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SwitchMed Magazine

Tunisia

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SwitchMed programme is
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switchmed

We are SwitchMed

SwitchMed is an initiative that supports and connects stakeholders to scale up eco and social innovations.

SwitchMed is an initiative that supports and scale-ups eco and social innovations

The SwitchMed Programme was launched in 2013 by the European Union to speed up the shift to sustainable consumption and production patterns in the Southern Mediterranean, notably through the promotion of circular economy approaches. The Programme aims at achieving productive, circular and sharing economies in the Mediterranean by changing the way goods and services are consumed and produced so that human development is decoupled from environmental degradation.

Its activities benefit 8 countries in the Southern Mediterranean: Algeria, Egypt, Israel, Jordan, Lebanon Morocco, Palestine and Tunisia. Through policy development, demonstration activities and networking opportunities, SwitchMed supports and connects stakeholders to scale-ups eco and social and eco innovations The Programme supports policy makers, eco-innovative small and medium sized enterprises, industries, start-ups and entrepreneurs in the Southern Mediterranean countries, which have identified job creation and natural resource protection as priority issues that also contribute to their economic stability.

SwitchMed, which works with a wide range of stakeholders, is committed to catalyse the market of sustainable products and services in the Mediterranean via:

- Capacity building in industry service providers targeting small and medium sized enterprises for resource efficiency improvements;
- Trainings for start-ups and entrepreneurs to build skills in design, business plan, marketing and financing of sustainable products and services;
- Engagement with policy makers to establish a regulatory and policy framework to boost the market for sustainable products and services;
- Empowerment of citizens and civil society organisations to lead socially innovative solutions addressing environmental challenges;
- An Action Network of stakeholders to link with similar initiatives and networks, exchange information and to scale-up current activities.

SwitchMed is implemented by the United Nations Industrial Development Organisation (UNIDO), the United Nations Environment Programme Mediterranean Action Plan (UN Environment/MAP), the Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC) and the UN Environment's Economy Division. Each of the implementing organisations brings its specialised experience and tools to partner with the eight countries on activities that span policy development, capacity building, business support services, demonstration activities and networking.

The United Nations Industrial Development Organisation (UNIDO) supports the development of green industry and sustainable production in the southern Mediterranean. It does so through a comprehensive approach that both presents the business case of resource efficiency to industries, and helps service providers increase their capacity to deliver sustainable production services matching the industry needs. In addition, UNIDO is cooperating with a number of national institutions addressing policies on sustainable production.

At the start of the project, the UNIDO designed TEST methodology is delivered to the service providers and local professionals. In collaboration with the UNIDO TEST expert team, the service providers identify and select companies to take part in the TEST project, based on the companies potential for improvements and top management commitment. Crucially, the company staff also receive the TEST training, enabling them to implement the technical measures and management solutions identified by the service provider. Their active participation in the training and in the implementation of the project ensures the sustainability of all identified actions at company level.

The TEST implementation approach has to date successfully demonstrated the profitability and effectiveness of introducing best practices and integrated management systems in terms of cost reduction, productivity increase and environmental performance, extending the experience gained to other industries in the region. UNIDO, together with local partners, also promotes business partnerships between local businesses and EU Eco-Innovative companies, creating an area of shared prosperity on the principles of a sustainable and inclusive socioeconomic development.

United Nations Environment Programme Mediterranean Action Plan (UN Environment/MAP) is a Regional Seas Programme under UNEPs umbrella that brings together the 21 Mediterranean neighbouring countries. MAP provides support to those countries in the implementation of the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, the so-called Barcelona Convention.

The Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC) is one of the centres belonging to UN/MAP. It is appointed with the mandate from the Contracting Parties of the Convention to promote Sustainable Consumption and Production in the Mediterranean region. In order to accomplish that mission the center provides knowledge, training, advice and networking opportunities to businesses, entrepreneurs, financial agents, civil society organisations and governments that work to provide Mediterranean's society with innovative services and products that are good for the people and for the planet.

