe the law. In particular, the law encourages industrial companies with high energy consumption to submit new projects to the consultation of the National Agency for Energy Conservation and reinforces the regulations on thermal insulation and renewable energy.

Since its enactment, the law on energy conservation has permitted a significant development of the sector through several programs and projects in various fields: solar water heating, energy efficiency in buildings and industry, etc...

Such development enabled an emerging market for green enterprises working in the field of renewable energy and energy efficiency, particularly in the solar water heating, photovoltaic and energy efficiency sectors in industry to find a wider room for growth. The launch of a national fund for Energy Conservation, one year after the enactment of the law, has further strengthened the emergence of an encouraging market for the creation of green enterprises.

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<sup>21</sup> Law No. 2004-72 of August 2, 2004 on the energy conservation, as amended and modified by Law No. 2009-7 of February 9, 2009

### 2.1.3. Law on solid waste management

The law<sup>22</sup> on waste management has been enacted in 1996 as the expression of the governmental will to address the problems related to mismanagement of the solid waste sector and its negative impact on the environment. This law sets the legal conditions that regulate the waste sector and takes into account the collection, the sorting and the recycling of different types of solid waste.

The law on waste management has been amended with additional decrees related to specific subsectors and/or type of waste, as the decrees related to:

- The recovery of packaging waste and plastic bags;
- The collection and recycling of used electrotech batteries and car batteries;
- The collection and treatment of drilling mud, waste water, etc.

This law encouraged the private companies to invest in the collection, transport and recycling of waste resulting in the emergence of many small and medium businesses in the field. The involvement of a significant number of companies in the waste management program has led to tremendous economic savings and created a new market for green enterprises.

### 2.1.4. Law on organic agriculture

The law<sup>23</sup> was enacted in 1996 to promote organic agriculture. It focuses on four components: i) production, processing and commercialization, ii) control and certification systems, iii) the establishment of a national board for organic agriculture and iv) applicable penalties.

In Tunisia, the experience of organic agriculture started in the 80's in the field of dates and olive oil production. The 1996 Law signed a significant increase of organic farms both in terms of allocated superficies and investments and in terms of product diversification. According to the public statistics of 2011, the number of farmers and operators in the sector reached quota 1,911, while the superficies dedicated to organic agriculture is estimated to 330,000 ha.

As most of the organic products are exported, a new market has emerged for farmers. Exported organic products are mainly olive oil, dates and medicinal plants. In 2010, the export amount of organic products reached 55 Million DT. The organic farming contributes up to 13% of the GDP of Tunisia, totalizes 9% of gross investment and covers the 16% of the occupied labour force.

## 2.2. Financial incentives mechanisms

In Tunisia, several funding mechanisms to promote the development of environmental industries and to impulse a green economy have been elaborated to: i) reduce the environmental degradation costs (waste, coastal protection), ii) maintain a competitive economy (energy conservation) and, iii) promote exports (organic farming). The most important mechanisms relate to the fields of waste management and energy conservation. Among these mechanisms are:

<sup>22</sup> Law No 96-41 of June 10, 1996 related to waste management and control.

<sup>23</sup> Law No 99-30 of April 5, 1999 on organic farming.

### **2.2.1. National Funds for Energy Conservation (Le Fonds National de la Maîtrise de l'Énergie, FNME)**

The National Fund for Energy Conservation (FNME) was created with the aim to boost the market of energy conservation and to promote renewable energy and energy efficiency measures. The National Agency for Energy Conservation is in charge for the fund's management and ensures the monitoring and the management of various subsidies. The FNME sources of funding are:

- The tax on the first cars' registration;
- The tax on imports or on local production (excluding exports) of air conditioning equipments.

The FNME is not a dedicated fund for the promotion of green companies. However, promoters and investors in the field of energy conservation (such as manufacturers of solar water heaters, insulation product or photovoltaic components, and services) are fully eligible to benefit.

Besides the financial support of FNME, other tax incentives have been established to support the efforts of FNME in the development of businesses in the field of energy conservation:

- The application of minimum import taxes and VAT exoneration on equipments and products used for energy conservation (with no equivalent on the local market);
- VAT exoneration on locally purchased products dedicated to energy savings;
- The application of minimum import taxes on imported solar water heaters.

### **2.2.2. Fund for Pollution Abatement (Fonds de dépollution, FODEP)**

Hundreds of companies in Tunisia are working in the field of the management of wastes: household wastes, wastewater, plastic wastes, metal wastes, health care wastes, dead batteries and accumulators, used printer cartridges, radiological films, paper, sludge of wastewater treatment facilities. 105 companies received subventions from the National Fund on Pollution Abatement (FODEP).

FODEP is a financial instrument established by the law n°92-122 managed by the National Agency for Environmental Protection with the objective to help industries in investing in pollution abatement techniques. Projects are financed through this fund with the following financial scheme: 30% of the total project costs are to be financed with the company own means, up to 20% with subsidy and for the remainder 50%, soft bank loans may be obtained. Projects are selected by the Ministry for the Environment through a fixed procedure.

As the FNME, the FODEP is not a dedicated instrument to promote green business, but contributes largely to the emergence of green companies either by providing subsidies, or indirectly, by boosting a clean-up sector market.

Since 2006, the FODEP has contributed in extending funds to 420 pollution mitigation projects, waste collection, treatment and recycling projects and clean technologies projects, which received grants for a total amount of about 25 million TND and total investment costs estimated in 128 million TND<sup>24</sup>.

### **2.2.3. Environmental Credit Line (Ligne de crédit environnemental, ENVIROCRED)**

The FODEP is complemented by another financial mechanism the ENVIROCRED, funded by the French Development Agency, and dedicated to all environmental sectors that are not eligible for FODEP. Projects eligible for ENVIROCRED are:

- Clean-up projects in the tourism sector.
- Projects for collecting and transport of solid waste (such as household waste) and liquid waste.
- Waste recovery projects.
- Cleanup projects exceeding 4 million TND.

### **2.2.4. Development Fund for Industrial Competitiveness (Fonds de Développement de la Compétitivité Industrielle, FODEC)**

This fund is established by law n° 94,127 of December 26<sup>th</sup>, 1994. It aims at boosting the Tunisian industry competitiveness towards the integration of Tunisia in the European Community free trade zone. Four components are covered by the program 'Mise à niveau' (upgrading) funded by FODEC: i) the improvement of economic competitiveness, ii) security, iii) environment and iv) energy efficiency.

Regarding the energy efficiency component the FODEC, in coordination with the FNME, promotes the valorization of energy resources (such as cogeneration).

FODEC provides grants to investors (up to 20% of the investment). For non material investment, the financial support provided by FODEC reaches 70% of the total cost of the project.

### **2.2.5. Financial incentives in bio agriculture**

In the organic farming sector, several incentives have been implemented to the benefit of investors, such as:

- A subsidy reaching 30% of the cost of equipments, instruments and specific tools related to organic farming (Decree n° 2000-544 du 6 Mars 2000).
- A subsidy reaching 70% of the cost for control and certification (up to 5,000 TND in 5 years period).
- An increase (from 5,000 to 10.000 TND) of the annual subsidy dedicated to control and certification of the producers (farmers and trade associations).

<sup>24</sup> Basel Convention 2002Country Fact Sheet 2006Tunisia

### **2.3. Institutional framework**

In addition to Regulatory frameworks and financial incentives mechanisms encouraging directly or indirectly the growth of green entrepreneurship, there are several supporting institutions that play a crucial role in promoting the environmental sector, that in some cases ensure the control of nuisance and provide the stakeholders of a given sector with technical assistance.

#### **2.3.1. National Agency for Energy Conservation (Agence Nationale pour la Maîtrise de l'Énergie, ANME)**

ANME is a public non administrative institution created in 1985 and acting under the Ministry of Industry and Technology. ANME has the mandate to promote the rational use of energy. The mission entrusted to ANME is to establish the national policy, to coordinate national programs on energy conservation and to promote energy efficiency, renewable energies and energy replacement (particularly through the development of natural gas).

To this end, ANME approves investments in energy conservation and manages the FNME. ANME is also involved in the elaboration and the improvement of the legal framework related to the energy conservation as well as the conduct of strategic studies.

ANME supports directly and indirectly companies that are active in the field of energy conservation. Its indirect support concerns rising awareness of economic agents on the benefits of energy conservation measures as well as the improvement of the regulatory framework. Through these programmes, ANME contributes to market development of green companies in the field of energy conservation and offers continuous adjustments to promote clean technologies with low CO<sup>2</sup> emissions.

ANME provides companies that offer products and/or services in energy conservation sector with capacity building programs (through training and coaching), fiscal and financial incentives (through the FNME) and practical services in the various branches of energy conservation (energy auditors, equipment manufacturers, energy efficient appliances...).

#### **2.3.2. National Agency for Waste Management (Agence Nationale de Gestion des Déchets, ANGED)**

The National Agency for Waste Management was established in 2005 as a public institution working under the Ministry of the Environment and Sustainable Development (now Ministry in charge of the Environment). The objective of ANGED is the management of different types of waste on national scale as well as the implementation of programs related to waste management. ANGED's mission is to encourage waste recovery and participate in environmental protection.

Beyond its mission as a public body, ANGED is committed in encouraging the private sector in the field of waste management. To this end, ANGED offers basic technical assistance and instruments to promote systems and collection programs for recycling and recovery of waste.

ANGED is largely funded by: the State budget, donations and grants provided by third parties, entities and special dumps for waste management.



ANGed also provides capacity building support to economic stakeholders in the area of waste management, particularly encouraging green companies to invest in the sector. It provides (either directly or through technical advice) agreements and licences to specialised businesses based on specifications or environmental impact studies.

### **2.3.3. National Agency for Environment Protection (Agence Nationale de Protection de l'environnement, ANPE)**

ANPE was founded in 1988<sup>25</sup> with the objective to i) develop an action plan and ii) implement the Governmental policy to combating pollution and protecting the environment. ANPE aims at encouraging and implementing programs for environmental protection. Among its activities, ANPE is mandated to:

- Develop and monitor actions related to environmental protection and combating pollution;
- Combat all sources of pollution, nuisance and environmental degradation;
- Control and monitor waste treatment facilities;
- Promote training, education, study and research in the field of combating pollution and environmental protection.

### **2.3.4. Agency for Coastal Protection and Landscaping (Agence de Protection et d'Aménagement du Littoral, APAL)**

APAL was established in 1995 as a public institution with non-administrative legal status and no financial autonomy. This agency is responsible for the implementation and enforcement of the governmental policy in the field of coastal protection in general and the public maritime domain in particular. APAL intervenes in several areas, including:

- The management of coastal areas and monitoring of planning operations by ensuring compliance with rules and standards established by the law and regulations related to the development of these areas, their use and occupation;
- The regulation and clearance of real estate conditions that do not comply with the laws and regulations related to coastal and maritime public domain;
- The development of studies related to coastal protection and enhancement of natural areas and the development of research, studies and expertise required;
- The observation of the evolution of coastal ecosystems through specialized computer systems.

APAL is funded by various sources: i) investments and subsidies provided by the State, ii) the income of real estates and personal properties, iii) income services, donations and bequests and iv) all resources created or affected by the Act.

<sup>25</sup> Law n° 88-91 of 2<sup>nd</sup> August 1988 modified by law No 92-115 of 30<sup>th</sup> November 1992.

### **2.3.5. International Centre of Environmental Technologies of Tunis (Centre International des Technologies de l'Environnement de Tunis, CITET)**

CITET was established in 1996<sup>26</sup> under the Ministry of the Environment and Sustainable Development (now Ministry of the Environment).

Since its creation, CITET is responsible for training, research and adaptation of technology related to environmental issues. CITET is committed to improving national business expertise in environmental sector through technical assistance services to upgrade competitiveness at national and international level.

CITET mission and main activities are:

- Technical assistance to businesses enabling them to better manage their waste and to support the implementation of environmental management systems;
- Training and reinforcement of human and institutional capacities in the field of environmental protection;
- Analysis and Environmental Assessment in accordance with national and international standards;
- The adaptation, innovation and transfer of environmental technologies and the promotion of clean technologies;
- The collection and dissemination of environmental information through a wide range of tools;
- The promotion of regional and international cooperation.

### **2.3.6. National Office of Sanitary Sewers (Office National de l'Assainissement, ONAS)**

ONAS was established in 1974<sup>27</sup>. Until 1993 when the Law No. 73/74 was amended into law No. 93/41 in April 1993, the mission of ONAS was to manage the sanitation sector: the protection of water environment and the fight against all sources of pollution.

Today, ONAS operates under the Ministry of Agriculture and the Environment and provides planning, monitoring and implementation of sanitation and integrated projects on wastewater treatment and storm water drainage. ONAS also provides project management consulting to both public and private promoters.

ONAS is responsible for the operation, maintenance, renewal and construction of networks and sanitation facilities and provides technical assistance to local and other public and private organizations to combat the causes of water pollution.

Among its activities, ONAS is in charge for promoting the distribution and sale of treated water and sludge treatment plants.

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<sup>26</sup> Law n° 96-25 of 25<sup>th</sup> March, 1996

<sup>27</sup> Law n° 73/74 of 3<sup>rd</sup> August 1974 amended by law n°93/41 of 19<sup>th</sup> April 1993, with which the mandate of ONAS changed from a managing institution of the sewer network to the main operator on the field of protection of waste water management

### 2.3.7. Technical Centre for Biological Agriculture (Centre Technique de l'Agriculture Biologique, CTAB)

The Technical Centre for Organic Farming (CTAB) was established in 1996. The center is responsible for promoting and developing organic farming in Tunisia through the training of farmers, trainings of trainers and teachers and technical and economic leadership of producers, enabling them to solve technical problems related to organic farming.

As supporting institution, CTAB offers many services to economic operators in the agricultural sector, including the supervision of technical and economic producers to overcome the difficulties they may encounter in specific related areas: farming methods, fishing techniques, improved productivity, improved quality, production costs control, marketing techniques, storage and packaging methods.

## 3. Trainings for Green Jobs

Green skills are the knowledge, training or experience as they relate to technologies or materials that minimize environmental impact.

Parallel to the evolution of the concept of green economy, environmental expertise gaps are emerging. Despite research indicates that the application of increased specialized skills will be needed to boost green economy, in Tunisia focus remains more on diversification of existing skills applications than on distinct specialised skill development.

Promoting green job training is equally important in developing countries. A variety of U.N. and other international agencies such as UNEP, ILO, UNIDO, working in conjunction with business, trade unions, and community organizations, could play a critical role in setting up green training and expertise centres in developing countries. (UNEP, Green Jobs report, 2008)

The analysis of the current situation on education and trainings for green skills in Tunisia, is the purpose of this chapter that builds on the observations and conclusions of the 'Etude sur l'Etat de lieux de la formation dans le domaine de l'Environnement en Tunisie<sup>28</sup>' (State of the Art on trainings in the fields of Environment in Tunisia).

This preliminary report was launched in 2008 by the Tunisian Ministry of Employment and Training in the framework of the country's Sustainable Development Strategy; it was financed by the GTZ (GIZ today) and conducted by M. Ali Chelbi<sup>29</sup>.

Built on the MEF's suggestion to launch comprehensive training programmes in Environmental issues, the overall objective of the study was **to compare the offer and the demand of environmental profiles on the job market and to identify the appropriate instruments to fill the potential gaps.**

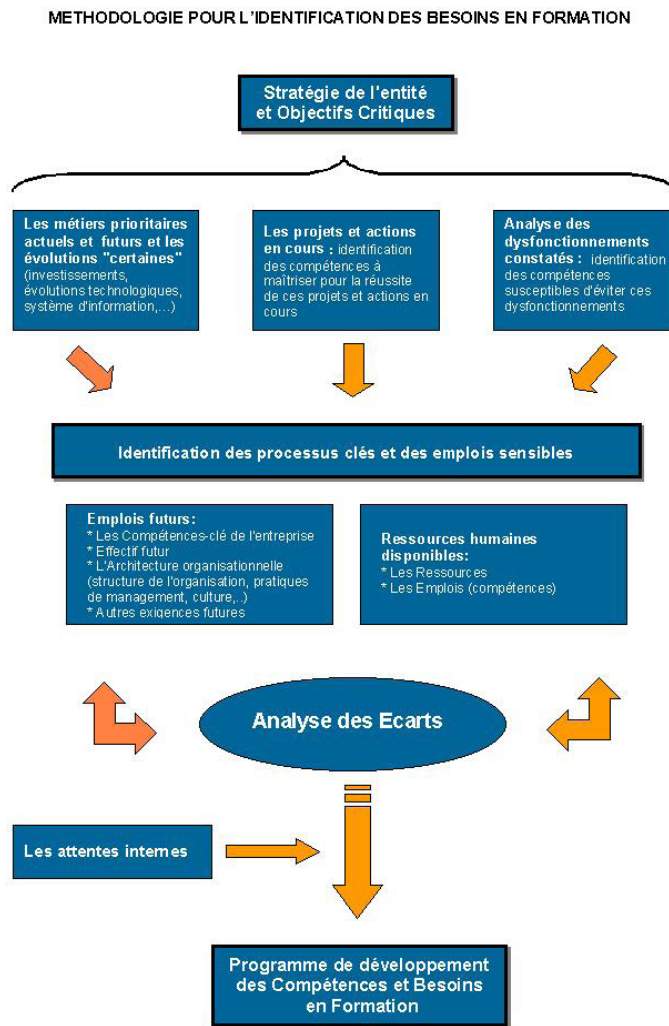
The following graph shows the methodology used in the course of the study to identify the needs in training: <sup>30</sup>

<sup>28</sup> GTZ : Etude sur l'état des lieux de la formation dans le domaine de l'environnement en Tunisie

<sup>29</sup> Ingénieur de l'Ecole Centrale de Paris, 1980. 17 ans d'expérience dans le management des entreprises industrielles. 15 ans d'expérience dans les études et le conseil

<sup>30</sup> GTZ : Etude sur l'état des lieux de la formation dans le domaine de l'environnement en Tunisie

**Figure 4: Methodology for training needs analysis**



In Tunisia, vocational trainings are provided by public bodies, among which the main one is the Tunisian Agency for Vocational Training (ATFP) and by private institutions accredited by the Ministry of Employment and Vocational Training.

Prior to any training provision, assessments are conducted in consultation with industrial federations to prioritize the needs of the economic stakeholders and identify the topics of interest and the potential number of corresponding professional positions.

Training programmes are then developed by the National Centre for Training of Trainers and Training Engineering (CENAF) to cover as much comprehensively as possible the economic market needs, to improve the training approach and methodology and to impulse stronger partnerships with businesses.

The following table shows the global indicators registered in 2009:

Global indicators for vocational trainings	Number of Centres	Number of Interns	Number of Trainees
Public Sector	212	110600	39760
Private Sector	700	29000	15000
Total	912	139600	54760

The census of Training and Education on Environmental topics has been conducted within three main areas:

- **Vocational Training.**
- **Academic Training.**
- **Lifelong Training.**

### 3.1. Vocational Training

Vocational training programmes are developed and monitored by different organizations.

- The ATFP (Agence Tunisienne Formation Professionnelle).
- The AVFA (Agence de la Vulgarisation et de la Formation Agricoles);
- The ONTT (Office National du Tourisme Tunisien) and the FTH (Fédération Tunisienne de l'Hôtellerie).

#### 3.1.1. Training courses at the ATFP

The ATFP hosts 104,000 students, namely the 75% of the national vocational training system, in 135 centres and manages about 193 expertises in 12 different areas. The Agency issues two diplomas that include environmental training modules:

- A training course 'Technician in Air Conditioning Maintenance' that includes a module in 'water treatment equipment';
- A training course 'Centralized technical management' that includes a module in 'energy saving'.

In addition, all training courses include one or more modules on «Environmental Education» as shown in the below table:

Study Course	Contents
Environmental Education 1	Definition of Environment; Institutional and juridical evolution in environment topics; effects of human action on environment
Environmental Education 2	Perils of the planet and its impact on global warming; human health and environment; production and consumption behaviours and environment
Environmental Education 3	Sustainable Development; Measuring environmental sustainability

As a result of the introduction of environmental training modules increased awareness about environmental issues has been reported. This first achievement is pivotal towards a review of existing jobs and a wider definition of their relationship with the environment for planning and delivery of specific environmental studies.

### 3.1.2. Agricultural Trainings

In the agriculture sector, many jobs have an environmental connotation and several are the courses that may directly or indirectly relate to environment.

The table below shows the study courses and the dedicated training centres:

Study Course	Study Unit	Training Centre
Ornamental cultures and landscaping		Centre de formation professionnelle agricole de Takelsa; Centre de Formation professionnel agricole d'El Fajja
		Centre sectoriel de formation professionnelle agricole en cultures maraichères de primeurs de Chott Mariem
Fruits and arboriculture	Installation of irrigation system (drip);	Lycée sectoriel de formation professionnelle agricole en agriculture et viticulture d Bou-chrik; Centre de formation professionnelle de Sidi Bouzid
Vegetable crops	Production by organic methods; Installation of irrigation system (drip)	Centre sectoriel de formation professionnelle agricole en aménagement de périmètres irrigués de Barrouta; Centre de formation professionnelle agricole de Testour
Protected vegetable crops	Installation of irrigation system (drip); Production of early vegetables with geothermal waters; organic production	Centre de formation professionnelle agricole d'El Alia ; Centre de formation professionnelle agricole de Zarkine ; Centre sectoriel de formation professionnelle agricole en phéniculture de Dégache

### 3.1.3 Trainings for Tourism and Hotel business

No study course for hotel and tourism industry has been identified as directly related to environment while ecological tourism issues have been included within the fund 21 - 21 priorities<sup>31</sup>. In 2007, a joint coordination between the ONTT and the ISET allowed thirty young people in the governorates of Nabeul and Jandouba to attend a professional training and obtain professional 'licences' as eco-tourist guides.

Until 2002, the focus of the Tunisian Federation of Hotel Chains (FTH) was on improving capacities for the core activities of the hotel business (cooking, floor cleaning etc.)

Since 2003 the federation orientation moved towards other priorities such as the HACCP, quality, environment, energy, etc. and several trainings have targeted energy cost reduction and water consumption issues:

- Energy management and conservation;
- Energy trainings for hotel managers.
- Water saving in collaboration with the CNFCPP and SONEDE.

Increased interest towards labelling and Ecolabel in particular is registered among Hotel chains. Preparing hotels eligibility to Ecolabel has encouraged the launch of a training pilot program for Quality, Safety and Environment managers in 2008.

## 3.2. Academic Training

Analysis of the Academic study courses in environmental topics is based on type of degree: ISET, Diploma/Bachelor, Master, Engineers.

### 3.2.1. ISET – Institut supérieur études technologiques

The census of the diplomas issued by ISET shows that only one degree in 'Management and water operations' is classified as 'environmental training'. However, other six technological fields of study include one or more training modules that include an Environmental component:

- Civil Engineering.
- Mechanical engineering.
- Mining Engineering.
- Industrial Maintenance.
- Hospitality and Tourism Management.
- Industrial Chemicals - Option: Textiles finishing.

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<sup>31</sup> Fund 21-21 has been created to facilitate the integration of young people and more generally all job seekers who want to access the labour market. It provides incentives and support for business creation and employability improvement.

### 3.2.2. Other degrees Bac + 3

The following table brings together the 20 Bac + 3 degrees related to environment:

DIPLOMAS
Chemical Analysis Applied to the environment
Engineering Control and Protection Against pollution
Recycling and Waste recovery
Environmental Biology and exploitation of biological resources
Option Biotechnology: Biotechnology applied to the environment
Option Biotechnology: Biotechnology applied to natural resources
Evaluation techniques of unconventional water resources
Management of bio-resources
Coastal and urban environment
Urban environment
Town Planning
Geological techniques for environment and development
Technologies of New and Renewable Energy
Physical-chemical water treatment
Geography applied to planning and environment
Hydraulics, planning and environment
Geomatics, land and environment
Protection of the environment
Forest sciences and techniques
Eco-tourism

Based on the above table, it is noticeable that some study courses are specific to Environment preservation (Environment, Eco-Tourism, Recycling & waste recovery, etc.) while others are rather environmental variations of traditional expertises.

In the framework of the LMD (Licence, Master and Doctorate) reform, some new study courses have been included:

- Applied license in Geomatics, Land and Environment.
- Applied licence in Environment Protection including two options:
  1. Bio-resources and Sustainable Development and
  2. Scientific Animation and Multimedia.



### 3.2.3. Masters

Master Degrees
Development of the territory
Master in Science and techniques of heritage: Option: Valorisation of the territory
Natural environnements
Science of life: option Ecology
Science of Life : Option Environment
Science of life and land : Option Cartography and planning, georesources, geology of environment

Based on the current LMD system, all master degrees have been replaced by basic or applied licenses.

This is the case of:

- Territory Planning Master replaced by the applied licence «Applied Geography: Mapping» and;
- «Science and Techniques of Heritage»: option Evaluation of the natural environment.

### 3.2.4. Engineering degrees

The engineering courses related to environment comprise three main axes:

- **City Planning, Development, Landscape** including five study courses.
- **Natural resources:** water, soil, georesources, marine resources, plants. Almost all topics are taught in agriculture and/or agronomy departments.
- **Energy:** as a variation of a study course in agronomics at the National Agronomic Institute of Tunis.

Other degrees include environmental components; the diploma in Polytechnic Engineering and branches of industrial engineering, mechanical, civil, electrical and electronics that include an energy component.

Textile Chemistry taught at the Ecole Nationale of Engineers in Monastir incorporates modules for the study of Finishing and Waste treatment. The study course Chemical Engineering and Chemical industries include modules of environmental applications such as waste treatment.

As for the degree in **architecture**, the environmental component is in most cases related to Environment preservation.

### 3.2.5. Specialized masters and research

As for the case of specialized masters and research, these are basically:

- Variations of topics covered by the basic diplomas within the specialized masters;
- Development of study courses in the framework of Masters of research. These increased in number since the Environmental technologies are booming and the areas of application are enhancing in variety.

### **3.3. Lifelong Training CITET**

The International Centre of environmental technologies (CITET) is considered as the national leader in Environmental trainings with human and material resources (equipped labs) assuring the transfer of environmental technologies.

The CITET provides private and public sector with national and international technical competences to promote awareness raising actions, trainings and technical assistance in the different fields of environmental management.

The centre delivers and /or participates in 3 kinds of training programmes:

- Short term lifelong training.
- Long term lifelong training.
- Masters.

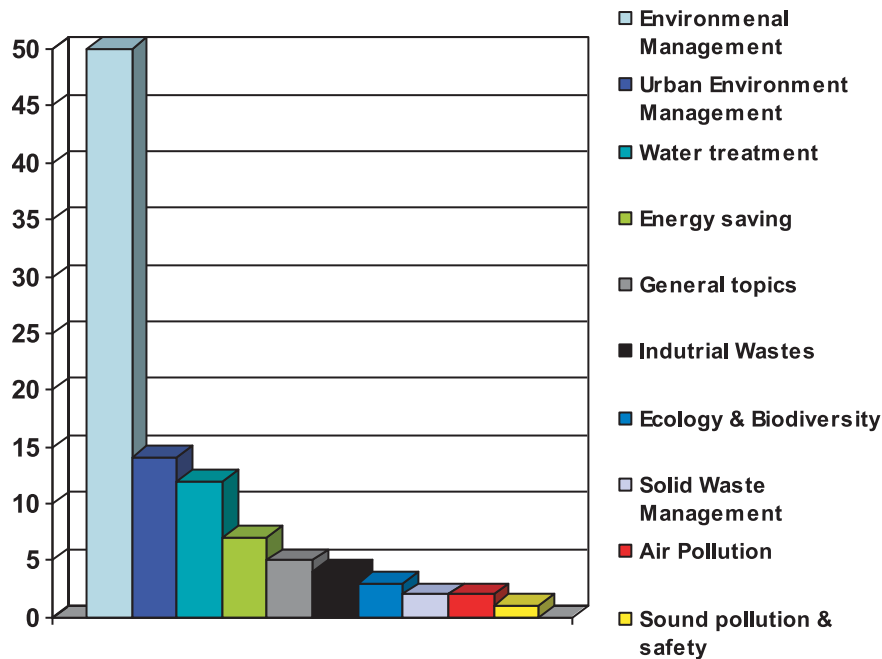
#### **3.3.1. Short term lifelong trainings**

CITET delivers about 80 training and sensitization actions per year and mobilizes almost 3,500 to 5,000 participants.

The main topics covered by the training programs are:

- Water Treatment: treatment processes and techniques for wastewater treatment, valorisation of sewage treatment etc..
- Solid waste management, in particular waste management care, management of transfer centres for solid waste.
- Environmental Management: implementation and audit of an environmental management system, studies on the impact, legislation and regulations,
- Fight against air pollution: general, methods of mitigation, industrial control, impacts, etc..
- Management of the urban environment: embellishment and green spaces management, Local Agenda 21, energy saving, sound pollution and safety.
- Industrial Discharge: operation and maintenance of pre-treatment stations.

The statistics by training topics (below chart), show that the topics related to Environmental Management, Management of the Urban Environment, Water and Energy savings represent more than 80% of training sessions conducted over the past decade.

**Figure 5: Training by topics of the short term lifelong training**

### 3.3.2. Long term lifelong training

The long-term lifelong training programme was initiated by the Office National de l'Assainissement in 1997-1999. Conceived as a recycling campaign for engineers, technicians and employees, this campaign has benefited 250 people. Similarly, many foreign organizations (ONAS counterparts in Senegal, Palestine, Jordan, etc.) have benefited similar trainings.

Since 1999 ONAS has its own trainers and when necessary the Office delivers short terms trainings designed by the CITET.

### 3.3.3. Masters

**CITET** works with universities for the creation and implementation of master programs. In this context, four masters are managed by the centre as it relates to planning, logistics and expertise:

- Master in Environmental Communication.
- Master in Environmental Technology.
- Master in Environmental Health and Safety.
- Master in Environmental Economics.

The National Agency for Energy Conservation (**ANME**) focuses on three main aspects: scientific, vulgarisation and alternative energy.

In this context, the training topics covered over the period 2006 – 2008 are:

Energy Management:

- European Energy Manager.
- Thermal regulation in the building and informatics tools.
- Sustainable Energy and Environment.
- Development of Clean Mechanism.
- Inventory of Greenhouse Effect.
- Air pollution.

Renewable energy: Solar thermal Energy and its components:

- Design and installation of solar water heaters.
- Maintenance of equipments.

The Training Centre and Support to Decentralization (**CFAD**) is a public body for training and qualification of executives and regional agents, as well as managers of the central public administration managers dealing with regional and municipal actions.

This organization was interested in training on environmental topics over the decade 1997 – 2006.

The most widely discussed theme was the embellishment of cities and green space management. This is part of a national strategy for the embellishment of city entrances. Nowadays, all Tunisian municipalities have their own 'Boulevard de l'Environnement».

As for the 'Green Areas' component, the national program's objective was to achieve 15 m<sup>2</sup> of green space pro capita by the year 2010. In 2007, within this context the CFAD launched a new training for improving cleaning services. The beneficiaries of these training courses are usually managers and technicians: the general secretary of the municipality, the head of department (concerned with the topic) a technician or a technical officer of a relevant service.

The presidents of municipal councils generally benefit of awareness raising seminars related to environmental topics.

The training of trainers over the period 1997 – 2006 covered the themes: management of solid waste, transfer stations management and green space management.

### **3.4. Academic courses and Training in Energy management <sup>32</sup>**

The development of competences and skills in the field of renewable energies and energetic efficiency is considered as an essential component in the national programs of Energy Management. This component has been included in different academic and professional courses as well as in training programs aiming at strengthening the capacities in this specific field.

#### **3.4.1. Academic courses**

In order to respond to the needs of the sector, several Universities have launched courses of specialization in Energy Management (PHD, professional masters....).

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<sup>32</sup> ANME, GIZ; Efficacité énergétique et énergies renouvelable en Tunisie : Emplois, qualifications et impacts économiques, 2011

Since 2006, the University programs in the field of Energy Management have been further developed with the establishment of a specialised University «l'Institut Supérieur des Sciences et Technologies de l'Energie» in Gafsa that offers 4 expertises in the field of Energy Efficiency and Renewable Energy.

In the year 2010, more than 700 students have been trained in public and private institutions.

### **3.4.2. Life long training and reinforcement of national capacities**

In the framework of its mandate, the ANME develops programs of life long training in Renewable Energy aiming at building and/or reinforcing the competences of different sectors (industry, residential, transport, tertiary).

The ANME provides the necessary local competences to support and implement the national programs: energy auditors, consultant engineers, architects, energy managers, project economists...

### **3.5. Special Programs<sup>33</sup>**

#### **3.5.1. Environmental upgrading program, 500 Companies**

This strategy is part of the former president program launched over the period 2009-2014 and aims at achieving by 2014 the number of 500 eco-friendly Tunisian businesses holding the certificate of compliance with international standards for environment (ISO 14001) strengthening the commitment to fight against and mitigate the effects of climate change and to safeguard and expand the competitiveness of Tunisian businesses in European and international markets.

The programs implemented in coordination with the Ministry of the Environment and Sustainable Development, the Ministry of Industry and Technology and the Ministry of Tourism, aimed at providing technical assistance to industry and services to promote clean production methods, to encourage the rationalization of energy consumption, to preserve natural resources and to improve the waste management sector.

In addition to the certification of 500 companies, the strategy objective is to support hundreds of businesses in the Industry and Tourism sector in the process of labelling their products and services in conformity with the Tunisian Ecolabel.

#### **3.5.2. «Energy Manager Training - TEM»**

TEM is a training project developed and implemented by:

- The Tunisian-German Chamber of «Industry and Commerce (AHK-CTAIC).
- The «National Agency Management of Energy' (ANME).
- The German Technical Cooperation (GIZ).

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<sup>33</sup> Etude sur les compétences pour les emplois verts en Tunisie, Rapport intermédiaire 2011, MEFP, ILO, UN-MDGIF

The project aims at i) strengthening the capacity of Tunisian managers in the public and private sector in the field of energy efficiency and reduction of energy costs and ii) increasing businesses competitiveness in the national and international markets.

The main areas of training are:

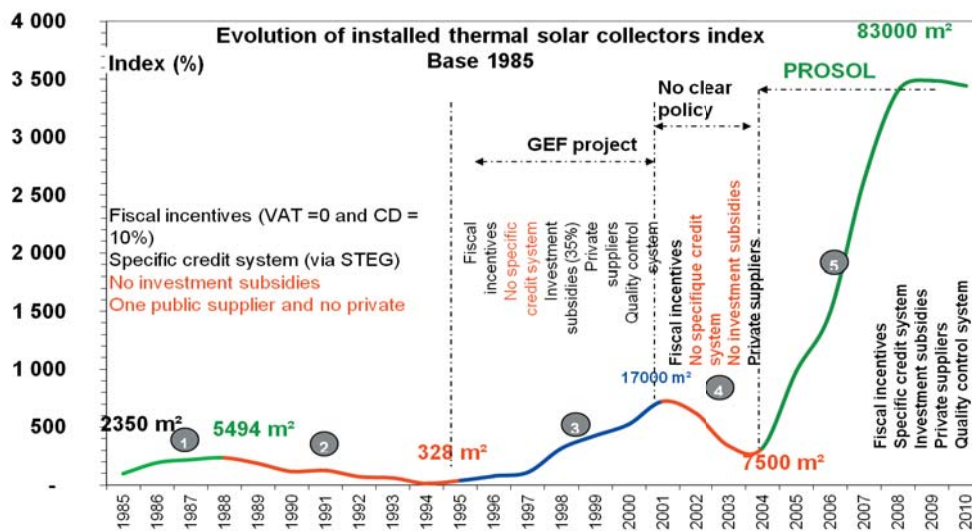
- Diagnosis of the existing situation: strengths and weaknesses of the current energy system.
- Development of a plan to reduce energy costs.
- Pilot project to improve or set the best practices in ‘energy behaviour’.

#### 4. Entrepreneurship in the green economy in Tunisia

One of the main success drivers for the development of green entrepreneurship in Tunisia is the regulatory framework adopted in the core environmental areas of waste management and energy conservation. The analysis of the existing legal framework, enhanced by incentives mechanisms and supporting institutions, highlighted in chapter 2, evinces the strict interconnection between the emergence of a new green market, the improved demand of green goods and services and the legislation. As an example, the introduction of additional fiscal incentives and investment subsidies in 2004, was crucial to the growth of the SWH market that led to an increasing of the installed solar collectors from 7,500 m<sup>2</sup> in 2004 to 81,000 m<sup>2</sup> in 2010. To date, the SWH market totalizes 47 manufacturers and importers and 1,100 installers. According to a recent study realized by GIZ, the SWH sector ensures 1,400 permanent and direct employments<sup>34</sup>.

**Figure 6: Evolution of installed solar thermal collectors index (Base 1985)**

Source: National Agency for Energy Conservation



<sup>34</sup> Renewable energy and energy efficiency in Tunisia: employment and economic impact, GWS / ECO-Ser / ALCOR, Sept. 2011 (financed by GIZ for ANME)

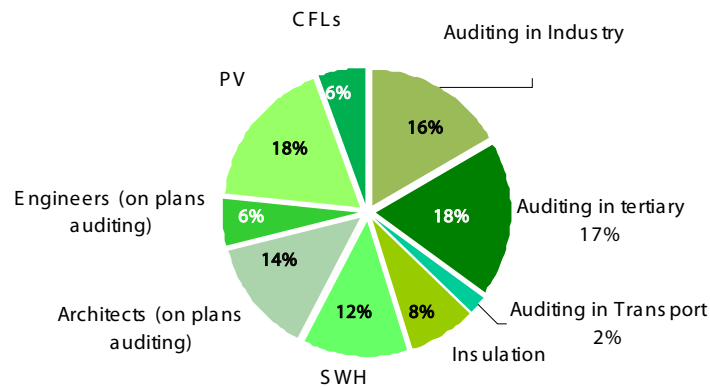
#### 4.1. Entrepreneurship in the energy conservation sector

The energy conservation sector contributed significantly to the creation of green businesses in Tunisia. Currently, the sector includes 392 companies<sup>35</sup> working in different branches: auditing, SWH, photovoltaic, insulation and CFLs (compact fluorescent lamps). The wind energy branch is still under the monopoly of the national body for energy distribution (Société Tunisienne d'Electricité et du Gaz) in charge of the production, transport and sale of electricity, including green electricity generated from wind power.

The 56% of green businesses in the energy conservation sector are small enterprises or rather consulting firms their activities consisting primarily of energy saving auditing. However, companies working in the branches of SWH (12%), photovoltaic (18%), insulation (8%) and CFLs (6%) have registered a significant growth in the last years due to the increase of market demand.

**Figure 7: Distribution of companies in energy conservation sector (in %) in 2011**

Source: National Agency for Energy Conservation

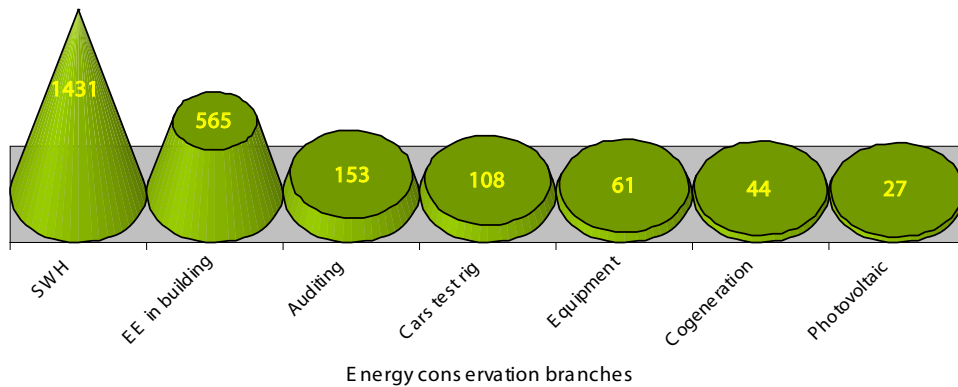


In terms of employment, the private companies working in the energy conservation sector totalize 2,389 permanent jobs. Most of them are concentrated in two branches: SWH (60%) and energy efficiency in building (24%). Although at international scale the energy efficiency in building has proven its high employability, it remains underexploited in Tunisia due to the lack of financial incentives to the final users.

The renewable energy sector is a high employability sub sector in Tunisia that employs 61% of the total employments in the energy conservation sector out of 28% in the energy efficiency sub sector and 11% in auditing and consulting.

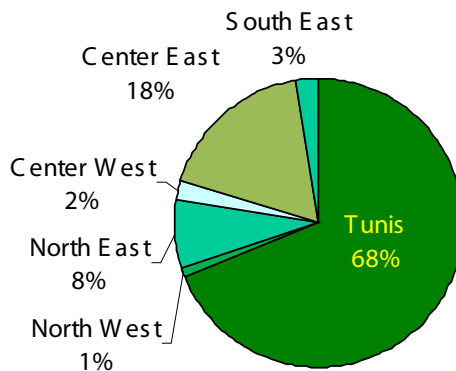
<sup>35</sup> Except the installation companies whose majority are not working entirely in the field of SWH

**Figure 8: Employments in the private energy conservation sector by branches**



In terms of regional distribution over the country, the capital Tunis hosts 68% of the green companies in the energy conservation sector, probably due to the important market size (nearly 2,5 Mil inhabitants<sup>36</sup> representing 23,2% of the total population of Tunisia). Despite its significant economic growth the east coastal region ‘Sahel’ (Centre East) is still far behind with only 18% of companies established.

**Figure 9: Distribution of green companies in the energy conservation sector by region in Tunisia**



#### 4.2. Entrepreneurship in the waste management sector

Since the enactment of the law on waste management in 1996, many businesses have been gradually launched by private investors. As specific legal and incentive frameworks have been progressively adopted (Eco-Lef program for plastic waste in 2001, Eco-Piles for electrotech batteries in 2005, Eco-Zit for lube oil in 2008 etc...), new green businesses raised as a response to the growing market demand in itself a result of the obligatory mechanisms and eco-taxes established in some sub-sectors related to dangerous and non dangerous waste.

<sup>36</sup> Source: Institut National de la Statistique



Undoubtedly, the waste management is the most expanding sector in terms of green business creation. According to statistics provided by ANGED, 988 are the companies that work in this field, of which 850 (86%) are active in the non dangerous waste management.

#### 4.2.1. The non dangerous waste management sub sector

To date, 850 green businesses operate in the sub-sector of non dangerous waste. Obviously, when wastes become an exchangeable economic value, a new market opens and grows rapidly until it reaches a saturation point. A relevant example is the plastic waste sector (with a collecting capacity of 9,969 tons of plastic per year) that includes 443 green businesses corresponding to 52% of the total number of companies working in the sub sector of non dangerous waste management. However, the low profitability of the sector has already caused the closing down of many green businesses and many others struggle to survive due to the unsustainable competitiveness of non formal collectors.

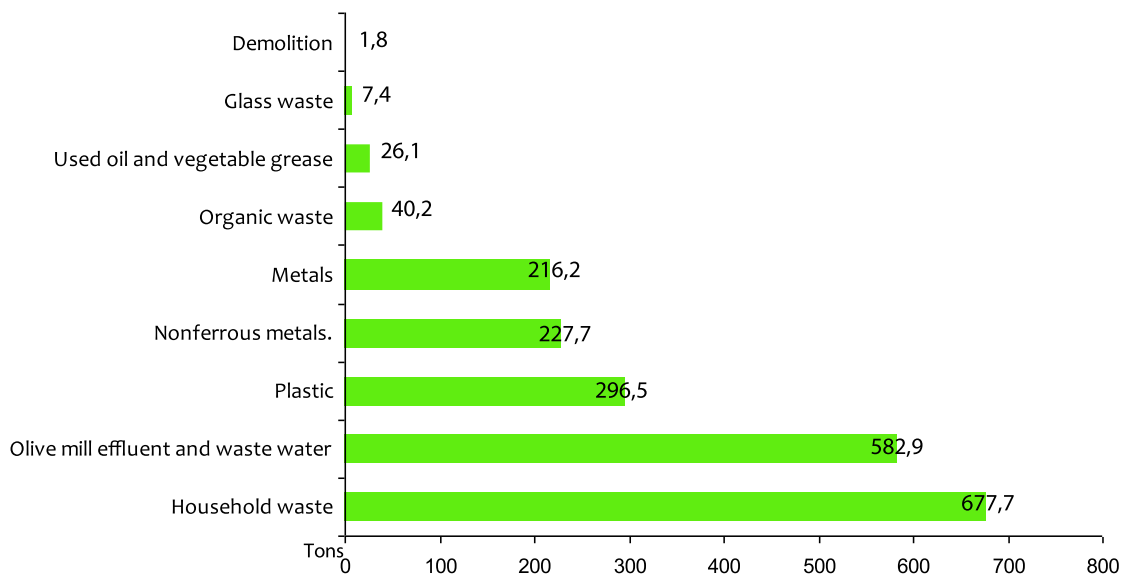
**Figure 10: Distribution of green companies in the non dangerous waste management sector by type of waste**



Beside the plastic waste branch, many other branches are still underexploited such as the olive mill effluent and the household waste branches. For the latter, it is estimated that Tunisia produces around 2,5Mill tons/year of household waste, of which 27% (678 thousands tons) is collected and only 5% recycled<sup>37</sup>. Hence, recycling of household waste has the capacity to become a promising niche to launch new green businesses.

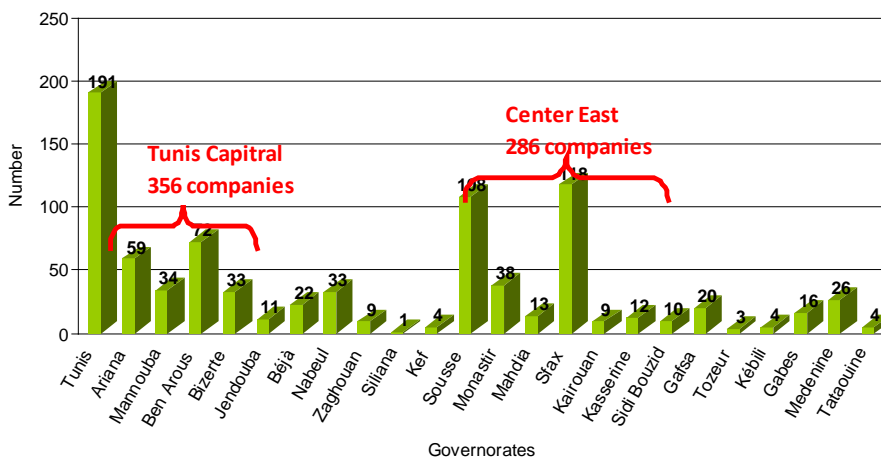
<sup>37</sup> The average of household waste is around 0,8 kg per person / day in urban area and 0,2 kg per person / day in rural area (Source: Évaluation du système de gestion des déchets en Tunisie. L.Haouaoui & F.Loukil – Institut Supérieur de Gestion, 2009).

**Figure 11: Distribution of companies according to annual treatment capacity in 1000 tons**



In terms of regional distribution, 42% of the green companies working in the non dangerous waste sub sector are located in the capital, and 32,5% in the Centre East region, mainly in Sfax (118 companies) and Sousse (108 companies). The rest of the regions are still under represented with only 25,5% out of the total number of companies in the sub sector.

**Figure 12: Regional distribution of green companies in the non dangerous waste sector by type of waste**



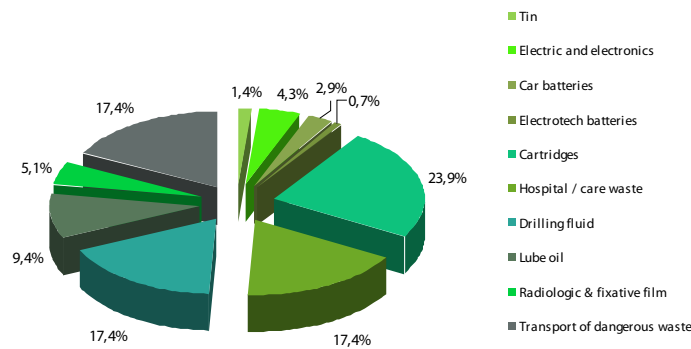
#### 4.2.2. The dangerous waste management sector

To date, 138 green companies work in the field of dangerous waste (collecting, sorting and recycling) of which 76% cover 4 branches: cartridges recycling (23,9%), hospital/care waste (17,4%), drilling fluid (17,4%), transportation (17,4%).

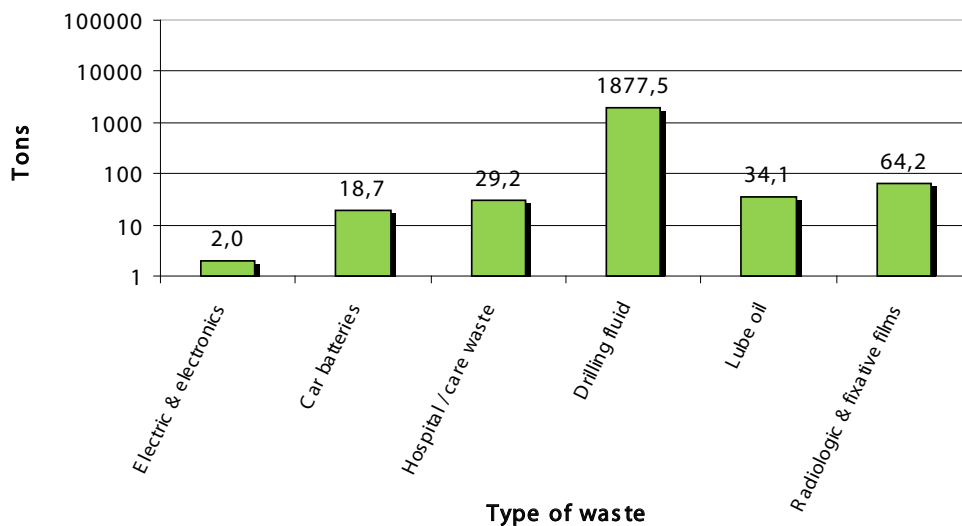
Companies that work in drilling fluid sector have, by far, the biggest capacity of waste treatment<sup>38</sup> (1,877,500 tons representing the 93% of the total treatment capacity) as it is shown in figure 14.