The center provides technical assistance to the Contracting Parties to the Barcelona Convention to adopt SCP as integrated approach to decouple development from pollution and environmental and implements pilot projects in four countries: Algeria, Lebanon, Morocco and Tunisia. Likewise SCP/RAC supports green entrepreneurs and change makers driving eco and social innovations in the Mediterranean by providing training, technical and financial advice, jointly with a network of strategic local partners and local trainers. Moreover, SCP/RAC works closely with financial agents to establish mechanism that enable entrepreneurs and small companies that provide SCP solutions access to funding. SCP/RAC also hosts the Networking Facility that contributes to the visibility, effectiveness and scaling up of the SwitchMed activities.

UN Environment's Economy Division supports the development of SCP National Action Plans and provides advisory services and follows up closely the implementation of the demonstration pilot projects of four countries: Egypt, Israel, Jordan and Palestine.

UN Environment's Economy Division works closely with the National Focal Points (NFP), who are key actors in the SwitchMed and play a specific role in implementing the policy activities at national and disseminating the results in their respective countries. Focal points have been appointed by the national governments. In most countries a duo of Focal points – one from Ministry of Environment and one from Ministry of Industry.

SwitchMed Programme is funded by the European Union.

Tunisia's facts and numbers

- Population**

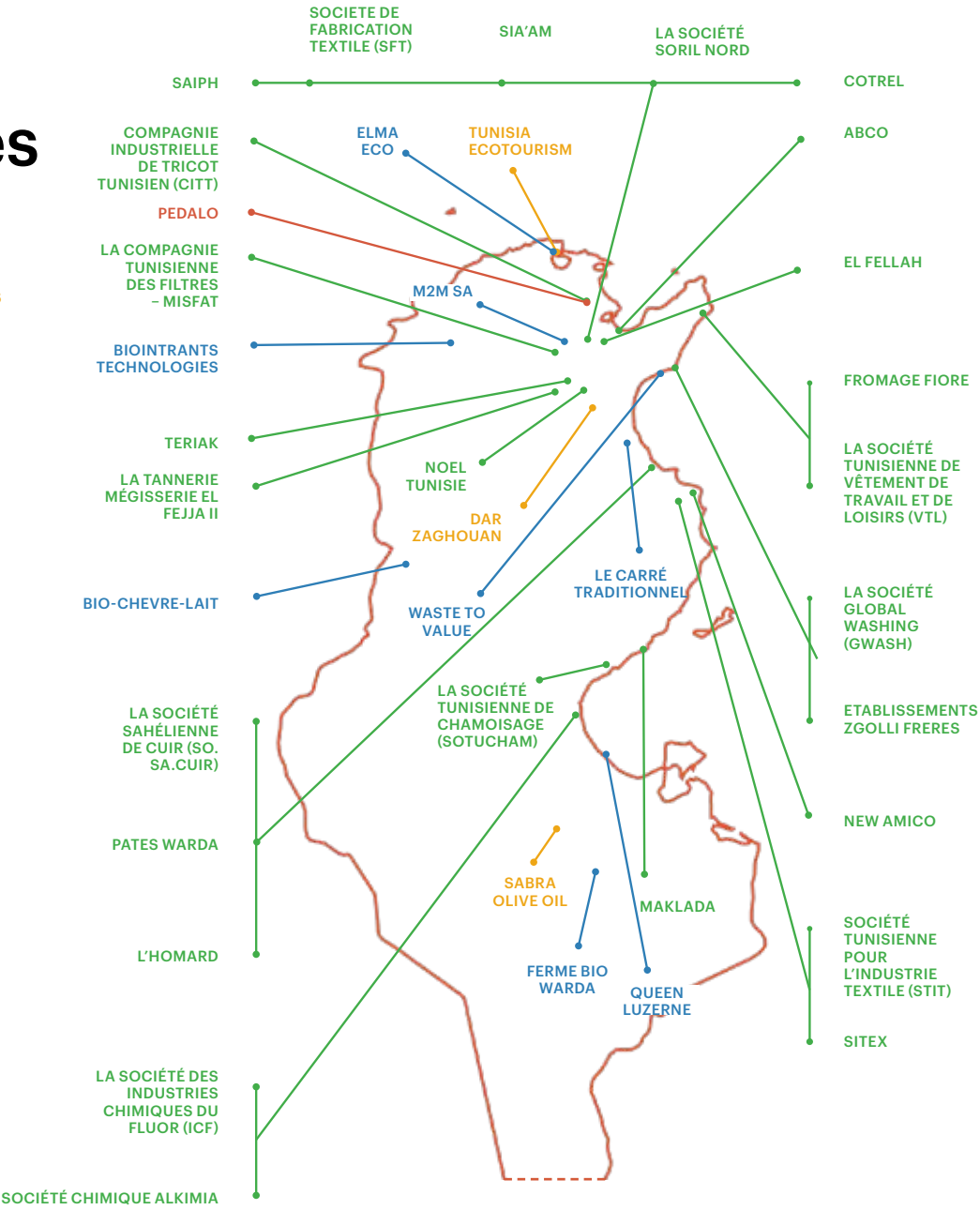
 - Capital and largest city: Tunis.
 - Life expectancy at birth: 74.98 years.
 - Population growth: 1.1% annually.
 - Major Religions: Islam (state religion; 99.1% Sunni, others (1%; including Christian, Jewish, Shia, Bahá'í).
 - Form Of Government: Unitary semi-presidential republic.
- Geography & Economy**