The 44% of the green companies in the dangerous waste management sub sector is located in the capital Tunis<sup>39</sup>, while Sfax (an important industrial area) hosts only 15% of them.

**Figure 13: Distribution of authorized companies by category of dangerous waste treated (in %)**



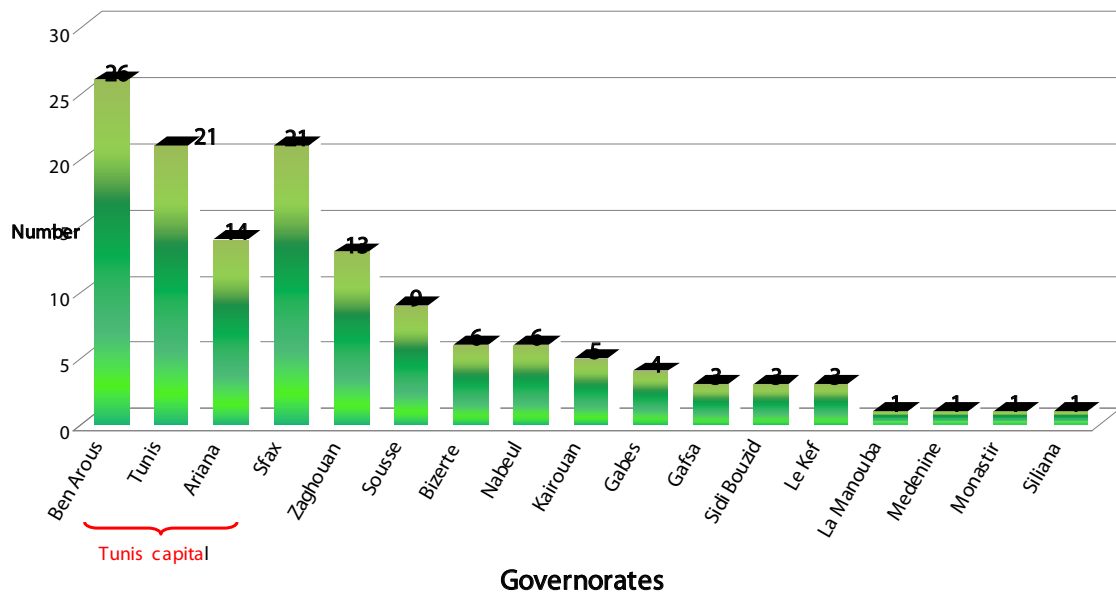
**Figure 14: Distribution of authorized companies in dangerous waste sector according to annual potential capacities of waste treatment (in thousand tons) excluding cartridges**



<sup>38</sup> The conversion rate applied for drilling fluid is: 1 m<sup>3</sup> = 1.2 ton.

<sup>39</sup> Tunis comprises 4 Governorates (Tunis, Ben Arous, Manouba and Ariana).

**Figure 15: Regional distribution of authorised companies in dangerous waste branch**



In the waste management sector, updated information system and data related to green are often not available or of easy access. According to the study<sup>40</sup> conducted by ANPE in 2002, there are 30,594 jobs<sup>41</sup> listed in the fields of clean-up and environment nuisances and risks, in both public and private sector, representing 32% of the total number of green jobs identified in the country. This information should take into account that the public sector alone includes 79% of the green jobs. According to the ANPE complementary study on green jobs (2005<sup>42</sup>) and based on a revised nomenclature of green jobs, the number of employments in the waste management sector is estimated to 30,243 including the branches mentioned in the table below. Thus, there is no significant change observed in the sector between 2002 and 2005.

***Distribution of jobs in the waste management sector in 2005***

<b><i>Waste management branches</i></b>	<b><i>Jobs</i></b>
Waste water management	7644
Solid waste management	19751
Combating noise and vibration	374
Other activities for environment protection	1174
Recovery and Recycling	1300
<b><i>Total</i></b>	<b><i>30243</i></b>

Source: Complementary study on green jobs in Tunisia, ANPE / IDEA 2005

<sup>40</sup> Green jobs in Tunisia. ANPE / Observatoire Tunisien du Développement Durable. 2002.

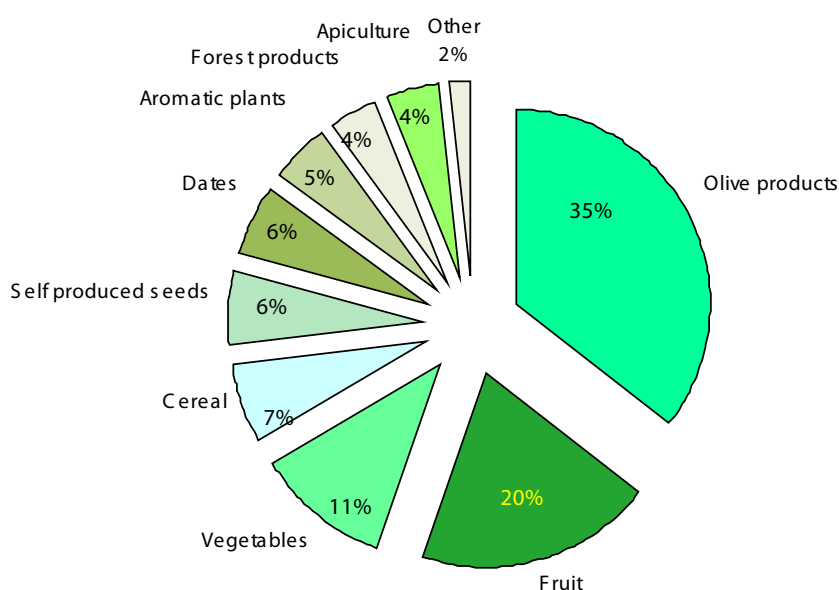
<sup>41</sup> The study mentioned a total of 96,079 green jobs listed in the public and the private sectors.

<sup>42</sup> Complementary study on green jobs in Tunisia, IDEA, 2005, ANPE

### 4.3. Entrepreneurship in the organic agriculture sector

The emergence of green companies in the field of organic agriculture sector seems to be strictly associated, as for the other sectors as described in the previous chapters, with the enactment of a relevant law. The law on organic agriculture adopted in 1996 and the creation of CTAB (Technical Centre for Bio Agricultural) for technical capacity building and support to young promoters, have motivated farmers to switch from conventional to organic farming. The surface dedicated to organic farming reached 330,000 ha in 2011, corresponding to 6.6% of the useful farming surface in Tunisia<sup>43</sup>. Out of the 167 companies/farms working in organic agriculture, 35% produce olives and olive oil, typical traditional products of Tunisia.

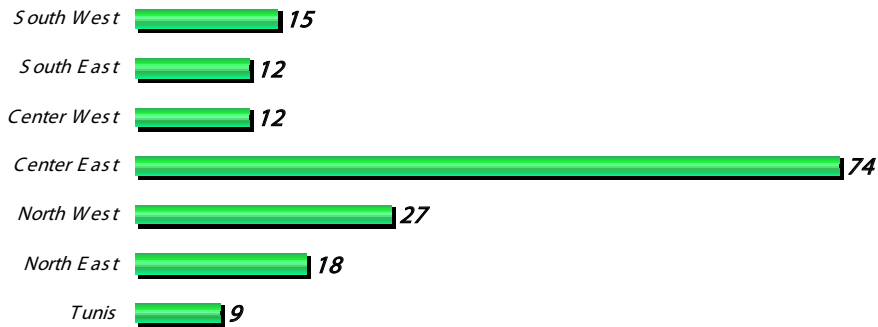
**Figure 16: Distribution of organic companies / farms by product**



Most of the organic farms and companies are established in the Centre East of Tunisia (Governorates of Sousse, Monastir, Sfax and Mahdia). Although this region is traditionally oriented to olive production (Sfax and Mahdia), a well developed infrastructure, the road network, the irrigation network and an average rainfall of 300 ml/year have undoubtedly contributed to the development of organic farming in the region. For instance, the governorates of Sfax and Mahdia alone comprise nearly 50% of the total producers of organic olives in Tunisia.

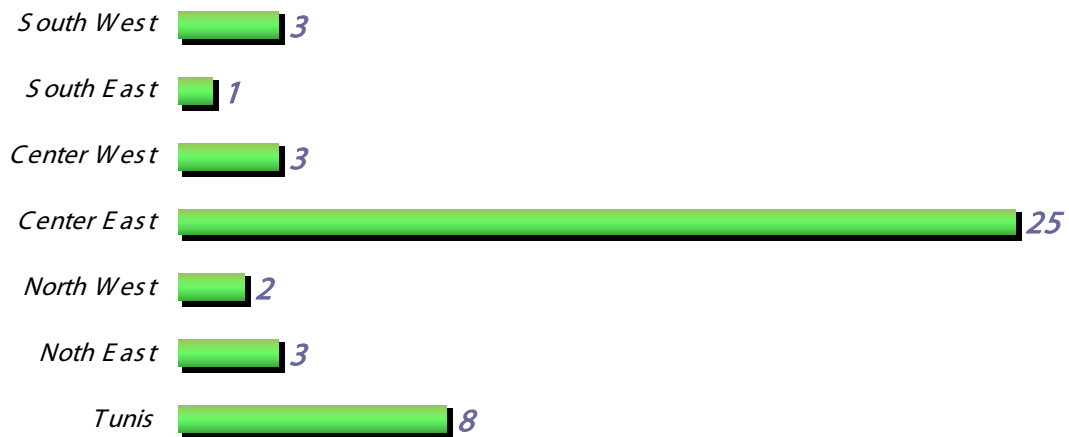
<sup>43</sup> Source : Centre Technique de l'Agriculture Biologique, Tunisie.

**Figure 17: Regional distribution of the organic farming companies**



The increasing demand of organic products for export to neighbouring European markets and competitive prices are also important drivers that contributed to boost organic farming sector in Tunisia. Thus, 27% of the organic farms reserve their certified products mainly to exports to European countries of which 62% are olive grove farms. New organic products such as jojoba, sugar, cactus and derivatives have been recently introduced by young companies in response to the increasing demand from Europe.

**Figure 18: Regional distribution of exporting organic farms / companies**



## 5. National programs and international initiatives to boost Green Economy and create Green Employment

### 5.1. National Programs

#### 5.1.1. Eco-Lef

ECOLEF was launched in 1998, as a public program for recycling of used packaging. In the first three year period (1999-2002), this program was built on the voluntary collection

through the installation of appropriate containers. In the second phase with the collaboration of governorates and communities, a paying garbage collection system was instituted. Since 2001 and until end of 2003, 90 collection points were created, to which 110 more were added in 2004 and 2005 with the objective to ensure the collection and the treatment of 85% of domestic wastes, recycling and valorisation<sup>44</sup>.

The ANPE is designated to manage the program with particular responsibility on the reuse of bags and plastic or metal wrapping destined to local market. The aim is to stimulate the recuperation of package wastes and to create a market value of wastes. Partnerships with industrial companies have been developed, and the number is growing constantly. The majority of the companies involved in the packaging of mineral water, fizzy drinks, juices or milk products have joined Eco-Lef program.

### **5.1.2. PRO.NA.D.GE.S (National Program For Waste Management)**

The National Solid Waste Management Programme (PRO.NA.D.GE.S) launched in 1993 constitutes the national strategic and operational plan for solid waste management. In the framework of the efforts carried out for the improvement of solid waste management, the protection of national natural resources and the promotion of the quality of life in the cities, the PRO.NA.D.GE.S has as top priority the installation of primary infrastructure in terms of sanitary landfill sites in the big agglomerations and in the coastal and tourist cities and the closure of uncontrolled dumping sites<sup>45</sup>.

The program focuses on:

- Establishing the bases of a management adapted by type of waste and to the Tunisian context;
- Studying, conceiving, carrying out and managing the central processing units of waste;
- Rehabilitating the old sites of not controlled discharges;
- Involve the deprived private sector in the system of waste management of waste with the adoption of adequate equipments;
- Promoting the selective sorting and the valorisation of waste by Eco-Lef.

#### **Principal components:**

- The management of household waste and similar products;
- The management of industrial and dangerous waste;
- The management of special waste (hospital, slaughter-houses, sludge, etc.).
- The public system of regeneration and development of used packaging materials.

#### **For municipal solid waste, the programme focuses on:**

- Creation of regional sanitary landfills and transfer centres.
- Closure and rehabilitation of wild dumps (more than 400).
- Introducing integrated systems for solid waste management (collection, separation, treatment, valorisation).
- Development of new methods for treatment, recycling and valorisation of solid wastes.

<sup>44</sup> Support to DG Environment for development of the Mediterranean De-pollution Initiative «HORIZON 2020» No 070201/2006/436133/MAR/E

<sup>45</sup> Support to DG Environment for development of the Mediterranean De-pollution Initiative «HORIZON 2020» No 070201/2006/436133/MAR/E

To date, 9 landfill sites have been created in the cities of Bizerte, Sfax, Kairouan, Gabès, Monastir, Sousse, Nabeul, Médenine and the Island of Djerba.

### 5.1.3. ECO-ZIT /ECO-FILTRE

The **ECO-ZIT** program was launched in 2002 by the ANPE and came into force in July 2004. It consists in applying an eco-tax of 5% on the sale of lubricating oils that will be used for financing the collection and recycling of waste oils.

The Tunisian Company of Lubricants SOTULUB, responsible for the collecting and recycling, has about 8,000 collection points and 11 subcontractors widespread throughout the country.

The total quantity of lubricating oils marketed in Tunisia is estimated 50,000 tons/year. Through the ECO-ZIT program, 14,000 tons/year constituting the 56% of the collectable quantity are recycled by SOTULUB.

Based on the current maximum absorption capacity of SOTOLUB of 16, 0000 tons, an annual increase of 2 to 3% is imposed by the ANPE.

The ECO-ZIT management system will allow the achievement of the Strategic Action Plan (SAP) objectives in 2010 according to the regulations of the Tunisian law.

The **ECO FILTER** program was developed by the ANPE in January 2005. The program consists in putting an eco-tax of 5% on the sale of oil filters and fuel used to finance collection and recycling.

The total quantity of oil filters and fuel marketed in Tunisia amounts approximately 1.9 million units/year, or about 350 tons/year. Of these, 1.5 million filters are produced locally and 400,000 are imported.<sup>46</sup>

### 5.1.4. ECO-piles

Decree n° 2005-3395 dated 26 December 2005 sets the conditions and the modalities for the collection of used batteries.

#### General data :

- Commercialised quantity : 2,400 T/year.
- Consumption average : 6 units/person/year.

#### Current situation

- Competition for the collection within the schools (1000).
- Collection of used batteries by «Cheb».
- Installation of containers for the collection of used batteries in stores (37) and public institutions (100).
- Organisation of awareness raising events for the optimization of the collection of used batteries within the schools and in commercial stores.

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<sup>46</sup> Abdelkader Baouendi, Programme d'Actions Stratégiques (PAS) visant à combattre la pollution due à des activités menées à terre. Plan d'Action National : Pays : TUNISIE.



- A local company has obtained the authorization for the recycling of used batteries and is operative since 2008.

#### **5.1.5. ECO-batteries**

Decree n° 2005-3395 dated 26 December 2005 sets the conditions and the modalities for the collection of used and car batteries.

- Elaboration of a draft decree in conjunction with the Ministries of environment and Sustainable Development, the Ministry of Commerce and Handcraft that will set the modalities and the quantity of mandatory regulations for used car batteries.
- Approach to export banning for lead wastes with the collaboration of the Custom office.

#### **5.1.6. Used tyres (in course)**

An application decree related to used tyres management is in course.

##### **General Data :**

- Production and local sales (2006): 6,000Tonns.
- Import of tyres (2006): 19,000Tonns.
- Five recycling companies of used tyres are authorized with a total production capacity of 23,700 T/year.
- 12 % of used «heavy vehicles» tyres are retread.
- Incineration of used tyres in the cemeteries to exploit their calorific value (3T tyres/2T fuel).

#### **5.1.7. ELECTRIC AND ELECTRONIC WASTES LINE (D3E DEEE)**

##### **Waste quantity:**

75,000 t/year of which 46% household generated (2006)

##### **Basic Data**

##### **Composition of wastes:**

Electric and electronic equipments are composed of:

- Iron and non iron metals.
- Plastic.
- Glass.
- Dangerous components.
- CFC and green house gas.
- Batteries and car batteries.
- Cathode ray tube.
- PCB capacitors.
- Electronic cards.

##### **Components of the programme**

- Develop a support and promotion system for D3E in Tunisia (raise awareness among the different key players : importers, producers, dealers, technicians..) in conformity with the 2 principles «producer-repairers» and «polluter-payer».

- Promote as much D3E as possible and include them in the economic cycle.
- Preserve natural resources, increase the quality of environment and protect human health.
- Increase the length of life of controlled dumps.
- Set a favourable and encouraging regulatory, financial and fiscal framework favourable to support the private sector investment in this field<sup>47</sup>.

### Specific Legal Framework for waste Management sector in Tunisia

Industry	Regulatory Framework	Institutional Framework	Technical Framework	Financial Framework
<b>ECO-Lef Plastic packaging</b>	Decree n° 97-1102 2 June 1997	ANGed, Ministry of Finance	<ul style="list-style-type: none"> <li>• Programme ECO-lef;</li> <li>• Private collectors;</li> <li>• Collectors in the framework of mechanisms 32&amp;41 for employment creation;</li> <li>• Transport to ECO-Lef spots</li> </ul>	<ul style="list-style-type: none"> <li>• Compensation on collection in Kg;</li> <li>• Eco Taxes / Financial Law;</li> <li>• Membership system in ECO-Lef</li> </ul>
<b>ECO-Zit Lubricant and used oils</b>	Decree n° 2002-693 1 April 2002	ANGed	<ul style="list-style-type: none"> <li>• Management entrusted to the national SOTULUB through an agreement with ANGed</li> <li>• Process of oils' regeneration by fractional distillation</li> <li>• Type of recovery for material and energy</li> <li>• 11 subcontractor's collection companies of SOTULUB</li> </ul>	<ul style="list-style-type: none"> <li>• Eco Taxes applied to oil and ship owner corporations;</li> <li>• Adhering importers and producers of local and industrial oil</li> </ul>
<b>ECO-Batteries Car batteries</b>	Decree n° 2005-3395 26 December 2005	ANGed	<ul style="list-style-type: none"> <li>• Lead car batteries: two companies producing batteries</li> <li>• Treatment with physicochemical acid</li> <li>• Slags' treatment by remelting</li> <li>• Collection network through selling stores</li> </ul>	Payment of a deposit on purchase based on the battery type
<b>ECO-Piles used batteries</b>	Decree n° 2005-3395 26 December 2005	ANGed	<ul style="list-style-type: none"> <li>• Collection initiative undertaken by ANGed</li> <li>• A company for alkaline batteries not yet working</li> </ul>	Nothing planned yet for battery recycling
<b>Tyres</b>	Not yet developed		<ul style="list-style-type: none"> <li>• 5 Companies constituted but only two operating</li> <li>• Collection by own means without specific organization</li> <li>• Problem of deposit's dispersal</li> </ul>	Transactions among private operators
<b>Electrical and electronic equipments</b>	Regulations D3E under study	ANGed	<ul style="list-style-type: none"> <li>• Dismantling and sorting</li> <li>• Export of metal parts</li> <li>• Recycling of plastic parts</li> </ul>	

<sup>47</sup> La Gestion intégrée et durable des déchets en Tunisie, ANGed, April 2008

## 5.2. International initiatives

### 5.2.1. UNIDO<sup>48</sup>

#### 5.2.1.1. Cleaner Production Programme

The UNIDO Cleaner Production Project in Tunisia, financed by the Government of Switzerland, was officially launched in June 2010 with the organization of a seminar chaired by the Minister of the Environment and Sustainable Development.

In Tunisia, the CPP aims at declining two components: a) strengthening the national capacity to implement cleaner production services (first component of the project); b) developing a regional network of Cleaner Production Centres or equivalent institutions in the MENA region. This network will build on the experience of UNIDO in Latin America and the Caribbean (second component).

The purpose of both interventions is to enhance the skills of the CITET (designated as a National Cleaner Production Centre in Tunisia), that will benefit of the activities carried out in the national context as well as of the information and experience sharing on a regional basis.

To achieve this objective, the capacities of CITET in cleaner production tools (PPP) will be strengthened as well as the key thematic issues in key areas of intervention identified as priorities by UNIDO and its Tunisian partners (food processing, textiles and leather, the surface treatment and hotel business). In addition, CITET will offer PPP services to Tunisian businesses through incentive mechanisms. The PPP methodology will be developed as a standard practice and adopted in Tunisia.

The overall objective of the project is the continuous improvement of economic competitiveness, the reduction of environmental footprint and the strengthening of the social development of Tunisian companies.

#### 5.2.1.2. The MED-TEST project: Transfer of Environmental Sound Technology in the South Mediterranean Region

The MED-TEST project addresses pollution from land-based activities in priority industrial hot spots in three Mediterranean countries: Morocco, Egypt and Tunisia.

Launched in 2009 and under implementation by the Ministry of Industry and Technology with three National Technical Centres under the Ministry of Industry, namely, Leather and Technical Shoe Centers (CNCC), Food (CTAA) and Textiles (GETTEX) the MED-TEST project is funded by the Global Environment Facility (GEF) and the Italian Government for a total budget of 1.4 million and the expected duration of the project is three and a half years (2008-2011).

<sup>48</sup> Source: UNIDO, United Nations Industrial Development Organisation, Tunisia Country Office. Contact person: UR Mrs Monica Carcò.

The MED TEST aims at strengthening the capacity of national partners in the field of eco-technologies, proving the relevance and the effectiveness of the integrated approach MED TEST in industrial pilot sites, and finally, disseminating the results and the TEST Approach at national and regional level.

To date, the MED TEST is at the advanced stage of its implementation phase.

Among its current achievements, we highlight:

- Training of six experts from the three technical centers;
- Support to 15 companies in three industrial sectors (textile, food and leather and footwear);
- Training of about thirty technical staff of the participating companies in the project;
- Completion of 15 in-depth diagnostics and the development of 15 action plans for cleaner production;
- The identification of approximately 200 development actions focusing both the technological and organizational aspects.

During 2011, the project assisted companies in the implementation of action plans, resource mobilization for investment in clean technology, and the preparation of case studies (success stories) for communication and national dissemination.

The ultimate goal is the replication of this experience for the benefit of a larger number of Tunisian companies.

### **5.2.1.3. Energy Efficiency**

A joint project to improve energy efficiency and renewable energy used in the industrial sector has been designed by UNIDO and the National Agency for Energy Conservation (ANME) and financed by the Global Environment Facility (GEF).

The project provides institutional capacity building to increase energy efficiency of industrial activities and contributes to reducing the impact on environment and to increasing the competitiveness through the promotion of the ISO 50001 standard.

### **5.2.1.4. Joint Project to support youth associations and special groups of disadvantaged youth (in the pipeline)**

A joint project to strengthen the contribution and the role of youth in conflict prevention and peace consolidation in Tunisia is in the pipeline of the Ministry of Environment, the Ministry of Industry and Technology, UNIDO and UNFPA.

The project will include combined strategic interventions aiming at preventing riots or social events headed by disadvantaged groups of youth (unemployed youth, street youth, school dropouts and youth not attending school, etc.) during the election period.

This joint project will focus on i) establishing a competitive financing mechanism for social projects promoted by youth groups, communication and information centres in some cities of Tunisia and a system of waste recycling (paper, plastic, etc.) ii) strengthening the sense of voluntarism and leadership of young people in disadvantaged situations, activate them in conflict prevention, extension and consolidation of peace, and in creating income-gen-

erating activities, and iii) building the capacities of young people to be responsible actors and pro-active citizens in the promotion of non-violence throughout the electoral process.

### 5.2.3. GIZ

In Tunisia, GIZ is implementing several programs and projects in different areas related to sustainable economic development, environmental protection and energy conservation. The revolution of January 14<sup>th</sup> 2011 resulted in an increase in unemployment, reported as 700,000 people in July 2011. Most of the unemployed are young graduates. This phenomenon motivated GIZ to target the promotion of green jobs as a core component of project planning.

**5.2.3.1. Environmental protection program (PPE):** Since 2002, the GIZ program on environmental protection has led initiatives towards the promotion of green businesses, such as the launch of an Internet portal comprising a database of Tunisian green companies ([www.pagesvertestunisie.com](http://www.pagesvertestunisie.com)) and the realisation of studies on green businesses and green jobs<sup>49</sup>. Currently, the PPE supports Tunisian companies in implementing CSR strategies and in the framework of the technical assistance provided by the CITET, the PPE is enhancing technical capacity of Tunisian companies to green their production processes.

**5.2.3.2. Promotion of renewable energies and energy efficiency project (ER2E)<sup>50</sup>:** Currently, the project consists of a study on the impact of the Tunisian renewable energy and energy efficiency promotion programs on employment. The study is led by a consortium of German and Tunisian consulting firms. In the context of its support for investments in renewable energy and energy efficiency in Tunisia, the project is contributing to job creation in this sector. Through targeted training measures, the project improves the employability of Tunisian experts in the field of renewable energy and energy efficiency.

**5.2.3.3. Support for small and medium-sized industries with regard to the opening up of markets (PAEI<sup>51</sup>): *The Innovation and Entrepreneurship Support Programme (PAEI)*:** The objective of the programme is to support small and medium-sized enterprises and candidates for business start-ups in the manufacturing sector. Following its current challenges due to the association agreement of Tunisia with the EU that came into effect in January 2008, the programme concentrates on strengthening demand-driven innovation processes and providing support for business start-ups. The project is planning for 2012 to focus on the green sectors which provide economic opportunities for green jobs creation and environmental innovations.

### 5.2.4. UNOPS<sup>52</sup>

As part of the United Nations System, the United Nations Office for Project Service (UNOPS) has the mandate and the competence to coordinate and support its partners in the effort

<sup>49</sup> Green jobs in Tunisia. ANPE / Observatoire Tunisien du Développement Durable. 2002 and: Complementary study on green jobs in Tunisia. IDEA, 2005, ANPE/GTZ

<sup>50</sup> GIZ project 'Promotion of renewable energy and energy efficiency in Tunisia'. Contact person: [Ulrich.laumanns@giz.de](mailto:Ulrich.laumanns@giz.de)

<sup>51</sup> Programme d'Appui à l'Entrepreneuriat et à l'Innovation (PAEI). Contact person: [Philippe.lotz@giz.de](mailto:Philippe.lotz@giz.de)

<sup>52</sup> UNOPS, «Plateforme d'emplois verts-Tunisie», 2011

of implementing the MDG 7 on Sustainable Environment that the United Nations and its Members States aim to achieve.

In Tunisia, the UNOPS is accomplishing the last procedures for the launch of the project «Platform of green jobs in Tunisia» (PEV) in coordination with the Minister and the representatives of the MFPE.

The interviews conducted with local active stakeholders for the promotion of green employment showed that green economy has a great potential for job creation in Tunisia. Green jobs programs combine the three principles of sustainable development endorsed by the United Nations and that UNOPS encourages in the context of the economic recovery in Tunisia, particularly in the areas most affected by unemployment and low investment.

Green jobs have the potential to promote local activities related to environmental protection and poverty reduction.

In the short and medium term, the platform on green jobs will allow beneficiaries to:

- 1) Acquire the necessary skills to develop small service firms in the «Cleantech» sector;
- 2) Develop skills to meet the current demand in the green labour market in Tunisia.

The project will include four major areas:

- The establishment of a support system dedicated to unemployed youth to facilitate their professional inclusion in the green jobs market;
- The establishment of a number of active measures in the green labour market;
- To support groups of unemployed youth in green business start-ups;
- The pilot governorates for the implementation of the platform (PEV) (Bizerte, Gabes and the Kef).

## **6. Introduction to the business cases**

The selection of the business cases has been carried out in a way to cover the several areas in which green companies have established and developed in Tunisia, regardless the number of green companies existing in each sector.

Therefore, a statistical representativeness is not the purpose of this chapter but rather the presentation of successful testimonies.

The selected areas of the examined business cases are:

- Energy conservation (renewable energy and energy efficiency).
- Waste management and recycling.
- Organic farming.
- Sustainable tourism.
- Natural resource management.
- Consulting & services.
- Civil society (NGO<sup>53</sup>).

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<sup>53</sup> NGOs have been included in the business cases as they could be considered as supporting organizations and promoters of the green economy and green entrepreneurship.

The selection of the business cases has also taken into account the regional dimension of green entrepreneurship. Thus, interviews have been conducted with companies established in the governorates of Béja, Nabeul, Sfax, Zaghuan, Gafsa and Grombalia, other than Greater Tunis.

Based on the sector in which the companies operate, the following table shows the distribution of the fifteen business cases we have examined through face to face interviews with the founders.

To assess the success of the business cases, a set of success factors criteria has been identified as follows:

- Turn over.
- Employment generation.
- Overall motivation of the owner.
- Impact on the environment.
- Generation of innovation.

Field	Sectors	Companies
Energy conservation	Renewable energy	1.BSI
	Energy efficiency	2.Isolroof
Waste management	Waste management	3.Proclean
	Recycling	4. ECO OLEO
		5. COLLECTUN
Organic farming	Olive Oil	6. MEDOLEA
Sustainable tourism	Eco-lodge	7.Dar Zaghuan
	Eco tourism	8.Becasse
Natural resources	Forestry	9.HAJ ABDA
	Tree nursery	10.Echajara Ettaiba
Consulting and services	Energy	11.ECO Ser
		12.Action Sarl
	Environment & ecology	13.EcoloMag
Civil society (NGOs)	Climate change	14.2C2D
	Forestry	15. Club Faune et Flore Méditerranéennes

A cross-cut analysis of the success factors is presented here below.

Most of the green businesses surveyed have increased their turnover since their start-up.

Mid-way to year 2010 turnover, registered a rate of growth<sup>54</sup> fluctuating between 15% and 166% with an average growth of 52,3% (not considering the inflation rate). In terms of employment, the average growth rate is estimated to 128% from the mid-way to year 2010. Nevertheless, the average turnover per employee decreased from 51,900 TD (mid-way data) to 41,000 TD in 2010. This decrease affected in particular companies operating in the waste management sector and the natural resource sector, where the increase of the number of employees has been more consistent than the increase in turnover.

The motivations of the interviewed entrepreneurs for the creation of green businesses, may be synthesized as 'isolated' or 'community sensitive' approaches.

In the 'isolated' approach, the major driver relies on personal reasons such as the will to valorise specific competences or professional experiences and skills, for others the will to continue a family business tradition or the passion to work in innovative fields like renewable energy or clean technology.

The 'community sensitive' approach relies on the will to have a wider impact on society and environment at large through their business. In that sense, some of them strongly believe that their contribution can actually increase the quality of the living environment, and others are committed to campaign the importance of natural resources protection.

In terms of environmental impact of their businesses, the interviewed entrepreneurs are very much aware of the positive impact of their companies and the potential of far better performances. Two types of impacts could be identified:

- a concrete and quantified impact such as the CO<sub>2</sub> mitigation, the reduction of the quantity of used oil or the production of seedlings;
- an indirect impact resulting from awareness rising towards nature protection, clean production, use of renewable energy, climate change etc...

Finally, the interviewed green entrepreneurs assume that they are generating innovation. Some of them consider the launch of a green company as an innovation in itself. Others have tried to introduce new 'clean concepts' such as environmental standards and certification, or to create a new kind of job such as the eco trip designer and finally many green promoters have created new approaches to address environmental issues.

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<sup>54</sup> With the exclusion of one start-up that registered a rate of 2900% in turn-over (from 3 000 TND to 90 000 TND since inception in 2009 to 2010).



## CONCLUSIONS

Tunisia is currently facing a high rate of unemployment (16.3% by the end of 2011) affecting nearly 700,000 individuals, particularly well educated young people. Unemployment has increased tremendously since the revolution of January 2011 due to the decline of activity in many economic sectors, such as tourism. The main challenge for the post revolution Government is to mobilize the huge number of unemployed people in gainful employment as a way to re-start the economy and achieve social stability. To succeed, it will be necessary to explore new opportunities for job creation and to identify innovative niche areas with the potential to reduce the economic recession.

Green business is undoubtedly one of the sustainable alternatives worth considering.

So far, 1,547 green businesses have been created in Tunisia, out of which nearly 55% are active in the field of waste management. Nevertheless, the waste management sector has additional niche areas that could be further developed, offering new perspectives to green investors and young job seekers. As an example, household wastes are collected for only 27% of the population and recycled for only 5%. Moreover, conservation of traditional energy sources in favour of renewable solar energy is still under-exploited in Tunisia; renewable energy contributes at present less than 2% of electricity production in the country. The main cause of this is the lack of an appropriate regulatory framework to assure private companies of returns on their investments in the production of green electricity, as well as the absence of an incentive mechanism, which is currently hindering the implementation of the thermal insulation program (PROMO-Isol).

As Tunisia has an important gap in its energy balance, it is expected that decision makers will more meaningfully promote energy conservation and support the green businesses wanting to enter this sector.

Although further improvement would be needed, the fields of waste management and energy conservation have a quite well established regulatory framework, supporting institutions and financial mechanisms that encourage the creation of green businesses.

Other green sectors such as ecotourism, green tourism or rural tourism remain under-exploited or unexploited in Tunisia. These niches offer significant opportunities for local people to create micro and small green enterprises that do not require large investments. In the last decades, Tunisia has substantially invested in «beach and sun» touristic packages encouraging low cost tourism and in the South Saharan tourism, to the detriment of a more diversified touristic offer. The few and isolated experiences to develop ecotourism conducted as part of the developmental policies carried out by the Ministry of Environment and the Ministry of Agriculture, have shown a lack in participatory strategy across the ministries, the regional authorities and the local communities involved in these projects. As a result, eco-tourism still lacks of the minimum conditions to develop and the green businesses to establish also in regions that are naturally rich in natural, historical and cultural heritage.

Most green companies are located in Tunis and in the Centre East region, but the rest of the country has very few environmental businesses. Such unequal geographic distribution

could be re-balanced by special mechanisms at regional level, such as incentives to green entrepreneurs to set up businesses there.

Such unequal distribution could be balanced throughout special mechanisms at regional level able to set the preconditions for green entrepreneurship to blossom. Such an approach is also consistent with the policies promoted by the new government addressing the development of the less advantaged regions of Tunisia.

Experts admit that due to a lack of financial support and exchange of experience, the applied research is not playing a decisive role in identifying, testing and improving new green technologies. As a consequence, fields like the bio textile (or eco friendly textile) which is growing significantly in various textile industries in the world is still completely missing in Tunisia. Attempts to start small businesses in the field of bio textile, despite the small world market, would be of strategic importance for the country. The conventional textile and clothing industry in Tunisia counts for 34,5% of the total number of industrial companies and employs 38,2% of the labour force in the industrial sector<sup>55</sup>. Nevertheless, since the free globalized market takes over, the textile and clothing sector in Tunisia is undergoing dramatic change, falling in 2009 to - 9,6% in term of added value rate to the economic growth of the country<sup>56</sup>. Due to the highly competitive atmosphere and the ecological parameters becoming more stringent in the textile field, it becomes a priority for the textile companies to be more conscious about quality and ecology. In strategic terms, Tunisia would have benefits to start promoting the bio textile sector through supports to research and innovative green businesses.

Undoubtedly Tunisia has spared no efforts to encourage young promoters to create their own businesses. Several programs, measures, exemptions, training, incentives have been directed towards this goal. Concretely, one can create its own company in one hour in the one-stop window related to the Agency of Promotion of Industry and Innovation, which supports promoters with diverse services (industrial documentation and Information Centre, business incubator, etc...).

However, promoting business requires financial instruments that are not yet of easy access to young promoters.

In Tunisia, the financial system of small and medium enterprises does not include innovative approaches although successful in other countries.

For instance, ethical banks also known as social, alternative, civic, or sustainable banks, are concerned with the social and environmental impacts of their investments and loans are not represented in Tunisia. These banks can promote socially/environmentally-g geared companies and also penalize those who do not conform to these standards.

Granting a credit is one of the most sensitive issues for ethical banks. The choice of the projects to be financed is in fact the essence and the specificity of these institutions whose purpose is to give credit to socio-economic initiatives able to produce a social benefit, in the respect of natural resources. To this end, applications for funding also include an evaluation of the positive social and environmental impact that the project can produce.

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<sup>55</sup> Source: Agence de Promotion de l'Industrie et de l'Innovation, November 2011.

<sup>56</sup> Source : Banque Centrale de Tunisie - 2011

Despite the varied supports available to business creation, entrepreneurship is still ‘timid’ in Tunisia and young graduates seem to orient toward a steady job in the public administration. To tackle this deficiency, few years ago most Tunisian Universities introduced classes of entrepreneurship in their academic curriculum. As Dr. Adrian Atkinson<sup>57</sup> once stated *‘the quality of a future entrepreneur can be distinguished from the childhood’*. Would this consideration invite policy makers to introduce entrepreneurial teaching since early education programs?

The following are some recommendations and proposed actions that can be implemented for Tunisia to actualize its «Green potential» and promote green businesses at larger scale:

Competence Government	Proposed Activities & Recommendations
<ul style="list-style-type: none"> <li>• Ministry of Industry and related agencies</li> <li>• Ministry of Higher Education and Scientific Research</li> <li>• Ministry of Vocational Training</li> <li>• Ministry of Environment</li> <li>• Ministry of Tourism</li> <li>• Ministry of Employment</li> <li>• Ministry of Finance</li> </ul>	<ul style="list-style-type: none"> <li>• Plan extended sensitization actions to increase awareness towards environmental concerns and the potential of green entrepreneurship to achieve economic, environmental and social stability;</li> <li>• Provide sensitization actions and training programs to young promoters to orient them towards green businesses;</li> <li>• Enhance the capacities of the supporting institutions in charge of the promotion of entrepreneurship and innovation in the field of green economy, throughout training sessions and technical assistance programs at national, regional and international level;</li> <li>• Facilitate access to and diversify the financial instruments such as green banks, venture capital...;</li> <li>• Establish dedicated credit lines to propel young entrepreneurs and start up companies for ‘green businesses’;</li> <li>• Include Green Economy and green entrepreneurship programs and curricula since early stages of the educational process;</li> <li>• Develop and enhance training curricula to combine entrepreneurship, environmental skills and clean technology competencies;</li> <li>• Encourage Universities to create green economy laboratories and to formalize academic degrees on Green Economy while enabling and/or enhancing the cooperation in the field with European Universities;</li> <li>• Establishing an official nomenclature for green jobs and green activities.</li> </ul>

<sup>57</sup> Psychologist who spent decades in research on native creativity skills and collective imagination

<b>Legal Framework</b>	<ul style="list-style-type: none"> <li>• Integrate strategic policies towards implementation of green economy and green business;</li> <li>• Allocate dedicated funds to implement green entrepreneurship;</li> <li>• Revise, enhance and/or establish regulations towards innovative and more accessible incentive mechanisms, such as dedicated funds, fiscal advantages, smart subsidies for green businesses;</li> <li>• Assure more efficient regulation and control on green sectors, to ensure the parallel market does not penalize the performance and the prosperity of regular green businesses.</li> <li>• In regard to green jobs, mechanisms to control informal work should be prioritized.</li> </ul>
<b>BDOs and Private Sector</b>	<ul style="list-style-type: none"> <li>• Create networks of green entrepreneurs to share best practises and experiences at national, regional and international level;</li> <li>• Promotion of round tables, seminars and public conferences on green entrepreneurship;</li> <li>• Support the private companies moving towards green technologies and sustainable products and services and encourage them to adhere to environmental initiatives (Global compact...);</li> <li>• Identify and valorise national traditional green know how (especially of women) and encourage dissemination.</li> </ul>
<b>CSOs</b>	<ul style="list-style-type: none"> <li>• Civil Society can play a crucial role in developing the principles of Green Economy. The empowerment and effective participation of civil society should be systematic and organized;</li> <li>• Recognize and raise awareness about the decisive role of women as consumers to promote more sustainable consumption.</li> </ul>
<b>Consulting Companies</b>	<ul style="list-style-type: none"> <li>• Facilitate access to qualifying specialized training programs to acquire the necessary expertise and skills to provide to businesses;</li> <li>• Facilitate the technology and know-how transfer on green economy from experienced companies from Europe to the local consulting firms, through Mediterranean exchange programs.</li> </ul>
<b>Mass Media</b>	<ul style="list-style-type: none"> <li>• Establish comprehensive capacity building programs related to Green Economy and environmental impacts for media;</li> <li>• Reinforce the role of social networks to disseminate the principles and to raise awareness on green economy and environmental issues.</li> </ul>

## REFERENCES

- *Abdelkader Baouendi*, Programme d'Actions Stratégiques (PAS) visant à combattre la pollution due à des activités menées à terre. Plan d'Action National : Pays : TUNISIE, 2005
- *ANME/GIZ*, Efficacité énergétique et énergies renouvelable en Tunisie: Emplois, qualifications et impacts économiques, 2011
- *ANME/GIZ*, Renewable energy and energy efficiency in Tunisia: employment and economic impact. GWS / ECO-Ser / ALCOR, Sept. 2011
- *ANPE*, Etude sur l'emploi dans le domaine de l'environnement. Phase 2: Recensement des emplois verts, 2005
- *ANPE/Observatoire Tunisien du Développement Durable*, Green jobs in Tunisia, 2002
- *ANPE*, Complementary study on green jobs in Tunisia, IDEA, 2005
- *ANPE/GTZ*, Complementary study on green jobs in Tunisia. IDEA, 2005
- *Basel Convention 2002*. Country Fact Sheet Tunisia, 2006
- *Di-Masi Paul*, Defining Entrepreneurship, 2008
- *Environmental Policy Research Centre*, Rio World Summit on Sustainable Development 2012 - Governance for a Green Economy WP1: Interim Report
- *European Environment Agency*, Towards a Green Economy in Europe, 2011
- *GTZ*, Etude sur l'état des lieux de la formation dans le domaine de l'environnement en Tunisie, 2008
- *GIZ*, 'Promotion of renewable energy and energy efficiency in Tunisia'
- *GIZ*, Programme d'Appui à l'Entreprenariat et à l'Innovation (PAEI)
- *L.Haouaoui & F.Loukil*, Évaluation du système de gestion des déchets en Tunisie, Institut Supérieur de Gestion, 2009
- *Law No. 2004-72* August 2, 2004 on the energy conservation, as amended and modified by Law No. 2009-7 of February 9, 2009
- *Law No 96-41* June 10, 1996 related to waste management and control
- *Law No 99-30* April 5, 1999 on organic farming
- *Law n° 88-91* August 2, 1988 modified by law No 92-115 of 30<sup>th</sup> November 1992
- *Law n° 96-25* March 25, 1996
- *Law n° 73/74* August 3, 1974 amended by law n°93/41 of 19th April 1993
- *MEFP, ILO, UN-MDGIF*, Etude sur les compétences pour les emplois verts en Tunisie, Rapport intermédiaire 2011
- *Ministère de l'Environnement et du Développement Durable*, Rapport Nationale sur l'Etat de l'Environnement, 2008
- *Mohamed TOUM*, La Gestion intégrée et durable des déchets en Tunisie, 2008
- *OECD*, Entrepreneurship at a Glance 2011 ©, Measuring Green Economy, 2011
- *Support to DG Environment* for development of the Mediterranean De-pollution Initiative «HORIZON 2020» No 070201/2006/436133/MAR/E, 2006
- *UNEP*, Green Jobs: Towards decent work in a sustainable, low-carbon world

## USEFUL LINKS

<http://www.anpe.nat.tn/>  
[http://www.bpi.fr/fr/la\\_bpi\\_et\\_vous/chercher\\_un\\_emploi/metiers\\_concours/repertoire\\_operationnel\\_des\\_metiers\\_et\\_des\\_emplois\\_rome.html](http://www.bpi.fr/fr/la_bpi_et_vous/chercher_un_emploi/metiers_concours/repertoire_operationnel_des_metiers_et_des_emplois_rome.html)  
<http://www.changementsclimatiques.tn/>  
<http://www.citet.nat.tn/>  
<http://www.eco.ca/>  
<http://www.environnement.nat.tn/>  
<http://www.gdrc.org/icm/micro/define-micro.html>  
<http://www.ins.nat.tn/>  
<http://www.leguidedesmetiers.com/index.php>  
<http://www.ministere-tourisme.org/>  
<http://orientaonline.isfol.it/index.scm>  
<http://www.pagesvertestunisie.com/>  
<http://www.planetemploi.net/le-marche-du-travail-des-metiers-verts-en-2010/>  
<http://www.reseau-tee.net/index.html>  
<http://www.reseau-tee.net/presentation-reseaux-tee.htm>  
<http://www.statistiques.developpement-durable.gouv.fr/>  
<http://www.statistiques.developpement-durable.gouv.fr/environnement/1097.html>  
[www.sweep-net.org](http://www.sweep-net.org)

## Annex 1

### Business Projects

### Questionnaires Interviews

#### 1. Project Name: ECO Ser

<b>Name:</b> Eco Ser
<b>City, country:</b> Béja, Tunisia
<b>Name of entrepreneur/founder:</b> Mr Sami MARROUKI, former executive manager of the PROSOL (mechanism to promote the solar water heaters in Tunisia) established by the National Agency for Energy Conservation (Agence Nationale pour la Maîtrise de l'Énergie).
<b>Description:</b> The firm offers several services such as studies, coaching, training, auditing and management in energy and environment sectors (including conception and implementation of Clean Development Mechanism projects).
<b>Investment:</b> <i>Start up capital: 5 000 DT</i> <i>Rate of return on investment: 100 %.</i> The payback time did not exceed 1 year as the energy sector was emerging and the demand in terms of auditing and coaching in the field of energy efficiency was high. <i>Sources of funding: The start up capital was entirely invested by the owner.</i>
<b>Stakeholders:</b> <i>Customers:</i> International agencies, Multilateral banks (World Bank, African Development Bank...), private companies in several sectors, UNDP, Agence Française de Développement, Public institutions (ANME, ANGed, CITET), Ministère de l'Industrie et de la Technologie, Ministère de l'Environnement et du Développement Durable. <i>Strategic partners:</i> ALCOR (Tunisian Consulting firm) ; GWS (Institute of Economic Structures Research, Germany); SEGOR (company working in the field of environmental services (branch of group SUEZ France) <i>European partnership:</i> GIZ, German Technical Cooperation Agency
<b>Timeline:</b> <i>Date of Start up: 2008</i> <i>Progresses up to 2011:</i> ECO Ser has extended gradually its services to the field of Climate change and to some strategic aspects such as the electricity mix. In addition, Eco Ser is trying to widen its competencies to other fields such as the economy, employment and projects management.
<b>Feasibility study:</b> in 2007, before launching ECO Ser, the founder carried out a feasibility study, which demonstrated a high demand in terms of training in the fields of environment and particularly in energy efficiency sub-sector. Also, a high demand in launching and accompanying innovation processes was observed.

<p><b>Geo-social-economic setting:</b> ECO Ser positions itself as a service company working in innovative technologies. It mainly operates in Tunisia but also carries out several short term missions in North Africa (Morocco, Algeria and Egypt), Subsaharian region (Mali) and Middle East (Lebanon and Syria).</p>
<p><b>Key words/Vision &amp; Mission of the company:</b> Providing services in strategic sectors of the Tunisian economy (energy and environment) and transferring technologies and specific know-how to public institutions and private companies in innovative fields such as Climate change.</p>
<p><b>Strengths:</b> High technical competence in the field of energy conservation (renewable energies and energy efficiency) and environmental management. The founder is an Auditor third party ISO 14000 and ISO 9001 and OHSAS 18001).</p>
<p><b>Challenges and constraints:</b> The founder intends to become a CDM verifier and a NAMA (National Appropriate Mitigation Action) expert. However, he is facing some constraints related to the access to these specific qualifications because there are no local firms/institutions to qualify experts in these fields. The qualifying training is provided in Europe and it is costly.</p>
<p><b>Direct activities and impacts:</b> <b>Social:</b> ECO Ser provided consulting services to improve the Social Corporate Responsibility at strategic level in private firms. <b>Environmental:</b> Several missions have been led by ECO Ser in big companies to improve environmental management and reduce energy consumption. <b>Economic:</b> ECO Ser provides services to industrial companies in energy auditing towards energy conservation measures, leading the concerned companies to reduce their energy consumption and improve their competitiveness.</p>
<p><b>Use of innovative technologies:</b> Use of international standards as OHSAS 18001 Introducing Solar Keymark label for Solar Water Heaters program in Tunisia Development of Qualisol chart (quality requirements) for services related to SWH in Tunisia</p>
<p><b>Evidence of a holistic approach/world view:</b> ECO-Ser is working on a global challenge to reduce CO<sup>2</sup> emissions through the support to CDM projects and in the near future to NAMAs (National Appropriate Mitigation Actions). In addition, ECO-Ser is contributing to the transfer of know-how (North – South and South-South approach).</p>
<p><b>Scale of benefits:</b> ECO-Ser aims at developing partnerships with several stakeholders through networking activities and participation in international events (CoP, Carbon Expo, Carbon Forum...).</p>
<p><b>Policies, incentives and regulations needed:</b> In Tunisia, there is no specific regulation allowing private companies to produce electricity from a renewable energy sources. This kind of regulation, once established, will boost the market of consulting services in the energy sector at local but also at European level.</p>
<p><b>Lessons and recommendations:</b> The success of ECO-Ser relies on motivation and courage to start a green business with particular funds and low investment. Networking has been one of the success key which allowed ECO-Ser to capture some market shares of consulting in the field of energy and environment. The founder of ECO-Ser believes that innovation is a crucial factor for a green company.</p>



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Website under construction

**Criteria of success**

<b>Turnover:</b> In currency or %	<b>Start up</b> 80 000 DT	<b>Midway</b> 100 000 DT	<b>2010</b> 120 000 DT
<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>	
<b>Start up :</b>	<b>1</b>		
<b>Midway :</b>	<b>2</b>		
<b>2010 :</b>	<b>3</b>		
<b>Overall motivation of the owner:</b>			
The owner of ECO Ser intends to work at the political level, to provide coaching on sectoral policies in its fields of competence. He will upgrade the services of ECO Ser to policy dialogue at national and international level and will contribute to set up projects related to technology and know-how transfer.			
<b>Impact on the Environment:</b>			
ECO Ser has accompanied many projects aiming at reducing the CO <sub>2</sub> emissions throughout CDM projects and also several cleanup projects.			
<b>Innovation generation:</b>			
ECO Ser has contributed to the Certification by 'Solar Keymark standard' of the first Tunisian solar water heater.			

## 2. Project Name: BIOME SOLAR INDUSTRY (BSI)

<b>Name:</b> Biome Solar Industry
<b>City, country:</b> Béja, Tunisie
<b>Name of entrepreneur/founder:</b> Mr Ahmed ERNEZ
<b>Description:</b> Production of Solar Water Heaters
<b>Investment:</b> <i>Start up capital: 400 000 DT</i> <i>Rate of return on investment: 70 %</i> <i>Sources of funding: Private funding, bank loan and investment from SICAR (Société d'Investissement à Capital Risque)</i>
<b>Stakeholders:</b> Shareholders : Individuals (most of them energy specialists) Customers: individual users of SWH (households) and Tertiary sector (hotels, hospitals, stadium...) Providers: Établissement Krichène Tunisia, SOPAL Tunisia, Strategic partners: ANME (National Agency for Energy Conservation) and STEG (Electricity and Gas Company of Tunisia) and CNSEnR (Professional Association of Renewable Energy), STB (Société Tunisienne de Banque) and BFPME (Banque de Financement des PME) European partnership: KBB Germany, CEDRIS France
<b>Timeline:</b> Date of Start up: 2007 Up to 2011, BSI took 17% shares of the local market and export to Morocco, Guadeloupe and Martinique
<b>Feasibility study:</b> The feasibility study demonstrated that the market of SWH in Tunisia is an emerging one due to the PROSOL mechanism (subsidies and loan from conventional commercial banks to the end users). Potentialities of solar radiation in Tunisia and the increase of electricity and gas prices since the increase of energy prices (petrol) on international market, should lead Tunisian households to be equipped with SWH.
<b>Geo-social-economic setting:</b> BSI produces SWH in Tunisia, which is the main market of its products. BSI is exporting to Morocco, Martinique and Guadeloupe. The good quality of BSI products (according to Solar Keymark standard) allows the company to access to international markets.
<b>Key words/Vision &amp; Mission of the company:</b> BSI intends to become the first providers of SWH in Tunisia and to widen its market at international level.
<b>Strengths:</b> BSI has very experimented technical staff and a wide network of installers that operate in almost all regions of Tunisia (130 installers in 2011). BSI also launched many subsidiaries in several regions of the country. The high quality of BSI SWH is one of the strengths of the company.
<b>Challenges and constraints:</b> Currently, BSI is evaluating to diversify its products and this is the most difficult challenge. BSI intends to produce additional SWH of new capacities (150 L, 250 L et more than 300 L). Moreover, BSI plans to introduce new technologies of tanks production, by changing the current tanks made of concrete to enamelled tanks.

<p><b>Direct activities and impacts:</b>  <i>Social:</i> 45 direct employment and 130 indirect employments were created by BSI in less than 5 years from start up.  <i>Environmental:</i> 36 000 m<sup>2</sup> of solar collectors installed contributing to reduce the CO<sub>2</sub> emission (6840 TeqCO<sub>2</sub>).  <i>Economic:</i> So far, 12 000 SWH installed in Tunisia contributing to reduce the energy bill of households and public and private organizations.</p>
<p><b>Use of innovative technologies:</b>  The introduction of Solar Keymark standard in BSI solar water heaters is considered as an innovation in the Tunisian market of SWH as BSI is the first company who adopted their standard. A change in production technology is planned for the production of enameled tanks.</p>
<p><b>Evidence of a holistic approach/world view:</b>  BSI vision is to contribute to a sustainable energy supply in Tunisia and other countries and to the protection of the environment throughout the reduction of CO<sub>2</sub> emissions.</p>
<p><b>Scale of benefits:</b>  BSI is considered as a successful experience on several levels, mainly in term of jobs creation contribution to the Tunisian economy and through an important financial turn-over despite the company is still a young one.</p>
<p><b>Policies, incentives and regulations needed:</b>  The SWH market in Tunisia is still emerging due to the PROSOL mechanism (subsidies and loan to the end users). Thus, maintaining the PROSOL is one of the crucial conditions to maintain a viable market. On the other hand, a new promotional mechanism related to the use of solar thermal technology in the industrial sector is to be launched, allowing to impulse new niches. New regulation is also needed to make the usage of SWH compulsory in new buildings. Such regulation will allow reducing energy imports at the macro-economic level, decreasing the energy bill at the household level and to further boost the SWH market in the country.</p>
<p><b>Lessons and recommendations:</b>  High technical and economic skills of the founder and the shareholders as well as the high competency technical team are necessary to achieve success in the SWH market. Human resource management is also an important issue to guarantee the continuity of the business.</p>
<p><b>References:</b>  <b>Adress, phone, E-mail &amp; fax :</b>  Zone industrielle Béja Nord, Rte de Nefza - 9000  P : +216 78 440 440  F : +216 78440040  <b>E : <a href="mailto:sales@biomesolar.com">sales@biomesolar.com</a></b>  <a href="http://www.made-in-tunisia.net/vitrine/index.php?tc1=IKuSlaeX">http://www.made-in-tunisia.net/vitrine/index.php?tc1=IKuSlaeX</a></p>

### Criteria of success

Turnover: In currency or %	Start up 2 000 000 DT	Midway 6 000 000 DT	2010 7 000 000 DT
<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>	
<b>Start up :</b>	25	70 installers	
<b>Midway :</b>	35	100 installers	
<b>2010 :</b>	45	130 installers	

**Overall motivation of the owner:**

The founder of BSI has been a senior engineer of the ANME and the technical director of another SWH company in Tunisia. By founding BSI, he wanted to valorize his long experience in the field of SWH. The founder believes that Tunisia could be a biggest market of SWH and could also be competitive on the regional market (in the Maghreb region and the Middle East as well as in African countries).

**Impact on the Environment:**

12 000 SWH produced and installed, standing for 36 000 m<sup>2</sup> of solar collectors giving an emission reduction of approximately 6840 TeqCO<sub>2</sub>

**Innovation generation:**

- Commitment to product and service quality (Solar Keymark standard adopted, ISO 9001 adopted, Qualisol standard for installers network adopted, Introduction of SWH into 10 hotels considered as pilot projects in Tunisia).

### 3. Project Name: COLLECTUN D3E RECYCLAGE

<b>Name:</b> COLLECTUN D3E RECYCLAGE
<b>City, country:</b> TUNISIA
<b>Name of entrepreneur/founder:</b> Mme TEMIMI Ines et M. COVI Alain
<b>Description:</b> Collect, transport, dismantle and recycle W.3.E. (Waste Electric and Electronic Equipment). COLLECTUN D3E RECYCLING was established in 2009 as an exporter of Tunisia Metal Scrap products. The company is located in Tunisia, recycles wastes of electric and electronic equipment and has an agreement for selling and export used electronic wastes (rich and poor electronic card, hard drive, power supply, cables, etc...) The products are well sold worldwide markets, including Western Europe. The company is known for paying particular attention to quality, customer, prompt delivery and service.
<b>Investment:</b> <i>Start up capital:</i> 16 000 dinars <i>Rate of return on investment:</i> <i>Sources of funding:</i> Private Funds
<b>Stakeholders:</b> Shareholders : TEMIMI Ines et COVI Alain Customers : Recycling Companies Nokia – Shell – EPPM – STB (Société des Banques Tunisiennes) – TUNISIANA Providers: Government, Companies with used equipment to recycle, producers of electronic wastes. Strategic partners: none For local market : Plastic and iron recyclers For export : European Companies European partnership: Companies specialized in recycling W3E International partnership: Signatory countries of the Basel Convention
<b>Timeline:</b> Date of Start up: September 2009 2010: Significant increasing of the turnover (90,000TD ) Progresses up to 2011 : Estimation of turnover equal to 2010 achievements
<b>Feasibility study:</b> The owner did not carry out an thorough feasibility study but studied on her own the market of electronic wastes recycling in the EU and US market and observed the absence of similar companies in Tunisia. Although a dedicated fond (FODEP) is established, the heavy procedures discouraged the access to the public funds and she started with her own capital. She keeps on investing in her company her own capital.
<b>Geo-social-economic setting:</b> Collectun operates in Grand Tunis. 80% of the turn over is on export activities.
<b>Key words/Vision &amp; Mission of the company:</b> Collect more electronic wastes, Contribute to better regulations for the destruction of hard electronic wastes. Improve the winning matching of making business while protecting the environment.
<b>Strengths:</b> One of the first D3E recycling companies in Tunisia with local and European partners specialised in recycling.

<p><b>Challenges and constraints:</b> One of the biggest challenges faced by the company is the sensitization of businesses in recycling electronic wastes and to collect used phones to include in the recycling process.</p>
<p><b>Direct activities and impacts:</b>  <b>Social:</b> Direct and indirect employment creation (collectors, recyclers, transportation...)  <b>Environmental:</b> Recycling of polluting materials (plastics, iron, etc..) and re-use of materials contributes to better and more healthy environment and to the protection of natural resources in Tunisia  <b>Economic:</b> Collectun provides services to industrial companies for collecting electric and electronic and indirectly contributes to raise awareness of the importance of recycling. It also contributes to generate work for smaller recyclers involved in the company business.</p>
<p><b>Use of innovative technologies:</b> Collectun owners are planning to buy a special machine to destroy hard drive, used phones, electronic card, etc.. They are in search of European funds allocated for the recycling companies to buy new machines, establish a bigger factory and increase the company turnover and employment opportunities.</p>
<p><b>Evidence of a holistic approach/world view:</b> The electronic wastes are considered as dangerous wastes. Recycling them is a must!</p>
<p><b>Scale of benefits:</b> Collectun has achieved a tremendous growth in term of financial turn-over in few years in a difficult and not always well regulated market. The company objective is to become a leading company in the field of D3E recycling in Tunisia.</p>
<p><b>Policies, incentives and regulations needed:</b> Respect of the Basel Convention for the transportation and packing of wastes.</p>
<p><b>Lessons and recommendations:</b> Keep systematically informed of the recycling solutions of electronic wastes (the less expensive and those that have a bigger impact on the environment).</p>
<p><b>Contacts &amp; References:</b>  <b>Address, phone, E-mail &amp; fax :</b>  B.P. 103 Z.I. Sidi Daoued La Marsa  <a href="mailto:collectun@hotmail.fr">collectun@hotmail.fr</a>  Mobile phone +216 21 48 73 37  <a href="http://www.collectun.com.tn/">http://www.collectun.com.tn/</a>  <b>Other references:</b>  <a href="http://www.viadeo.com/profile/0021gso5s92oqqn">http://www.viadeo.com/profile/0021gso5s92oqqn</a>  <a href="http://www.espacemanager.com/infos-societes/cjd-business-awards-melik-guellaty-radhia-mchirgui-et-ines-temimi-primis.html">http://www.espacemanager.com/infos-societes/cjd-business-awards-melik-guellaty-radhia-mchirgui-et-ines-temimi-primis.html</a>  <a href="http://www.cjd-tunisie.com/fr/index.php?rub=256&amp;srub=294">http://www.cjd-tunisie.com/fr/index.php?rub=256&amp;srub=294</a></p>

### Criteria of success

<b>Turnover:</b>	<b>Start up</b>	<b>2010</b>	<b>Estimation 2011</b>
<b>In figures or %</b>	3,000td	90,000td	90,000td
<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>	
Start up :	2		
2010:	7		
2011:	7		

**Overall motivation of the owner:**

To operate in the field of recycling adds value to the daily business activity of the owner who can contribute to reduce the impact of dangerous wastes on our living environment.

**Impact on the Environment:** Still not evaluated in figures

**Innovation generation:** Use of always more effective and efficient equipments

#### 4. Project Name: MEDOLEA – Olive Oil from Tunisia

<b>Name:</b> MEDOLEA
<b>City, country:</b> Mornag, Tunisia
<b>Name of entrepreneur/founder:</b> Mrs CECILIA MURIEL
<b>Description:</b> Production of organic olive oil
<b>Investment:</b> <i>Start up capital:</i> 180.000dt <i>Rate of return on investment:</i> <i>Sources of funding:</i> Private Funds
<b>Stakeholders:</b> Shareholders : none Customers : 5 Providers : Olives are collected from the owner's private olive wood Strategic partners : none European partnership (specify which kind?): none International partnership (other than European): none
<b>Timeline:</b> Date of Start up: 2008 Progresses up to 2011 : The company registers an increase in production of about 20%
<b>Feasibility study:</b> The owner did not undertake a special feasibility study but travelled and learn from other producers of organic olive oil and established good contacts to sell her products before the start up of the company
<b>Geo-social-economic setting:</b> where does the company operate The company sells in Tunisia and internationally. The main international markets are Germany, Canada, Spain and Italy.
<b>Key words/Vision &amp; Mission of the company:</b> Promote and give value to the Tunisian olive oil. Preserve traditional jobs and respect the natural resources of nature.
<b>Strengths:</b> Strong motivation. Accent on quality of her products. Strong conviction that nature and environment must be protected and preserved. Strong ethics.
<b>Challenges and constraints:</b> Faces difficulties in finding women to work during the period of harvesting. In rural Tunisia culture and traditional roles do not allow women to work outside the house.
<b>Direct activities and impacts:</b> <b>Social:</b> Community development by employment of women in the period of harvest <b>Environmental:</b> Very much attentive and sensitive to the protection and preservation of the local landscape and natural resources. This allow the owner – a foreign woman – to be very much appreciated and respected by the small farmers <b>Economic:</b> The farm employs few women but participate to their family lives and improvement of their economic conditions
<b>Use of innovative technologies:</b> Not specially. But the owners opted for production machineries very much in line with the vision of the farm and the quality of the product



<p><b>Evidence of a holistic approach/world view:</b> Quality, health, respect for the environment, protection and preservation of traditional ways of working</p>
<p><b>Scale of benefits:</b> Despite the difficulties and constraints mainly due to a lack of clear regulations, governmental incentives and local demand of organic food (too expensive for the local market) the company registers small but systematic increase in production and it is considered as an interesting project model in particular for international observers.</p>
<p><b>Policies, incentives and regulations needed:</b> More respect of the international regulations in terms of organic certification and more help and more financial help from the government.</p>
<p><b>Lessons and recommendations:</b> Promote a culture of organic food and more sense of responsibility toward the environment</p>
<p><b>Contacts &amp; References:</b>  <b>Address, phone, E-mail &amp; fax :</b>            B.P. 83 2090 Mornag, Tunisie            Tel: 00216.71367765  <a href="mailto:medolea@gnet.tn">medolea@gnet.tn</a>  <b>Other references :</b>  <a href="http://www.medolea.com/fr/news.php">http://www.medolea.com/fr/news.php</a>  <a href="http://www.tunisienraide.org/wp-content/uploads/2011/09/Communique-partenariat-TE-OO-ETMEDOLEA-29-sept-2011.pdf">http://www.tunisienraide.org/wp-content/uploads/2011/09/Communique-partenariat-TE-OO-ETMEDOLEA-29-sept-2011.pdf</a>  <a href="http://www.bio-marche.info/web/Continents/Afrique/Tunisie/357/301/0/7666.html">http://www.bio-marche.info/web/Continents/Afrique/Tunisie/357/301/0/7666.html</a>  <a href="http://www.webmanagercenter.com/management/article-74705-tunisie-l-huile-d-olive-biologique-tunisienne-en-vedette-sur-le-marche-allemand">http://www.webmanagercenter.com/management/article-74705-tunisie-l-huile-d-olive-biologique-tunisienne-en-vedette-sur-le-marche-allemand</a> </p>

### Criteria of success

<b>Turnover:</b>	<b>Start up</b>	<b>Midway</b>	<b>2010</b>
<b>In figures or %</b>	+10%	+10%	
<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>	
<b>Start up :</b>	6		
<b>Midway :</b>	6		
<b>2010 :</b>	6		
<b>Overall motivation of the owner:</b>			
Give value to the Tunisian oil and the Tunisian product and contribute to brand it abroad as a seal of quality.			
<b>Impact on the Environment:</b> Olives are hand-picked up from mid-November to mid-January. This traditional method of harvesting ensures olive oil production of outstanding quality. Each year the owner hires the same workers who live in the nearby villages and for the good work they do, they receive a fair wage. The freshly picked olives are immediately routed to the company's own oil mill, a modern stainless steel press. They are washed and cold pressed without any loss of time or deterioration in quality during the passage of the olive tree to the bottle.			
<b>Innovation generation:</b> Contribute to create a stronger culture of 'green food' also at community level.			

## 5. Project Name: ECO-OLEO

<b>Name:</b> GUELLATY Melik
<b>City, country:</b> Bouargoub -8040- NABEUL
<b>Name of entrepreneur/founder:</b> Melik GUELLATY
<b>Description:</b> Collection and recycling of used cooking oil from food industry
<b>Investment:</b> <i>Start up capital:</i> 141 000 Dinars <i>Rate of return on investment:</i> 50% <i>Sources of funding:</i> 30% Private Funds; 70% loans
<b>Stakeholders:</b> Shareholders : Customers: 100% export (Italy, Malta, Spain, other European countries...) Providers : Hotel chains Strategic partners : no European partnership (specify which kind?): no International partnership (other than European): no
<b>Timeline:</b> Date of Start up: 03/2006 Progresses up to 2011 : 100% increase of the turnover since the start up.
<b>Feasibility study:</b> The owner did not undertake a feasibility study but built his project based on the experience of similar business observed and studied in France and applied it to the Tunisian environment and priorities.
<b>Geo-social-economic setting:</b> where does the company operate: All over Tunisia and it is now opening an equivalent company in Morocco.
<b>Key words/Vision &amp; Mission of the company:</b> Collection and recycling of cooking oil that is used throughout the country by Hotel chains and restaurants to bring them in line with respect to the law 96-41 and ISO 14001 environmental certification standards.
<b>Strengths:</b> Sharp organization of the recycling collection and recycling awareness rising. Eco Oleo allows their clients (hotels and restaurants) to be in compliance vis-à-vis environmental international certification standards.
<b>Challenges and constraints:</b> Despite the clear regulatory framework, the owner experienced several problems at the beginning of his business venture mainly due to difficulties with the Former Ministry of Environment and the organization of local collectors.
<b>Direct activities and impacts:</b> <b>Social:</b> The Company is engaged in developing better living condition at the community level and of its employee's families. <b>Environmental:</b> Reduction of 1.200 tonnes per year of used cooking oil into the drainage systems and in the units of waste water treatment. <b>Economic:</b> Community development and creation of new jobs
<b>Use of innovative technologies:</b> None
<b>Evidence of a holistic approach/world view:</b> To achieve the goal of producing 100%biodiesel from used cooking oil, and thus contribute to create energy independence.

<p><b>Scale of benefits:</b> Despite the many difficulties encountered at the start up level Eco-Oleo succeeded in overcoming the constraints caused by an important informal market in the recycling process. The company collects used oils independently and directly from their clients (Hotel chains and restaurants) with which they stipulated annual collecting agreements.</p>
<p><b>Policies, incentives and regulations needed:</b> A better regulation could prevent the informal work to endanger the recycling sector. Several authorized small companies have already closed down due to the incidence of the informal market of collectors.</p>
<p><b>Lessons and recommendations:</b> Strong motivation, competence and innovative approaches are key factors to overcome the difficulties and to succeed in emerging sectors.</p>
<p><b>Contacts &amp; References:</b>  <b>Address, phone, E-mail &amp; fax :</b>  ZI BOUARGOUB 8040 NABEUL  Tel :+216 72 258 772  Fax : +216 72 258 661  Mob : +216 20 306 046  E-mail : <a href="mailto:melik.guellaty@eco-oleo.com.tn">melik.guellaty@eco-oleo.com.tn</a></p>

### Criteria of success

<b>Turnover:</b>	<b>Start up</b>	<b>Midway</b>	<b>2010</b>
In currency or %:	500 000 Dt	700 000 Dt	1 000 000 Dt
<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>	
<b>Start up :</b>	<b>8</b>	<b>3</b>	
<b>Midway :</b>	<b>15</b>	<b>7</b>	
<b>2010 :</b>	<b>28</b>	<b>7</b>	
<b>Overall motivation of the owner:</b>			
The Green Business has a brilliant future. It combines the creation of wealth while preserving the environment			
<b>Impact on the Environment:</b>			
Reduction of 1.200 tonnes per year of used cooking oil into the drainage systems and in the units of waste water treatment. These 1.200 tons of oil can produce 1200 tons of BIOFUEL (For 1 collected litre a car can run 10 km with 70% reduction of greenhouse gases)			
<b>Innovation generation:</b> The innovation lies in the process of biodiesel production and its use.			

**6. Project Name: ISOLROOF**

<b>Name:</b> ISOLROOF
<b>City, country:</b> Tunis, TUNISIA
<b>Name of entrepreneur/founder:</b> Mr Hatem Chebbi
<b>Description:</b> Negotiator and service provider in energy efficiency field in Tunisia and trade agent for the Maghreb region (Algeria, Tunisia and Lybia). Import of solar thermal and acoustic materials.
<b>Investment:</b> <i>Start up capital: 10 000 DT</i> <i>Rate of return on investment: 10 %</i> <i>Sources of funding: 100 % private funding</i>
<b>Stakeholders:</b> Shareholders: 100% of shares owned by the founder Customers: Individuals, households, real estate, industrial and entrepreneurs (in building sector). Providers: for extruded Polystyrene: Dow chemical (US) ; natural thermal isolation products, cellulose and expanded perlite : SITEC (FR) Strategic partners: None European partnership: Not for now, but we are looking for partnership in the field of the solar thermal. International partnership (other than European): None
<b>Timeline:</b> Date of Start up: 2009 Progresses up to 2011 : Not significant progresses
<b>Feasibility study:</b> The feasibility study demonstrated an important need in the local Tunisian market and the opportunity to offer a complete range of insulation products all related to the construction sector (both residential and industrial) in the market. On the other hand, the PROMO-isol program's (Incentive program conceived by the National Agency of Energy Conservation to promote thermal insulation) feasibility study showed that an insulation products market already exists in Tunisia and it can grow in a short period.
<b>Geo-social-economic setting:</b> Isolroof works on the whole territory of Tunisia and exports to Mali via the mediation of a French Company.
<b>Key words/Vision &amp; Mission of the company:</b> The aim of the owner is to upgrade to an industrial firm (to produce extruded polystyrene) thanks to a European/foreign partnership. Already, attempts have been made with some European partners but so far the owner could not find a serious partner who is willing to get involved in the Tunisian market.
<b>Strengths:</b> The primary strength of Isolroof relies on the technical skills of the founder. Isolroof is a small company with a flexible structure and able to adapt to technological and market changes. The strategic vision of the founder is clear: to upgrade into an industry, particularly the manufacturing of the extruded polystyrene in Tunisia. In the upcoming years, the insulation technology will be spread and become important as comfort factor in the residential sector.

<p><b>Challenges and constraints:</b>  The main challenge of Isolroof is to produce insulation products in Tunisia (mainly extruded polystyrene) since the import charges are very high. There is a lot of competition in the building sector and the new techniques are really hard to be adopted in the local market. The revolution of January 14<sup>th</sup> has delayed many businesses in the building sector and consequently affected the normal growth of markets of insulating products raw materials. Sensitization and communication are needed to convince the clients to use thermal insulation to obtain more comfort while saving energy, this needs a huge investment.</p>
<p><b>Direct activities and impacts:</b>  <b>Social:</b> 1 employment  <b>Environmental:</b> 750 m<sup>2</sup> of roof insulation using the new extruded polystyrene technique.  <b>Economic:</b> Advices given to many architectures on how to use the company's products. No quantitative data are available.</p>
<p><b>Use of innovative technologies:</b>  Isolroof participated in launching the new insulation technology in Tunisia extensively, i.e.: thermal insulation with extruded polystyrene. The use of the extruded polystyrene for insulation is a great deal when it comes to the ratio quality/price.</p>
<p><b>Evidence of a holistic approach/world view:</b></p>
<p><b>Scale of benefits:</b></p>
<p><b>Policies, incentives and regulations needed:</b>  We need more incentives as the removal of the import taxes on the used products (extruded polystyrene) in order to promote the technology. Tunisia needs to promote the extruded polystyrene production in Tunisia, not only for the local market, but for the Algerian and Lybian ones too.  This has been done before (tax advantages) for other insulating products like rockwool and it is very important to set the same incentive measure for the extruded polystyrene.  The establishment of a quality label is necessary in Tunisia in order to maintain a good quality of the insulating products and fair prices.</p>
<p><b>Lessons and recommendations:</b>  Important financial assets are needed in the field of thermal insulation.  The market is still conservative and not so ready for any new products and techniques.  A young green promoter with no assets will face many problems on the market of thermal insulation. A lot of credibility is needed in the market.</p>
<p><b>Contacts &amp; References:</b>  <b>Address, phone, E-mail &amp; fax :</b>  62, Ave de Carthage, Les jardins de Carthage, 2046 Sidi Daoud, Tunis.  P : +216 71 758 689  F : +216 71 758 690  E : <a href="mailto:commercial.isolroof@gmail.com">commercial.isolroof@gmail.com</a></p>

### Criteria of success

<b>Turnover:</b>	<b>Start up</b>	<b>Midway</b>	<b>2010</b>
<b>In currency or %</b>	<b>80 000 DT</b>	<b>180 000 DT</b>	<b>250 000 DT</b>
<b>Mais pour l'étanchéité et les adjuvants (pts locaux)</b>			

<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>
<b>Start up :</b>	<b>1</b>	<b>0</b>
<b>Midway :</b>		
<b>2010 :</b>	<b>2</b>	<b>4</b>
<b>Overall motivation of the owner:</b> The founder of ISOLROOF has started the company because of the opposite points of view with his former employer (Derbigum) who was reluctant to invest in insulation products. Thus, the founder decided to start his own company as he believes that insulation products have a great potential in the market.		
<b>Impact on the Environment:</b> No evaluation available		
<b>Innovation generation:</b> No evaluation available		

## 7. Project Name: PRO-CLEAN

<b>Name:</b> PROCLEAN
<b>City, country:</b> TUNISIA
<b>Name of entrepreneur/founder:</b> Wafa MAKHLOUF SAYADI
<b>Description:</b> The Company's core business is the collection of household wastes and the manual and mechanical cleaning of littoral areas.
<b>Investment:</b> <i>Start up capital:</i> 30 000 DT <i>Rate of return on investment:</i> <i>Sources of funding:</i> Private funds and conventional bank loans
<b>Stakeholders:</b> Shareholders : None Customers: Ministry of Environment Providers : None Strategic partners : None European partnership (specify which kind?): None International partnership (other than European): None
<b>Timeline:</b> Date of Start up: 2003 Progresses up to 2011: The company was at risk of closing down but succeeded in overcoming the difficulties by diversifying the service offer.
<b>Feasibility study:</b> The owner did not undertake a feasibility study. ProClean builds on the experience of the family business in Monastir (Tunisia) that operates in the field of waste collecting since 20 years.
<b>Geo-social-economic setting:</b> The company operates in Ben Arous, Grand Tunis
<b>Key words/Vision &amp; Mission of the company:</b> The family business in the environmental field inspired the owner to follow the path of her father and relatives and to create her own small company in the same field. A long tradition and an inherited capacity of matching business with the protection of environment
<b>Strengths:</b> Due to the experience and the long history of the family business, PRO-CLEAN can claim a significant knowledge environmental work as well as the different stakeholders operating in the sector.
<b>Challenges and constraints:</b> The owner experiences difficulties in accessing financial support and to emancipate from family support and private investment.
<b>Direct activities and impacts:</b> <i>Social:</i> Promote cleaner environment and cleaner cities. <i>Environmental:</i> Contribute to raise awareness of citizens in relation to environmental and waste management problems <i>Economic:</i> Increased turnover, employment creation for more people

<p><b>Use of innovative technologies:</b> Due to the difficulties encountered during the 3<sup>rd</sup> year of activity, the owner undertook a strategy of diversification and moved the core business from waste collection to littoral zones cleaning. The company is one of the few in Tunisia that uses mechanical cleaning machine.</p>
<p><b>Evidence of a holistic approach/world view:</b> Nature exists for the survival of all species and we must include them when we plan to become entrepreneurs.</p>
<p><b>Scale of benefits:</b> The owner encountered many constraints at the beginning due to the lack of financial aid from the State agencies despite it benefited of the 21-21 Fund dedicated to young entrepreneurs. Her strong motivation and will from one hand, and the opportunity to present the case of her company in front of the local administration allowed the company to survive and to still operate in diversified market niches.</p>
<p><b>Policies, incentives and regulations needed:</b> As a young entrepreneur, she experienced a number of constraints at the start up level and later to consolidate the business. She claims the absence of dedicated structures and financial supports and of the will to concretely help young entrepreneurs working in the field of waste collection.</p>
<p><b>Lessons and recommendations:</b> Build on her own experience she recommends that more financial incentives are allocated to develop small companies that can further create more workplaces.</p>
<p><b>Contacts &amp; References:</b> <b>Address, phone, E-mail &amp; fax :</b> 62 , Av 7 Novembre HAMMAM CHATT 1164 /Tel. 0021621407178 - fax:0021671410990 E-mail : <a href="mailto:proclean@topnet.tn/">proclean@topnet.tn/</a> <b>Other references:</b> Municipality of Hammam Chatt, SMSI, APAL, ANGED, ANPE <a href="http://www.maghreb-annuaire.com/annuaire/fr/proclean/societe-663982/">http://www.maghreb-annuaire.com/annuaire/fr/proclean/societe-663982/</a> <a href="http://www.cjd-tunisie.com/fr/index.php?rub=247&amp;srub=263">http://www.cjd-tunisie.com/fr/index.php?rub=247&amp;srub=263</a> <a href="http://www.pagesvertestunisie.com/entretien-espaces-verts.php?id=359">http://www.pagesvertestunisie.com/entretien-espaces-verts.php?id=359</a></p>

### Criteria of success

<b>Turnover:</b> In currency or %	<b>Start up</b> 65 000 DT	<b>Midway</b> 130 000 DT	<b>2010</b> 150 000 DT
<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>	
<b>Start up :</b>	<b>10</b>		
<b>Midway :</b>	<b>30</b>		
<b>2010 :</b>	<b>50</b>		
<b>Overall motivation of the owner:</b> To live in a clean country and to contribute to construction of a new culture respectful of nature and our environment.			
<b>Impact on the Environment:</b> Not evaluated			
<b>Innovation generation:</b> Continue research of more effective and more efficient forms of working.			



## 8. Project Name: ECOLOMAG

<b>Name:</b> EcoloMagTunisie
<b>City, country:</b> Sfax, Tunisia
<b>Name of entrepreneur/founder:</b> ATTAFI Mohamed
<b>Description:</b> Founded upon the wish to communicate the news in the field of ecology, environment and sustainable development, EcoloMagTunisie is the first magazine in Tunisia which seeks to further research and debate on the nexus between environment and development issues at local, national, regional, and international level. «EcoloMagTunisie» provides a platform that bridges the parallel debates among policy makers, attorneys, academics, business people, and NGO activists worldwide.
<b>Investment:</b> <i>Start up capital:</i> ≈4000 DT <i>Rate of return on investment:</i> <i>Sources of funding:</i> Private funds
<b>Stakeholders:</b> Shareholders : None <u>Customers:</u> Advertisers who seek to 'advertise' their environmental policy. Providers : None <u>Strategic partners:</u> <b>SweepNet</b> : The regional network of solid waste exchange of information and expertise in Mashreq and Maghreb regions; <b>United fashion for peace:</b> an event management group dedicated to raising awareness of the importance of ethnic artisans' work by organizing relevant activities and events; <b>GDA</b> : The Ecological Group for Sustainable Development Sidi Amor - Promoting Integrated Projects for Local Sustainable Development in the semi rural area and natural site of Sidi Amor. several associations. <u>European partnership:</u> <b>GIZ</b> : The <i>Deutsche Gesellschaft für Internationale Zusammenarbeit</i> (German Development Cooperation), « <b>Maison de France</b> ». <u>International partnership</u> (other than european): <b>AIESEC</b> : global youth organization
<b>Timeline:</b> Date of Start up: 15 April 2011 Progresses up to 2011 : Number of visit: 33.829 / Number of Page Views: 60.108 / New visitors: 77.36%
<b>Feasibility study:</b> EcoloMag carried out a survey on its audience to demonstrate that in Tunisia environmental issues are not given enough space in the media; to assess a concrete need and to explore market opportunities.
<b>Geo-social-economic setting:</b> MENA region and Africa, with particular emphasis on Tunisia
<b>Key words/Vision &amp; Mission of the company:</b> Ecology, Environment, sustainable Development, Nature, Biodiversity, Pollution, Renewable Energies... Perspectives : - Directory of various organizations working in the field; -«Green Shop» online: online sale of green products and bio; - produce documentaries and reports to promote ecotourism in the country; - produce a handbook for companies and industries such as a guide to adopt environmental policies.
<b>Strengths:</b> EcoloMag Tunisia strengths can be listed as follows: - leader in the media dedicated to the environment in Tunisia; - a broad network of contacts; - Motivated & dynamic the team; - Creative forward minded team of youth.

<p><b>Challenges and constraints:</b>  The basic challenge of EcoloMagTunisie is to be the major reference for information in the field of environment in the country. Our main constraints to achieve our goals are :  - funding sources in order to expand our activities;  - training in journalism;  - Skilled Human Resources</p>												
<p><b>Direct activities and impacts:</b>  <b>Social:</b> promote eco-citizenship  <b>Environmental:</b> raise the awareness of citizens in relation to environmental problems  <b>Economic:</b> Promote green entrepreneurship and concur in the creation of environmental employments</p>												
<p><b>Use of innovative technologies:</b>  The organizations works with - Web 2.0; - M/E-Marketing; - «Clean» technologies</p>												
<p><b>Evidence of a holistic approach/world view:</b>  Since 1970, the market of environment has undergone a rapid evolution. Limited to the original clearance, it has extended for ten years with the emergence, in most sectors of the economy, products and «clean» technologies. The 'environmental' market remains difficult in terms of statistical assessment due to the lack of standardized definition. Nevertheless, the United Nations Environment Programme (UNEP) estimates the market value in 1400 billion, or 2.5% of global GDP and may grow about 10% annually in the coming years strong mainly driven by new emerging sectors (renewable energy and energy efficiency).</p>												
<p><b>Scale of benefits:</b>  Provisional Budget: in TD</p> <table border="1"> <thead> <tr> <th>AN 1</th> <th>AN 2</th> <th>AN 3</th> <th>AN 4</th> <th>AN 5</th> <th>TOTAUX</th> </tr> </thead> <tbody> <tr> <td>419</td> <td>14 580</td> <td>10 930</td> <td>15 459</td> <td>17 484</td> <td>58 872</td> </tr> </tbody> </table>	AN 1	AN 2	AN 3	AN 4	AN 5	TOTAUX	419	14 580	10 930	15 459	17 484	58 872
AN 1	AN 2	AN 3	AN 4	AN 5	TOTAUX							
419	14 580	10 930	15 459	17 484	58 872							
<p><b>Policies, incentives and regulations needed:</b>  - Ensure intellectual property; - Get media-pass</p>												
<p><b>Lessons and recommendations:</b> None at the moment</p>												
<p><b>Contact &amp; References:</b>   <b>Address</b> Road Soukra Km 4 ElHabib City - Sfax Innovation- Tunisia  <b>Phone</b> (+216) 20 30 40 40 / (+216) 74 674 871  <b>E-mail</b> <a href="mailto:attafi.moh@gmail.com">attafi.moh@gmail.com</a> – <a href="mailto:ecolomagtunisie@gmail.com">ecolomagtunisie@gmail.com</a>  <b>fax</b> : (+216) 74 674 870  <b>website:</b> <a href="http://www.ecolomagtunisie.com">www.ecolomagtunisie.com</a>  Other references:  Tekiano - Shams Fm - TerDurable - Malika Benarab-Attou : Member of European Parliament, PNUD Tunisia, ANGED, ANPE</p>												

### Criteria of success

Provisional Budget: in TD					
AN 1	AN 2	AN 3	AN 4	AN 5	TOTAUX
419	14 580	10 930	15 459	17 484	58 872

<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>
<b>Start up :</b>	<b>6</b>	<b>9</b>
<b>Midway :</b>	<b>10</b>	<b>12</b>
<b>Overall motivation of the owner:</b> «If you want to achieve success as bad as you want to breath, then you will be successful», that's the main slogan which describe my motivation.		
<b>Impact on the Environment:</b> Operating to minimize the impact within an environmental Management		
<b>Innovation generation:</b> young entrepreneur surrounded by a young team whose average age is 25 years old.		

**9. Project name: DAR ZAGHOUAN, Eco Lodge**

<b>Name:</b> DAR ZAGHOUAN
<b>City, country:</b> Zaghouan, Tunisia
<b>Name of entrepreneur/founder:</b> Mr Skander ZRIBI
<p><b>Description:</b> Dar Zaghouan is an eco-lodge located in the region of Zaghouan, 45 minutes far from the capital Tunis. It comprises chalets, gardens and a traditional olive oil mill. Dar Zaghouan eco-lodge promotes green and agri-tourism.</p>
<p><b>Investment:</b> <i>Start up capital: 400 000 DT</i> <i>Rate of return on investment: 10 %</i> <i>Sources of funding: private fund</i></p>
<p><b>Stakeholders:</b> Customers: Companies located in the region, basically industries. Individuals and families (tunisians and expatriates). Tunisian companies who organize team building seminars, meetings and events. Providers : 90 % of the providers are located in the region of Zaghouan. Dar Zaghouan comprises also a farm producing fruits, olive oil, cheese, chicken and quails. 50 % of food is produced in the farm. European partnership: Travel Agency 'AMPLI Travel', located in France</p>
<p><b>Timeline:</b> Date of Start up: September 11<sup>th</sup> 2007 2007 : Visit of French TV channel 'France 2' 2009 : Visit of French tv channel 'France 5' 2009 : Launch of the polyvalent room 2010 : Opening of 3 new wood chalets and refurbishment of the traditional oil mill. 2011 : Visit of Tunisian TV channel 2011 : Visit of 2 Ministers (Minister of Culture and Minister of tourism) 2011 : Organization of a key event for the SEDIF (syndicat des agences de voyages françaises) 2011 : Start building a Canadian well to save electricity for cooling and heating. Waste water recovery system to be installed for irrigation.</p>
<p><b>Feasibility study:</b> A passion for nature is the driver motivation of the owner of Dar Zaghouan. At the beginning, the idea was to renovate the parents' house and to use it during the week-end. The idea of creating an eco-lodge followed the visit of a 'green' journalist who encouraged the project by writing an article on one of the most well known newspaper in Tunisia. In Tunisia, there are no eco-lodges and the owner wanted to start with an innovative project. The starting hypothesis relies on the need of people to live closer to nature and to consume natural and fresh products. The proximity of Tunis the capital (more or less 2 Million inhabitants) has been considered as an advantage.</p>
<p><b>Geo-social-economic setting:</b> Clients and visitors of Dar Zaghouan come from Tunis and other big cities, and from the governorate of Zaghouan (many companies from Zaghouan have organized events in Dar Zaghouan).</p>

<p><b>Key words/Vision &amp; Mission of the company:</b> Eco-lodge and Agro-tourism: Dar Zaghouan aims at providing its clients with a new vision of clean consumption and cleaner behavior in a more sustainable environment of life without jeopardizing the standards of comfort.</p>
<p><b>Strengths:</b> The architecture of the eco-lodge and the location in a mountainous and forested area. The landscape is very beautiful and the air very clean. Dar Zaghouan offers local and traditional food of excellent quality and a friendly, familiar environment.</p>
<p><b>Challenges and constraints:</b> The major constraint for the future is related to the extension of the city, which is coming closer to the eco-lodge. Too much houses are being built on the piedmont of the mountain. This phenomenon will affect the landscape and consequently people may look for other more natural areas. The founder of Dar Zaghouan owns other spaces far away from the city, but the investment will be too high to create another eco-lodge and to abandon the existing. The scarcity of underground water is another constraint to be probably faced in the future.</p>
<p><b>Direct activities and impacts:</b> <b>Socio-economic:</b> Dar Zaghouan contributed to provide local employment for the villagers (men and women) <b>Environmental:</b> Besides the awareness raising in favour of visitors, Dar Zaghouan uses solar water heaters and traditional agricultural techniques in respect of the environment.</p>
<p><b>Use of innovative technologies:</b> Dar Zaghouan uses renewable energy by installing solar water heaters in rooms. In addition, the owner is currently installing a Canadian well for natural cooling and heating of the chalets.</p>
<p><b>Evidence of a holistic approach/world view:</b></p>
<p><b>Scale of benefits:</b> Despite of the difficulties and constraints (lack of institutional public support) and the decrease of clients in 2011, due to the revolution of January 2011, Dar Zaghouan is considered as an interesting project on several levels: environmental, awareness raising, turn-over and jobs creation.</p>
<p><b>Policies, incentives and regulations needed:</b> According to the owner, the Ministry of Tourism should encourage more significantly the region of Zaghouan, mainly in the field of sustainable tourism, by promoting a sustainable natural resource management and protecting the landscape. In terms of financial incentives, there the sector needs to extend the fiscal incentives, as Zaghouan region is registered as a development zone, in which investments are excluded from VAT and other social taxes.</p>
<p><b>Lessons and recommendations:</b> The motivation of the promoter is crucial to overcome the constraints and the challenges that are to be faced at the launching phase of such projects in rural area. The emotional relationship of the founder to its motherland and to local traditions is an important aspect to pursue such a project.</p>
<p><b>Contact &amp; References:</b> <b>Address, phone, E-mail &amp; fax :</b> T : +216 24 309 309 E : darzaghouan@gmail.com <a href="http://www.darzaghouane.com">http://www.darzaghouane.com</a></p>

**Criteria of success**

<b>Turnover:</b> In currency or %	<b>Start up</b> 8000 DT	<b>Midway</b> 100 000 DT	<b>2010</b> 200 000 DT
<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>	
<b>Start up :</b>	<b>3</b>	<b>2</b>	
<b>Midway :</b>	<b>6</b>	<b>4</b>	
<b>2010 :</b>	<b>17</b>	<b>8</b>	
<b>Overall motivation of the owner:</b> Motivation is in the passion to make people happy and help them discovering the ancestral aspects of livelihood, local traditions and lifestyle.			
<b>Impact on the Environment:</b> Dar Zaghouan contributes indirectly to the awareness rising of visitors (adults and children) towards clean production, use of renewable energy and protection of the environment.			
<b>Innovation generation:</b> Dar Zaghouan is in itself an innovation because it was the first eco-lodge in Tunisia and in the region of Zaghouan. At management level, the employees (approx. 10) who started working during the launch of the project have been trained in the spirit of the sustainable development and nature protection, thus they become vehicles and messengers of sustainable development in the region: this is considered as well as an innovation in term of human resources management and development.			

**10. Project name: BECASSE**

<b>Nom:</b> BECASSE
<b>City, country:</b> Tunis /Tunisia
<b>Name of entrepreneur/founder:</b> Tarek NEFZI
<b>Description:</b> BECASSE is a company active in the field of : - Design and implementation of Nature trip, bird watching, mammal watching and tailor made safaris for small groups - Green courses and training classes in environmental education - Awareness rising activities in the field of environment, green courses, training and design of communication materials (CD, TV program, etc.)
<b>Investment:</b> <i>Start up capital:</i> 7000 DT <i>Rate of return on investment:</i> 35% <i>Sources of funding:</i> private funds
<b>Stakeholders:</b> Shareholders : 2 persons Customers: European and North american tours operators, Ecologists, Universities and schools, International cooperation programmes, TV producers Providers: Travel agencies in Tunisia, Editing companies (digital and printed), Experts and University teachers Strategic partners : General Directorate of Forest of Tunisia, National bureau of tourism of Tunisia, Ministry of National Education European partnership: PRP, Belgium company, Tours operators, NGOs active in the field of ecology and environment, Centres of environmental education, International cooperation agencies, such as GIZ International partnership (other than European): UNDP, UNOPS
<b>Timeline:</b> Date of Start up: 1997 2000: Staff cuts and reorganisation of the company 2003: capital increase and establishment of strategic partnership with a Belgium company
<b>Feasibility study:</b> The founder carried out a quick feasibility study prior to the launch of BECASSE. At that moment, the availability and access to information were too difficult. The founder considers himself as a 'risk taker' when he created BECASSE. Although the first years have been too tough for BECASSE to ensure its viability, some strategic adjustments allowed the company to evolve and be sustainable.
<b>Geo-social -economic setting:</b> BECASSE is working uppermost in North African region (Tunisia, Algeria and Morocco) but is trying to develop its activities to the African sub-Saharan and central region.
<b>Key words/Vision &amp; Mission of the company:</b> <ul style="list-style-type: none"> <li>▪ Ecotourism, ornithology, sustainable tourism, communication on environmental issues, green trips, eco museums.</li> <li>▪ Green tourism : nature cycling, trekking, etc.</li> </ul> Awareness rising to environmental issues.

<p><b>Strengths:</b>          BECASSE has a strong experience in design of Eco-museums (design of 4 eco-museums in Tunisia) and has realized several TV programs on ecology and environment in Tunisia (for BBC and National Geographic TV: 'Off the fence'). BECASSE has designed several eco tourist tours and expeditions to protected areas in Tunisia, Algeria and Democratic Republic of Congo.</p>
<p><b>Challenges and constraints:</b>          BECASSE is working on new kind of services in the field of sustainable tourism without any support of governmental bodies like the ONTT (Office National du Tourisme Tunisien). Through its activities, the company is trying to create new employments for graduate young people as natural guides, mainly those who studied 'life and earth sciences'.</p>
<p><b>Direct activities and impacts:</b>  <b>Social:</b> BECASSE intends to create new green jobs by integrating young people in the field of nature guiding.  <b>Environmental:</b> Though its activities, Becasse promotes biodiversity and ecosystems as source of income for local population.  <b>Economic:</b> Becasse promotes sustainable activities in the field of environment and ecology and also promotes fair trade as an added value to local population.</p>
<p><b>Use of innovative technologies:</b>          BECASSE uses new communication and marketing tools and approaches through the Internet.</p>
<p><b>Evidence of a holistic approach/world view:</b>          BECASSE uses an inter-cultural approach in designing any eco-trip, leading visitors to 'dive' into local tradition and customs. The company contributes to the protection of biodiversity and ecosystems throughout their economic added value (employments, incomes...)</p>
<p><b>Scale of benefits:</b>          Besides awareness raising towards children and adults on the importance of environmental issues and biodiversity, Becasse is considered as a very innovative company as it is the first and presumably the only company in Tunisia which organizes ecological tours.</p>
<p><b>Policies, incentives and regulations needed:</b>          According to the founder of BECASSE, Tunisia needs to be promoted as an eco touristy destination. At this purpose, the governmental bodies should train further the eco tourists' guides and establish a regulatory framework for professions like guides and eco trip designers. In addition, as the protected areas are totally under the control of the public institutions, companies like BECASSE needs a transparent framework allowing the establishment of public-private partnership towards the promotion and realisation of activities inside and around those protected areas.</p>
<p><b>Lessons and recommendations:</b>          The experience of BECASSE shows that Eco tourism in Tunisia could, simultaneously, generates sustainable income for local people, and preserve the ecosystems and the biodiversity.</p>
<p><b>Contact &amp; References:</b>  <b>Adresse :</b> 38 bis rue de Cologne 1002 Tunis, Tunisia  <b>Phone :</b> 0021671795957  <b>Fax :</b> 0021671285712  <b>E-Mail :</b> <a href="mailto:becasse@planet.tn">becasse@planet.tn</a></p>

### Criteria of success



<b>Turnover:</b>	<b>Start up</b>	<b>Midway</b>	<b>2010</b>
	50000 DT	80000 DT	110 000 DT
<b>In currency or %</b>			
<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>	
<b>Start up :</b>	02	10	
<b>Midway :</b>	08	25	
<b>2010 :</b>	04	15	
<b>Overall motivation of the owner:</b>			
Protection of nature through green employment			
<b>Impact on the Environment:</b>			
Awareness rising of local population towards the protection of the biodiversity throughout their involvement in protection activities.			
<b>Innovation generation:</b>			
BECASSE has created in Tunisia a new profession which is eco tourist trip designer.			

**11. Project Name : Changement Climatique et Développement Durable (2C2D)**

<b>Name:</b> Changement Climatique et Développement Durable (2C2D)
<b>City, country:</b> Tunis, Tunisia
<b>Name of entrepreneur/founder:</b> Mr Yadh Labbène, météorologue Expert CC, President/Meteorology expert in CC, CEO Mr Mahmoud Issa, Energy Expert Mrs Latifa Hania, Geographe Mr Mohamed Ktata, Former Director at the National Institute of Meteorology Mrs Ahlem Essayeb, Ministry of Industry and Technology
<b>Description:</b> The NGO, 2C2D aim is to sensitize and train on climate changes topics. It contributes to the national concern about the CC and implements projects in this field.
<b>Investment:</b> <i>Startup capital: 5 000 DT per year</i> <i>Rate of return on investment: not concerned</i> <i>Sources of funding: International Donors (GIZ, UNDP, GEF/ Small Grant Program, Private Companies).</i>
<b>Stakeholders:</b> Beneficiaries : general public, students Strategic partners : European partnership: GIZ (German technical cooperation agency) International partnership (other than European): Association des jeunes francophones – Canada
<b>Timeline:</b> Date of Start up: 2002 2005 : Organization of the first National Workshop on CC in Tunisia 2008 : Launching of foreign partnership with Canada 2010 : Launch of the first important micro-financing project GEF/UNDP (25 000 USD)
<b>Feasibility study:</b> When the founders started thinking about the creation of an active NGO In the field of CC, they found out that there were not others in the country and no sensitization and communication actions/programmes about the CC were addressing people. By creating a specialised NGO The founders wanted to fill this gap.
<b>Geo-social-economic setting:</b> where does the company operate All Tunisian territory (mainly Tunis, Nabeul, Bizerte, Sfax)
<b>Key words/Vision &amp; Mission of the company:</b> 2C2D hope is that the Tunisian society becomes more aware and participative in CC concerns. The association has the ability to debate about sensitive issues that the national institutions cannot cope. (e.g.: 2C2D can freely state that the donors' activities in the CC field are not coordinated) .
<b>Strengths:</b> The strengths of 2C2D rely on the high qualification of the founders and members who are all experts in the field of CC. Moreover, 2C2D is constituted by a small group of active and motivated people sharing experiences and competencies and works in solidarity.

<p><b>Challenges and constraints:</b> 2C2D faces many obstacles. First, the time given to the volunteers is never enough to fulfil all the goals. Amateurism is still a huge problem. The NGO looks up to professionalism by hiring highly qualified and full time staff, which is not the case currently. Also, 2C2D has many challenges to overcome in the near future, precisely, development of educational materials (for sensitization and training) related to the CC. 2C2D is also planning to develop a constructive position of the Tunisian civil society in the field of the CC.</p>
<p><b>Direct activities and impacts:</b> <b>Social:</b> Sensitization of young students to the CC (approx 300 students); Civil society: Mobilization of other NGOs concerning the CC, communication of international events at the national and regional level (Kyoto protocol and Copenhagen summit). <b>Environmental:</b> Improvement of the lighting system and creation of a green space in a high school.</p>
<p><b>Use of innovative technologies &amp; approaches:</b> As part of the sensitization activities, 2C2D organises competitions for young people (drawing, QCM...) with awards given to the best works. Also, the NGO organizes exchange workshops and debates on the CC's latest news (e.g.: talk shows ...)</p>
<p><b>Evidence of a holistic approach/world view:</b> CC's work theme is global, so it is obvious that the association is going to act on a global basis : we believe in the slogan 'think globally, act locally'.</p>
<p><b>Scale of benefits:</b> 2C2D is an NGO with non profit goal. The recognition of the NGO as one of the rare NGO working in the field of CC in Tunisia and the impact on its activities on the process of decision making is considered by the founder as an important benefit for the country.</p>
<p><b>Policies, incentives and regulations needed:</b> The new Law on associations that was adopted after 14<sup>th</sup> January, brought a lot of flexibility to our actions, which is an additional advantage for a young association like 2C2D. 2C2D has competencies to mobilize funds but suffers from a lack in the human resources, especially in availability to raise funds.</p>
<p><b>Lessons and recommendations:</b> Keeping an amateurism dimension does not allow an NGO to evolve; the associative environment in Tunisia has to become more professional since it is facing major problems: it has to be built on the past experiences, but the last 20 years of work were not all valued, Tunisian associations have malfunctioned and adopted some bad habits. One of the major problems is how the associative network is going to become a reliable and credible actor. There is a lack of experience as the Tunisian society is getting involved in democracy.</p>
<p><b>Contact &amp; References:</b> <b>Adress, phone, E-mail &amp; fax :</b> 106, Ave de Jugurtha, 1002 T : +216 71 844 143 E : <a href="mailto:Yadh.labbene@gmail.com">Yadh.labbene@gmail.com</a> - Website under construction</p>

### Criteria of success

<b>Expenditures:</b>	<b>Start up</b>	<b>Midway</b>	<b>2010</b>
<b>In currency or %</b>	<b>4000 DT</b>	<b>6000 DT</b>	<b>15 000 DT</b>

<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>
<b>Start up :</b>	<b>0</b>	
<b>Midway :</b>	<b>0</b>	
<b>2010 :</b>	<b>0</b>	
<b>Overall motivation of the owner:</b> The founder is motivated by more free spaces for expression and action, compared to the existent possibilities in public administration.		
<b>Impact on the Environment:</b> Awareness raising related to the impact of climate change on the environment, society and economy.		
<b>Innovation generation:</b> The innovation 2C2D generated is the approach used in direct and close sensitization of young people, which demonstrated positive impacts.		

**12. Project Name: Entreprise ABDA YACOUBI**

<b>Name:</b> Entreprise Abda Yacoubi
<b>City, country:</b> Tunis, Tunisia
<b>Name of entrepreneur/founder:</b> Mr Abda Yacoubi
<b>Description:</b> Logging and timber wood exploitation through tenders launched by General Directorate of Forests (for state owned forests). Selection, treatment and sawing of timber wood. Production of pallets for industry and wood coal for local market.
<b>Investment:</b> <i>Start up capital:</i> 350 DT <i>Rate of return on investment:</i> More than 100 % <i>Sources of funding:</i> private funding
<b>Stakeholders:</b> Shareholders: As a family business, the 7 shareholders (apart of the owner), are the children of the founder. Customers: STIBOIS (Tunisian company dealing with timber wood trade), carpenters, craftsmen working in fishing boats workshops. Providers : General Directorate of Forests, Office des terres domaniales, cooperatives. Strategic partners : None European partnership (specify which kind?): None International partnership (other than European): None
<b>Timeline:</b> Date of Start up: 1969 1984: Extension of the vehicles fleet (cars, trucks, engines) 1998: Launch of the pallets plant.
<b>Feasibility study:</b> Many members of the family owner have worked in the field of timber wood and production of wood coal. The founder started working with his brother in producing and selling of wood coal and progressively, begun to invest in timber wood exploitation through participation in tenders. The founder described himself as a self-made man who built his business throughout experiences and also mistakes. He has never realized a real feasibility study before launching his business.
<b>Geo-social-economic setting:</b> where does the company operate The company works in many regions of Tunisia, basically where the forests are (Kasserine, Ain Draham, Kelibia, Dar chichou...). The main type of wood exploited is Eucalyptus and pine trees.
<b>Key words/Vision &amp; Mission of the company:</b> Forest, timber wood exploitation, wood coal, processing of pallets. The founder defines the mission of his business as a contributor to the maintenance and conservation of forests throughout a rational exploitation respecting technical rules and conditions.

**Strengths:**

Skills of the owner in assessing the profitability of timber wood potentialities of forests before participating to invitations to tender or bids. Also, the financial capacity is one of the strength of the company, making it able to participate to important bids related to timber wood exploitation (sometimes hundreds hectares of forests). Finally, the founder owns an important fleet of vehicles, trucks, engines and sawing machines, allowing his company to start logging and exploitation of timber wood rapidly and efficiently, which is a huge advantage compared to competitors' capacities.

**Challenges and constraints:**

Many competitors who participate to bids contribute ineffectively to the increase of the price offers without making a right assessment of the profitability of one forest. Thus, sometimes, the company is obliged to win bids without any profit, but for the only reason to satisfy the customers demand for pallets.

In addition, the forest roads are presently deteriorated. This bad infrastructure affects the company productivity and profitability because of difficulties met to access to the forest areas. In addition, the forest guards are very strict about logging techniques and rules, things which slow down the progress of any operation.

**Direct activities and impacts:**

**Social:** Employment generation locally and regionally.

**Environmental:** Forest exploitation according to sustainable rules and techniques.

**Economic:** The company contributes to improve the income of local people living in forest areas who come usually from low income households.

**Use of innovative approaches:**

No particular innovation used

**Evidence of a holistic approach/world view:**

Apart its contribution to the sustainable natural resource management, mainly in the forest area, the company has not actually a concrete vision to the future.

**Scale of benefits:**

The company growth is very satisfying during the 80's and 90's, however the turn over is currently stabilized and there is the need to upgrade to further new productive technologies.

**Policies, incentives and regulations needed:**

There is a need to alleviate the responsibility of the companies working in forest and wood exploitation; otherwise, the business will not be viable. For example, any company exploiting timber wood by logging is responsible for any degradation in an area of about 100 meters around the site (in case of fire for example). This rule obliged such companies to hire additional employees as guards and make any operation less profitable.

**Lessons and recommendations:**

Logging and timber wood activity is becoming less profitable compared to 10 or 20 years ago. Many regulations adopted make the activity of forest exploitation less profitable. For instance, the obligation to clean up the forest from residual wood or 'dead wood' and its transportation out of the forest because of the fire risk.

**Contact & References:****Address, phone, E-mail & fax :**

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**Criteria of success**

<b>Turnover:</b> In currency or %	<b>Start up</b> 100 DT	<b>Midway</b> # 50 000DT	<b>2010</b> # 50 000 DT
<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>	
<b>Start up :</b>	4	-	
<b>Midway :</b>	30	-	
<b>2010 :</b>	30	-	
Occasional jobs created in 2010 : 1050 working days			
<b>Overall motivation of the owner:</b>			
The founder is motivated to continue working in the field of forest exploitation because of his skills and experience. He aims at perpetuating his family profession.			
<b>Impact on the Environment:</b>			
The company is contributing to the exploitation of forests in a sustainable way respecting rules and techniques fixed by the forest code and specification documents. The company applies all technical conditions to allow the regeneration of forests.			
<b>Innovation generation:</b>			
The low profitability does not allow the company to acquire new technology (equipments and machinery) which are very expensive and must be imported.			

**13. Project Name: ACTION Sarl**

<b>Name:</b> ACTION Sarl
<b>City, country:</b> Gafsa, Tunisia
<b>Name of entrepreneur/founder:</b> Mr Néji AMAIMIA
<b>Description:</b> Studies and consulting in the field of energy, environment and management systems (environmental, security, quality and energy conservation management systems).
<b>Investment:</b> <i>Start up capital: 50 000 DT</i> <i>Rate of return on investment: + de 100 %</i> <i>Sources of funding: private funding</i>
<b>Stakeholders:</b> Shareholders: 20% of shares owned by another individual shareholder. Customers: Tunisian Ministries (Industry and Technology, Agriculture and environment, Training and employment); Public institutions (Société Tunisienne d'Electricité et du Gaz, Société Nationale des Chemins de Fer Tunisiens); Private firms (Group Carrefour, Group One Tech, Group Hmila, Group POULINA, etc) ; International cooperation agencies and donors (GIZ, AFD, UE, German Ministry of Environment, etc.) ; German private firms (SOLAR 23, Fraunhofer Institute, etc.). Providers : None Strategic partners : GIZ European partnership (specify which kind?): DEFIC (Consulting German firm working in the fields of renewable energy and energy efficiency); PROFEC (German private firm specialized in wind energy). International partnership (other than European): None
<b>Timeline:</b> Date of Start up: 2008 2009: have signed an important contract with Group Carrefour on energy conservation in all tunisian malls held by Carrefour. Some energy conservation measures identified have been also applied at the Carrefour France. 2009: Assignment with SOLAR 23 to develop renewable energy in 24 African countries. 2009: Start of international missions in Germany, France, The Netherlands, Spain, Belgium, and Morocco...
<b>Feasibility study:</b> The feasibility study realized before the launch of the ACTION Sarl has identified local and even international needs for expertise in the field of energy conservation. Besides that, the founder was motivated to start an experience in the private sector (as he was a high responsible in the public administration) where he could be able to bring additional technical know-how to private companies such as industries. The founder decided then to leave the field of projects' management and to move to the technical input as a consulting firm.
<b>Geo-social-economic setting:</b> where does the company operate ACTION Sarl works in all regions of Tunisia and in many fields such as the agriculture, infrastructure, industry, training and employment.
<b>Key words/Vision &amp; Mission of the company:</b> The vision of ACTION Sarl is to participate to the development of energy conservation in Africa in order to create new markets because there is a huge need in African countries to integrate energy conservation measures and environmental aspects in the economy.



**Strengths:**

According to the founder, the diversity of the customers' portfolio of ACTION Sarl is one of the reasons for its success, basically by looking for international customers and developing the export of services. ACTION Sarl is also works in 2 innovative fields (energy and environment) in Tunisia that allows capturing new opportunities in emerging markets. The consulting activities and the training activities of ACTION Sarl are 2 complementary activities. For example, though consulting missions in the field of energy conservation, ACTION Sarl proposes training programs for internal auditors based on IRCA standard (International Registered Credited Auditors).

**Challenges and constraints:**

Sometimes, ACTION Sarl is facing unfair competitiveness that emerges through non profitable prices offered by competitors with low qualification. In addition, the adjudication system in Tunisia gives advantage to the so-called 'best offer', means the lowest one in term of financial offer.

The issue of export, especially to African countries, is also restrictive, because projects are funded by the EU and as a Tunisian consulting firm ACTION Sarl is legally required to cooperate with European firms and cannot participate as a leading company.

**Direct activities and impacts:**

**Social:** Jobs creation following the implementation of energy conservation measures resulting from the action plans proposed to enterprises.

**Environmental:** Many companies in Tunisia, Morocco and Algeria have been certified in the environmental management ISO 14001 norm and succeeded to reduce pollution.

**Economic:** Many companies have benefit from our studies and action plans to improve competitiveness. ACTION Sarl also trained and accredited around 100 young people who become able to launch small enterprises in the field of energy conservation.

**Use of innovative approaches:**

In training activities, ACTION Sarl uses and applies practical tools and instruments based on the newest technologies. In the field of studies, ACTION Sarl uses participatory approaches, involving as much as possible a wide range of stakeholders concerned by one issue. This kind of methods ensures credibility and reliability to our outputs.

**Evidence of a holistic approach/world view:**

ACTION Sarl is contributing through its network to provide advice in 24 African countries where projects on energy conservation are being held. Besides that, many innovative projects in the field of applied research (in cooperation with the EU) are being implemented with the contribution of ACTION Sarl, such as water desalination using renewable energy).

**Scale of benefits:**

ACTION Sarl works on the macro, meso and micro levels. The most important impact generated through the company is levelled at the macro strategic level, through advices provided to decision makers.

**Policies, incentives and regulations needed:**

The regulatory framework in the field of energy conservation needs to be more attractive to private investors, which would create consequently additional markets in the consulting field. In the environmental field, as well, there is a need to boost the local market further by encouraging the end users through fiscal advantages and subsidies.

**Lessons and recommendations:**

Diversify the portfolio is the key of success in the field of consulting. One should never work in a sole economic field. Additionally, developing networks of multidisciplinary expertise is of a high added value to succeed in consulting, because customers need more and more global solutions to problems they are facing.

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Mobile : +216 98 356936 [Neji.Amaimia@action.com.tn](mailto:Neji.Amaimia@action.com.tn) ou [info@action.com.tn](mailto:info@action.com.tn)**Criteria of success**

<b>Turnover:</b> In currency or %	<b>Start up</b> 50 000 DT	<b>Midway</b> CA 150 000 DT	<b>2010</b> CA 200 000 DT
<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>	
<b>Start up :</b>	1	12	
<b>Midway :</b>	1	15	
<b>2010 :</b>	1	20	
<b>Overall motivation of the owner:</b> The owner wants to be up to date on strategies and technology development related to the energy conservation and environmental issues. By working in close cooperation with international donors and agencies, he believes he can improve his knowledge and skills continuously in order to achieve his goals.			
<b>Impact on the Environment:</b> ACTION Sarl is contributing indirectly to the protection of environment, basically through helping private companies implementing environmental management system and energy conservation measures.			
<b>Innovation generation:</b> As innovation, ACTION Sarl conceived a training session in the field of grid connected photovoltaic technology, which becomes a standard training used by other partners and other consulting firms. Another innovation concerns a methodology elaborated to identify energy conservation needs and action plans to save energy.			

**14. Project Name: Club Faune et Flore Méditerranéenne**

<b>Name:</b> Club Faune et Flore Méditerranéenne
<b>City, country:</b> Tunis, Tunisie
<b>Name of entrepreneur/founder:</b> Dr Adib Samoud, Dr Olfa Abid
<b>Description:</b> To sensitize and inform Tunisians, children and adults, by involving them in actions of environmental protection, preservation and development of plant and animal species in danger through studies such as sampling, measurements etc. In the medium term the CFFM wishes to develop an educational program designed to promote and protect the natural reserves of our country and the wealth of the local populations. In the long term, to integrate some animals species like the donkeys in projects of eco-tourism, eco leisure, farmhouses, or like the Sloughi in traditional breeding programs for export. The association also plans to participate in the protection of our forest and coastal eco-tourism through our core programs.
<b>Investment:</b> <i>Start up capital:</i> 0 <i>Rate of return on investment:</i> We can only finance our activities with no other return <i>Sources of funding:</i> Memberships of 20td/each, sponsoring of vet labs, 'adoption' of donkeys campaign
<b>Stakeholders:</b> Shareholders : Veterinary labs Customers : none Providers : none Strategic partners: none European partnership (specify which kind?): the NGO applied in some international calls and they are waiting for project approvals. International partnership (other than european): none
<b>Timeline:</b> <b>Date of Start up:</b> le club faune et flore a u le jour en 2005 sous l'initiative de Dr Adib Samoud, pour être crée officiellement sous la tutelle l'ACAM en juin 2010 et complètement indépendant depuis septembre 2011 Progresses up to 2011 Juin 2010 : Save the Donkey Campaign Cap Bon Septembre 2010 : Save the donkey campaign kerKena Novembre 2010 : Save the forest campaign Ain Drahem Novembre 2010 : Save the sloughis Gisla Ghardimaou Décembre 2010 : Save the sloughis Douz. Voluntary vet camp. Juin 2011 : Save our beaches Bizerte Septembre 2011 : March for the e pour le reforestation of Dar Chichou Hammam El Ghzaz wood (region of Nabeul) Septembre 2011 : Save the donkeys CapBon Octobre 2011 : Round table «Le sloughi dans notre patrimoine culturel» 23Décembre 2011: Save the sloughis ANA SLOUGHI ASLI TOUNSI. Vet camp at the international festival of the Sahara

<p><b>Feasibility study:</b> The founders of the NGO are not professionals and at the beginning it was difficult to launch the association. Now, we act in a timely manner, we carry out field studies to identify areas in which donkeys are most in need, or where the donkey is still the means of transport for goods timber and water. We also identify regions, or the traditions, where the Sloughi still exists and we create the events.</p> <p>At the beginning, to express our passion and our hearts was enough to feel we were doing something good, but now we hope to be accompanied by other NGOs that can help us by initiating projects to give more value to the donkeys and make them even profitable for reproduction and integration into environmental projects, or the creation of donkey farms. We also wish to save the Sloughi the greyhound of the desert from extinction, by integrating it into a program of breeding for export or for ecological and equitable hunting instead of unsustainable hunting practises or massacres with rifles. We recognize the importance of the commitment of volunteers in reforestation actions (save forests), beach cleaning actions (save our beaches) also as a way to raise awareness, to change attitudes and to prevent such environmental disasters.</p>
<p><b>Geo-social-economic setting:</b> where does the company operate Cap Bon, kerkhena, Douz, Ghardimaou</p>
<p><b>Key words/Vision &amp; Mission of the company:</b> Donkey, sloughi, fauna, flore, environment, heritage, culture. The mission of the NGO is to save the natural heritage of the country and to protect the species in danger.</p>
<p><b>Strengths:</b> The enthusiasm of volunteers, the friendly welcoming of local populations and the involvement of children</p>
<p><b>Challenges and constraints:</b> The areas in which the club FFM operates are not easily accessible: Means for travels and housing for volunteers are required.</p>
<p><b>Direct activities and impacts:</b> <i>Social:</i> Club FFM conducts its activities in disadvantaged areas (the donkey is the horse of the poors, the Sloughi is the companion of the Bedouin, the forest is the source of life of for forest areas ...) <i>Environmental:</i> Club FFM with actions save the beaches and save the forests <i>Economic</i> The FFM club would like to participate in the launch of environmental projects including the donkey, the Sloughi and forests to improve the income of local populations</p>
<p><b>Use of innovative technologies:</b> Club FFM provides actions, models and samples of the data to the National School of Veterinary Medicine and Veterinary Research Institute to conduct research work</p>
<p><b>Evidence of a holistic approach/world view:</b> Our vision of the world is not to develop big urban cities, or to cut off history. We do not want homologation but bio-diversity. We want to give life to authentic villages, the save the rituals and the habits of the inhabitants, simple and dignified lifestyle where each person contributes to perpetuating a unique heritage in its kind.</p>
<p><b>Scale of benefits:</b></p>
<p><b>Policies, incentives and regulations needed:</b></p>
<p><b>Lessons and recommendations:</b> More sensitivity towards the importance of certain species of animals for the lives of rural people. Often, animals are only seen as such and not for the work they produce and the traditions they contribute to perpetuate and protect.</p>

**Contact & References:****Address, phone, E-mail & fax :**

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T : +216 71 71 90 19

E : [cffm@gmail.com](mailto:cffm@gmail.com)**Criteria of success**

<b>Turnover:</b> <b>In figures or %</b>	<b>Start up</b>	<b>Midway</b>	<b>2010</b>
The NGO does not have any revenue from its actions. They only can manage what is necessary to implement its actions and campaigns.			
<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>	
<b>Start up :</b>			
<b>Midway :</b>			
<b>2010 :</b>			
Only volunteers are currently engaged in the NGO			
<b>Overall motivation of the owner:</b>			
A passion towards Flore & Faune and a strong will to solicit the need of change in behavior and attitudes towards natural resources.			
<b>Impact on the Environment:</b> Not yet evaluated.			
<b>Innovation generation:</b> The fact that we are engaged in a niche that is underestimated in importance and basically unknown.			

**15. Project Name: ECHAJARA ETTAIBA**

<b>Name:</b> Echajara Ettaiba
<b>City, country:</b> Grombalia, Tunisia
<b>Name of entrepreneur/founder:</b> Mr Khelifi Aboulkacem
<b>Description:</b> Production of fruit seedling, ornamental trees, olives and citrus fruits
<b>Investment:</b> <i>Start up capital: 10 000 DT</i> <i>Rate of return on investment: 25%</i> <i>Sources of funding:</i> Private funding
<b>Stakeholders:</b> Shareholders: KHELIFI Slaheddine (Brother of the founder) Customers: public and private bodies, banks, communities. Providers: Foreign providers of seedling from Netherlands, Italy and Spain. Strategic partners : Farmers and private farming companies European partnership (specify which kind?): None International partnership (other than European): None
<b>Timeline:</b> Date of Start up: 2004 : The farm started with citrus fruits production 2005 : Starting of ornamental trees production 2006 : Starting of olives production 2010 : Launching of landscaping activities
<b>Feasibility study:</b> The feasibility study has showed an acceptable profitability of the project through a market study. The study focused also on the competitors and the positioning of the company on the market.
<b>Geo-social-economic setting:</b> The company provides public and private bodies in all regions of Tunisia and has developed its market to Libya.
<b>Key words/Vision &amp; Mission of the company:</b> Production of seedlings and technical assistance in the field of landscaping.
<b>Strengths:</b> The company focuses on the quality of its products and the use of recent and efficient technology. The proximity of the customers and a demand driven approach is also considered as strength of the company.
<b>Challenges and constraints:</b> In the Tunisian market, there are big companies producing seedlings. Those ones have 'monopolized' the market because of special relationship they have developed with the political sphere. Thus, before the revolution of January 2011, all tenders have been won by those big companies. Currently, it is changing towards more transparency and honest competitiveness. Besides that, we are facing some problems with municipalities who pay our services and products with an important delay, causing a shortage of cash liquidity for the company. Finally, we are facing the problem of the lack of qualified work force because of the important presence of industries in the Cap Bon region. Sometimes, we invest to train workers, who rapidly quit our company. It is a special case in the Cap Bon region: despite of the unemployment rate in the country, the region is still economically very dynamic.

<p><b>Direct activities and impacts:</b>  <b>Social:</b> jobs creation in the region  <b>Environmental:</b> The main activity of the company is related to environment (production of seedling, forestation, recycling activities on the farm is also implemented).  <b>Economic:</b> Contribution to a better production and profitability of our customers (citrus fruits, olives...) through a high quality seedlings and technical assistance provided.</p>
<p><b>Use of innovative approaches:</b>  Use of drip irrigation. Use of compost produced locally. Development of an automatic controlled temperature hothouse.</p>
<p><b>Scale of benefits:</b>  The company is contributing to a greener world through producing seedling and trees for ornamental and agricultural purposes. The turnover of the company is increasing annually showing that this kind of green project is viable and useful for the society and for the nature.</p>
<p><b>Policies, incentives and regulations needed:</b>  There is a need to organise the seedling producers in a kind of association to upgrade our performance and access to bigger markets abroad throughout cost reduction (we could for example reduce the costs of transport and supply). It is also necessary to alleviate administrative procedures to easily access to the subsidies allocated; otherwise, young promoters without private funds will be discouraged to extend their projects.  We have also a huge financial problem in importing seedling, because of the limitation imposed by the BCT (Banque Centrale de Tunisie) in term of advance payment to international companies. The latter request sometimes the entire payment of the products ordered, while the BCT procedures allow only a partial payment in currency.</p>
<p><b>Lessons and recommendations:</b>  The most important lesson learned to be successful in the field of seedling production is to be innovative. The utilization of new technology (such as the drip irrigation) to improve quality of the products and profitability is crucial, notably when the work force is not well trained.</p>
<p><b>Contact &amp; References:</b>  <b>Address, phone, E-mail &amp; fax :</b>  Address : Rue Malek Ibn Anes Grombalia, Tunisie  Phone : +216 72 212 655  E-mail : <a href="mailto:cid_tunisie@topnet.tn">cid_tunisie@topnet.tn</a>  Fax : +216 72 212 908  <a href="http://www.echajaraettaiba.com">www.echajaraettaiba.com</a></p>

### Criteria of success

<b>Turnover:</b> In currency or %	<b>Start up</b> 20 000 TND	<b>Midway</b> 150 000 TND	<b>2010</b> 400 000 TND
<b>Employment generation:</b>	<b>Direct</b>	<b>Indirect</b>	
<b>Start up :</b>	1	0	
<b>Midway :</b>	5	10	
<b>2010 :</b>	30	30	

**Overall motivation of the owner:**

By launching its company, the founder was motivated by his own education as an agro-economist engineer combined to the market potentiality in the private and public sectors. Beyond that, the founder has the will to develop a clean business, bringing an «additional benefits and impacts to the planet». As he was born in a rural and green area, he said: «even if we lose in term of turn-over, at least, birds will have something to eat and survive from our project, and they are welcome»!

**Impact on the Environment:**

Annually, Echajara Ettaiba produce and sell an average of 150 000 seedling and trees in Tunisia.

**Innovation generation:**

The founder of Echajara Ettaiba introduced the drip irrigation and proceeded to the utilization of compost. For that purpose, the company bought a grinder with their own funds. Additionally, the company produced its own automatic controlled temperature hothouse, because it is very expensive on the market.



## Annex 2 ROME DIRECTORY EXAMPLES OF GREEN JOBS <sup>58</sup>

**Liste des ROME VERT et appellations identifiés comme verts par l'Observatoire national des emplois et métiers liés à la croissance verte (janvier 2011)**

ROME VERTS	APPELLATION DU ROME	TYPE
<b>A1202 - Entretien des espaces naturels (Vert)</b>	Agent / Agente d'aménagement des circuits pédestres, équestres et Vtt	Verte
	Agent / Agente d'aménagement des haies et fossés	Verte
	Agent / Agente d'entretien de la nature	Verte
	Agent / Agente d'entretien de l'espace rural	Verte
	Agent / Agente d'entretien des espaces naturels	Verte
	Agent / Agente d'entretien des rivières	Verte
	Agent / Agente d'entretien nature du littoral	Verte
	Chef d'équipe d'entretien d'espaces naturels	Verte
	Ouvrier / Ouvrière d'entretien des espaces naturels	Verte

<sup>58</sup> Source : <http://www2.pole-emploi.fr/espacecandidat/romeligne/RliIndex.do>

ROME VERTS	APPELLATION DU ROME	TYPE
<b>A1204 - Protection du patrimoine naturel (Vert)</b>	Agent / Agente technique des parcs nationaux	Verte
	Agent chargé / Agente chargée de protection et de sauvegarde du patrimoine naturel	Verte
	Eco garde	Verte
	Garde de parc naturel	Verte
	Garde du littoral	Verte
	Garde forestier / forestière	Verte
	Garde moniteur / monitrice de parc national	Verte
	Garde moniteur / monitrice de parc naturel	Verte
	Garde national / nationale de la chasse et de la faune sauvage	Verte
	Garde technicien / technicienne de réserve naturelle	Verte
	Garde-chasse	Verte
	Garde-pêche	Verte
	Garde-rivière	Verte
	Technicien / Technicienne cynégétique	Verte
	Garde-chasse particulier / particulière	Verte
	Garde-pêche particulier / particulière	Verte
	Animateur / Animatrice en sécurité du travail	Verte
	Contrôleur / Contrôleuse de sécurité en risques industriels	Verte
	Technicien / Technicienne en analyse de pollution	Verte
	Technicien / Technicienne en environnement industriel	Verte
	Technicien / Technicienne en environnement, sécurité et conditions de travail	Verte
	Technicien / Technicienne en génie sanitaire en industrie	Verte
	Technicien / Technicienne en hygiène et environnement	Verte
	Technicien / Technicienne en Hygiène, Sécurité, Environnement industriel -HSE-	Verte
	Technicien / Technicienne en prévention des risques industriels	Verte
	Technicien / Technicienne en radioprotection	Verte
Animateur / Animatrice sécurité environnement	Verte	
Technicien / Technicienne en sécurité industrielle	Verte	
Technicien / Technicienne en risques technologiques	Verte	

ROME VERTS	APPELLATION DU ROME	TYPE
<b>K2303 - Nettoyage des espaces urbains (Vert)</b>	Agent / Agente anti-graffiti	Verte
	Agent / Agente de collecte de déchets	Verte
	Agent / Agente de déchets urbains et industriels	Verte
	Agent / Agente de déchetterie	Verte
	Agent / Agente de lutte contre les pollutions visuelles	Verte
	Agent / Agente de nettoyage d'espace urbain	Verte
	Agent / Agente de propreté urbaine	Verte
	Agent / Agente de propreté, de nettoyage et de collecte	Verte
	Agent / Agente de salubrité	Verte
	Agent / Agente d'entretien d'espaces publics	Verte
	Agent / Agente d'entretien du domaine public	Verte
	Agent / Agente d'entretien et de nettoyage urbain	Verte
	Agent / Agente d'hydrogommage	Verte
	Ambassadeur / Ambassadrice du tri	Verte
	Balayeur / Balayeuse	Verte
	Balayeur urbain / Balayeuse urbaine	Verte
	Chef d'équipe du nettoyage d'espace urbain	Verte
	Conducteur / Conductrice de balayeuse	Verte
	Conducteur / Conductrice de moto crotte	Verte
	Conducteur / Conductrice d'engins légers de nettoyage	Verte
	Eboueur / Eboueuse	Verte
	Eboueur principal / Eboueuse principale	Verte
	Equipier / Equipière de collecte de déchets	Verte
	Gardien / Gardienne de déchetterie	Verte
	Ouvrier / Ouvrière d'entretien propreté	Verte
	Ramasseur / Ramasseuse d'ordures ménagères	Verte
Ripeur / Ripeuse	Verte	
Technicien / Technicienne du nettoyage et de l'assainissement	Verte	
Agent / Agente d'entretien des quartiers	Verte	

ROME VERTS	APPELLATION DU ROME	TYPE
<b>K2304 - Revalorisation de produits industriels (Vert)</b>	Agent / Agente de récupération et de recyclage	Verte
	Agent / Agente de traitement des déchets	Verte
	Agent / Agente de tri des déchets	Verte
	Agent / Agente de tri des matériaux	Verte
	Opérateur / Opératrice de tri en récupération et revalorisation	Verte
	Ouvrier / Ouvrière de recyclage électroménager	Verte
	Récupérateur / Récupératrice	Verte
	Récupérateur / Récupératrice de métaux	Verte
	Recycleur / Recycleuse	Verte
	Ressourcier / Ressourcière	Verte
	Trieur / Trieuse de linges	Verte
	Trieur / Trieuse de métaux	Verte
	Trieur / Trieuse de palettes	Verte
	Trieur / Trieuse de textiles usagés	Verte
Valoriste	Verte	

**ROME DIRECTORY  
EXAMPLES OF GREENING  
(GREEN SHADED) JOBS**

**Liste des ROME VERDISSANT et appellations identifiés comme verts ou verdissants par l'Observatoire national des emplois et métiers liés à la croissance verte (janvier 2011)**

ROME VERDISSANT	APPELLATION DU ROME	TYPE
<b>A1203 - Entretien des espaces verts (Verdissant)</b>	Agent / Agente d'entretien des parcs et jardins	Verdissante
	Chef d'équipe d'entretien des espaces verts	Verdissante
	Chef d'équipe paysagiste	Verdissante
	Jardinier / Jardinière	Verdissante
	Jardinier / Jardinière d'espaces verts	Verdissante
	Jardinier / Jardinière paysagiste	Verdissante
	Ouvrier / Ouvrière d'entretien des espaces verts	Verdissante
	Ouvrier / Ouvrière des espaces verts	Verdissante
	Ouvrier / Ouvrière du paysage	Verdissante
	Ouvrier / Ouvrière paysagiste	Verdissante
Technicien / Technicienne paysagiste	Verdissante	
<b>F1610 - Pose et restauration de couvertures (Verdissant)</b>	Bio-ingénieur / Bio-ingénieure	Verte
	Chargé / Chargée de mission en agriculture	Verdissante
	Chargé / Chargée de recherche en agriculture	Verdissante
	Chef d'équipe de couvreurs	-
	Couvreur / Couvreuse	-
	Couvreur / Couvreuse de chaume	-
	Couvreur / Couvreuse en monuments historiques	-
	Couvreur ardoisier / Couvreuse ardoisière	-
	Couvreur charpentier / Couvreuse charpentière	-
	Couvreur ferblantier / Couvreuse ferblantière	-
	Couvreur lauzier / Couvreuse lauzière	-
	Couvreur poseur / Couvreuse poseuse de panneaux solaires	Verdissante
	Couvreur tuilier / Couvreuse tuilière	-
	Couvreur zingueur / Couvreuse zingueuse	-
	Monteur / Monteuse de panneaux photovoltaïques	Verdissante
Zingueur / Zingueuse	-	

ROME VERDISSANT	APPELLATION DU ROME	TYPE
<b>G1102 - Promotion du tourisme local (Verdissant)</b>	Agent / Agente de promotion touristique	-
	Agent / Agente de valorisation du patrimoine	
	Animateur / Animatrice du patrimoine	-
	Animateur / Animatrice sur la promotion du patrimoine	-
	Animateur promoteur / Animatrice promotrice du patrimoine	-
	Chargé / Chargée de mission tourisme	-
	Chargé / Chargée de promotion des espaces naturels	Verte
	Chargé / Chargée de promotion du patrimoine	-
	Chargé / Chargée de promotion du tourisme local	-
	Chargé / Chargée de promotion touristique	-
	Chargé / Chargée de valorisation de sites touristiques	-
	Chef de projet de promotion touristique	-
	Chef de projet tourisme	-
	Directeur / Directrice de parc régional	Verte
	Directeur / Directrice de pays d'accueil touristique	-
Directeur / Directrice d'office du tourisme	-	

ROME VERDISSANT	APPELLATION DU ROME	TYPE
<b>G1201 - Accompagnement de voyages, d'activités culturelles ou sportives (Verdissant)</b>	Accompagnateur / Accompagnatrice de randonnée	Verdissante
	Accompagnateur / Accompagnatrice de randonnée nature	Verte
	Accompagnateur / Accompagnatrice de séjour linguistique	-
	Accompagnateur / Accompagnatrice de tourisme équestre	Verdissante
	Accompagnateur / Accompagnatrice de tourisme sportif	-
	Accompagnateur / Accompagnatrice de voyages	-
	Accomp. / Accompagnatrice de voyages ou d'activités culturelles, sportives et de plein air	Verdissante
	Accompagnateur / Accompagnatrice d'excursions	-
	Accompagnateur / Accompagnatrice en écotourisme	Verte
	Accompagnateur / Accompagnatrice en moyenne montagne	Verdissante
	Accompagnateur / Accompagnatrice en tourisme vert	Verte
	Accompagnateur / Accompagnatrice tourisme	-
	Accompagnateur / Accompagnatrice touristique	-
	Conférencier / Conférencière de voyages	-
	Conférencier national / Conférencière nationale	-
	Coordinateur / Coordinatrice de séjour touristique	-
	Guide conférencier / conférencière des Villes et Pays d'Art et d'Histoire -VPAH-	-
	Guide de haute montagne	Verdissante
	Guide de pays	Verdissante
	Guide de tourisme d'aventure	Verdissante
	Guide de tourisme équestre	Verdissante
	Guide nature	Verte
	Guide sportif / sportive	-
	Guide tour leader	-
	Guide touristique	-
	Guide-accompagnateur / Guide-accompagnatrice	-
	Guide-accompagnateur / Guide-accompagnatrice de pêche	Verdissante
	Guide-accompagnateur / Guide-accompagnatrice en écotourisme	Verte
	Guide-interprète	-
	Guide-interprète national / nationale	-
	Guide-interprète régional / régionale	-
	Maître randonneur / Maîtresse randonneuse de tourisme	Verdissante
Moniteur / Monitrice guide de pêche de loisirs	Verdissante	

ROME VERDISSANT	APPELLATION DU ROME	TYPE
<b>G1202 - Animation d'activités culturelles ou ludiques (Verdissant)</b>	Animateur / Animatrice d'activités audiovisuelles	-
	Animateur / Animatrice d'activités culturelles et de détente	-
	Animateur / Animatrice d'activités culturelles et techniques	-
	Animateur / Animatrice d'activités culturelles, techniques ou ludiques	-
	Animateur / Animatrice d'arts plastiques	-
	Animateur / Animatrice d'atelier artistique ou ludique	-
	Animateur / Animatrice d'atelier d'activités manuelles	-
	Animateur / Animatrice d'atelier d'écriture	-
	Animateur / Animatrice d'atelier d'expression corporelle	-
	Animateur / Animatrice d'atelier en maison de retraite	-
	Animateur / Animatrice d'atelier Internet	-
	Animateur / Animatrice d'atelier lecture	-
	Animateur / Animatrice d'atelier multimédia	-
	Animateur / Animatrice d'atelier musical	-
	Animateur / Animatrice d'atelier sciences	-
	Animateur / Animatrice de club de vacances	-
	Animateur / Animatrice de cyberspace	-
	Animateur / Animatrice de village de vacances	-
	Animateur / Animatrice d'écomusée	Verte
	Animateur / Animatrice des arts du cirque	-
	Animateur / Animatrice d'espace multimédia	-
	Animateur / Animatrice d'initiation à la nature	Verte
	Animateur / Animatrice d'initiation aux Technologies de l'Information et de la Communication -TIC-	-
	Animateur / Animatrice éco interprète	Verte
	Animateur / Animatrice nature environnement	Verte
	Animateur conseiller / Animatrice conseillère en Technologies de l'Information et de la Communication -TIC-	-
	Intervenant / Intervenante en Tai Chi	-
	Professeur / Professeure de yoga	-
Responsable d'animation en centre de vacances	-	



ROME VERDISSANT	APPELLATION DU ROME	TYPE
<b>G1203 - Animation de loisirs auprès d'enfants ou d'adolescents (Verdissant)</b>	Accompagnateur / Accompagnatrice d'enfants ou d'adolescents	Verdissante
	Animateur / Animatrice classe de découverte	Verdissante
	Animateur / Animatrice d'activités périscolaires	Verdissante
	Animateur / Animatrice de centre aéré	Verdissante
	Animateur / Animatrice de centre de loisirs	Verdissante
	Animateur / Animatrice de centre de vacances et de loisirs	Verdissante
	Animateur / Animatrice de club enfants	Verdissante
	Animateur / Animatrice de colonie de vacances	Verdissante
	Animateur / Animatrice de loisirs auprès des enfants et adolescents	Verdissante
	Animateur / Animatrice de loisirs de plage	Verdissante
	Animateur / Animatrice de loisirs pour enfants	Verdissante
	Animateur / Animatrice de mini-club enfants	Verdissante
	Animateur / Animatrice d'enfants	Verdissante
	Animateur / Animatrice d'enfants assistant(e) sanitaire	Verdissante
	Animateur / Animatrice d'enfants en centre de vacances	Verdissante
<b>K1802 - Développement local (Verdissant)</b>	Agent / Agente de développement d'habitat social	-
	Agent / Agente de développement économique	Verdissante
	Agent / Agente de développement local	Verdissante
	Agent / Agente de développement rural	Verdissante
	Agent / Agente de développement social urbain	-
	Agent / Agente de pays	Verdissante
	Animateur / Animatrice de charte de pays	Verdissante
	Animateur / Animatrice de développement local	Verdissante
	Animateur / Animatrice de développement régional	Verdissante
	Animateur / Animatrice de développement territorial	Verdissante
	Animateur / Animatrice de pays	Verdissante
	Assistant / Assistante de charte intercommunale ou de contrat de pays	Verdissante
	Assistant / Assistante de développement local	Verdissante
	Assistant / Assistante technique de pays	Verdissante
	Chargé / Chargée de développement culturel	-
Chargé / Chargée de développement économique	Verdissante	

ROME VERDISSANT	APPELLATION DU ROME	TYPE
<b>K1802 - Développement local (Verdissant)</b>	Chargé / Chargée de développement local	Verdissante
	Chargé / Chargée de développement social	-
	Chargé / Chargée de mission développement de zones d'activités	Verdissante
	Chargé / Chargée de mission développement économique	Verdissante
	Chargé / Chargée de mission développement local	Verdissante
	Chargé / Chargée de mission développement urbain	Verdissante
	Chargé / Chargée de projet de développement social urbain	Verdissante
	Chargé / Chargée de projet en aménagement du territoire	Verdissante
	Chargé / Chargée de projet en gestion urbaine de proximité	Verdissante
	Chef de projet contrat de ville	Verdissante
	Chef de projet de développement local	Verdissante
	Conseiller / Conseillère en développement local	Verdissante
	Coordonnateur / Coordinatrice de dispositif de développement local	Verdissante
	Coordonnateur / Coordinatrice de projet de développement local	Verdissante
	Développeur / Développeuse économique	Verdissante
	Développeur culturel / Développeuse culturelle	-
Responsable de développement territorial	Verdissante	
Responsable de projet de développement local	Verdissante	

### Annex 3

## The NetGuidance Directory<sup>59</sup>

NetGuidance - Les métiers de l'environnement		
Agent de Développement du Patrimoine Culturel		
Agent de l'environnement en milieu urbain		
Agent de l'environnement milieu rural	<p>Profil d'un professionnel ( ou d'une professionnelle) employé au sein d'une collectivité locale ou d'un groupe de collectivités, syndicats de communes, communauté de communes, communauté de pays) D'un niveau souhaitable BAC + 2 ; il va prendre en charge sous l'autorité d'un directeur ou chef de service les tâches relatives à des préparations techniques d'interventions sur le terrain ; Il pourra effectuer des enquêtes et sondages auprès des usagers ; Il pourra veiller à la propreté des espaces ruraux de son ressort (bois, et rivières, zones humides,..etc.) signaler toute atteinte à la qualité du milieu (décharge sauvage, pollution d'une rivière) L'on comprend qu'il sera très attentif aux contacts avec les agriculteurs et devra être capable avec l'appui de sa hiérarchie d'entreprendre des campagnes d'information ou de rédiger des rapports précis d'observations. Exemple de diplôme BAC +2 intéressant pour ce profil le DEUG sciences de la vie, de la terre et de l'environnement. ..à condition de ne pas hésiter à s'engager dans des stages, jobs d'été permettant d'intervenir sur le terrain afin de mettre en valeur ses qualités de contacts et son efficacité au travail. Ne pas oublier qu'il existe des aussi des modules de formation spécialisés (parfois à distance) qui renforcent considérablement un CV. Savoir se documenter, identifier des expériences dans son pays et plus largement en Europe.</p>	

<sup>59</sup> Source: <http://www.leguidedesmetiers.com/index.php>

<b>NetGuidance - Les métiers de l'environnement</b>		
Agent de surveillance Ecologie marine et dulçaquicole		
Aide Paysagiste		
Animateur de Réseau de vie Local		
Architecte		
Architecte paysager		
Assistant (e) en conception paysagère informatisée		
Assistant (e) Manager Entreprise agroéquipement et territoires ruraux		
Assistant-ingénieur 3 D -démantèlement, déchets, dépollution		
Biologiste marin		
Chargé de mission - Environnement Développement Durable des régions		
Chef d'équipe en aménagements paysagers		
Chef d'équipe travaux publics		
Chef de chantier de nettoyage et dépollution		
Chef de chantier Paysager		
Chef de chantier travaux publics		
Chef de projet - Aquaculture		

<b>NetGuidance - Les métiers de l'environnement</b>		
Chercheur en océanographie (prépa)		
Chercheur mécanique de fluides et des solides		
Conducteur d'engins de travaux publics		
Conseiller en agroéquipements		
Conseiller technique en hydraulique		
Conservateur Assistant		
Guide Nature Multilingue		
Horticulteur spécialisé productions florales et légumières		
Hygiéniste du Travail et de l'Environnement		
Ingénieur biochimiste		
Ingénieur en Environnement		
Ingénieur en Environnement et Urbanisme		
Ingénieur en gestion de la nature		

<b>NetGuidance - Les métiers de l'environnement</b>		
Ingénieur hydraulicien		Former des techniciens capables d'assurer la gestion technique d'ouvrages, contrôler la qualité de l'eau et du service, participer au développement des installations en tenant compte des évolutions techniques... Les collectivités territoriales (commune, département, région), les sociétés d'aménagement, les distributeurs d'équipements, les chambres d'agriculture, les cabinets de conseil et d'études offrent aussi des débouchés. Les grandes sociétés privées de distribution d'eau et d'assainissement peuvent également offrir des possibilités de carrière internationale
Ingénieur Modèles et Simulations		
Ingénieur Océanographe (prépa)		
Ingénieur qualité de l'air		
Ingénieur Sécurité Environnement		
Manager des Risques Environnementaux		
Manager Organisation de développement rural		
Manager Urbanisme & Environnement		
Météorologiste		
Océanographe		
Ouvrier horticole		
Ouvrier paysagiste		
Paysagiste		

<b>NetGuidance - Les métiers de l'environnement</b>		
Préventeur de risques		
Production en aquaculture - Manager		
Responsable Association de protection de l'environnement		
Responsable d'une unité de traitement de l'eau		
Responsable Technique Environnement		
Scientifique - physico-chimie marine (prépa)		
Technicien d'assainissement		
Technicien de bureau d'études en aménagement paysagé		
Technicien de création ou d'entretien des aménagements paysagés		
Technicien Supérieur en Environnement - Traitement & Gestion Déchets		
Technicienne Labo Biologie Marine et Environnement		
Technico-commercial en distribution d'eau		
Tri sélectif Agent local d'Information		
Source: Net Guidance		

<b>NetGuidance - Les métiers de l'environnement</b>		
<b>METIERS ACCESSIBLES PAR UNE FORMATION INITIALE EN ENVIRONNEMENT</b>		
Agent de l'environnement milieu rural		
Aide Paysagiste		
Architecte paysager		
Assistant (e) Manager Entreprise agroéquipement et territoires ruraux		
Assistant (e) Technique d'Ingénieur		
Chargé de mission – Environnement Développement Durable des régions		
Chef d'équipe en aménagement paysagers		
Chef d'équipe travaux publics		
Ecologue Chercheur - surveillance de l'environnement		
Garde forestier		
Gestionnaire de chantier de paysage		
Guide Nature Multilingue		
Manager Urbanisme & Environnement		
Manager des Risques Environnementaux		



<b>NetGuidance - Les métiers de l'environnement</b>		
Mécanicien d'équipements et d'engins motorisés (parc et jardins)		
Ouvrier horticole		
Ouvrier paysagiste		
Ouvrier pépiniériste		
Paysagiste		
Responsable Technique Environnement		
Responsable d'une unité de traitement de l'eau		
Technicien Supérieur Maintenance - Automatismes Industriels		
Technicien Supérieur Conseiller en hygiène et environnement des collectivités		
Technicien Supérieur en Environnement - Traitement & Gestion Déchets		
Technicien d'assainissement		
Technicien de Laboratoire - Biologie		
Technicien de Maintenance en matériel de chantier de travaux publics		
Vendeur, vendeuse produits frais		
Source: Net Guidance		

<b>NetGuidance - Les métiers de l'environnement</b>		
<b>METIERS ACCESSIBLES PAR UNE FORMATION CONTINUE EN ENVIRONNEMENT</b>		
Agent d'entretien du Bâtiment		
Agent de l'environnement en milieu urbain		
Agent de l'environnement milieu rural		
Agent de surveillance Ecologie marine et dulçaquicole		
Agent logisticien		
Assistant (e) d'ingénieur spécialisé –e laboratoire ou fabrication		





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