 - Currency: Tunisian dinar.
 - Terrestrial and marine protected areas: 5.2086 % in 2016.
- Population: 11,304,482.
 - Area: 163,610 km².
 - Official Language: Arabic.
- Urban population: 67.05%.
 - CO₂ emissions: 2.58 (2016).
 - Land boundaries: Algeria (965 km) and south-eastern border with Libya (459 km)
 - Coastline: Borders the Mediterranean Sea.
 - Tourism growth: 23% (2017).
 - 91st largest country in the world in terms of land area with 163,610 km².

Sources: Economy and Demography in Tunisia, Wikipedia, United Nations, The World Bank, Ministerio de Asuntos Exteriores y Cooperación & Atlasinfo.fr

SwitchMed beneficiaries in Tunisia

- 4 Pilot projects from policy-makers
- 26 Industries from the food sector joined MED TEST II
- 8 Incubated green entrepreneurs
- 1 Civil Society Organisation



The lines and arrows drawn might not point to the exact locations, at it is only an estimation.

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Engagement with policy makers to establish a regulatory and policy framework to boost the market for sustainable products and services.



Implementing circular economy measures in the Mediterranean

The Mediterranean policy-makers developed within the SwitchMed programme a Regional Sustainable Consumption and Production Action Plan, including a Roadmap towards circular economy for its implementation in the Mediterranean as well as eight Sustainable Consumption and Production National Action Plans (SCP-NAPs).

The SCP Regional Action Plan was adopted in February 2016 by the 22 Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (known as Barcelona Convention), during their 19th Ordinary Meeting of the Contracting Parties. The SCP Regional Action Plan is a substantive contribution to the implementation of the 2030 Agenda for Sustainable Development. It is a strategic document that gives clear guidelines on the actions that should be developed in the region to shift towards sustainable consumption and production patterns, long-term sustainability, circular economy and new paradigms in the use of resources. It is also responding constructively to the climate change challenges. The document is structured around 4 key areas which are essential for the socio-economic development and for the job market in the region but are at the same time highly contributing to the pollution loads and to the environmental degradation of the Mediterranean. Those 4 areas are: food, fisheries and agriculture sector, tourism, goods manufacturing and housing and construction sector.

At national level SwitchMed, under the coordination of UN Environment's Economy Division, provided advisory services to the governments of the eight programme countries in the Mediterranean on mainstreaming SCP into national development planning. Eight multi-stakeholder nationally owned and nationally driven policy processes were undertaken to best respond to the national priorities on SCP. Given the difficulty to implement the full range of SCP policies and instruments at once, project countries select a limited number of priority areas to be addressed in their SCP National Action Plans, which contribute to poverty alleviation, environmental sustainability and the development of a green economy.

The SCP-NAP processes were tailored to the needs and specific country situations and allowed the synergies and integration with national development plans and national sustainable development strategies. During these national processes a total of over 40 national workshops, roundtables and nationally-tailored training sessions were organised to reinforce national capacity on SCP. The processes were inclusive and saw the participation of a large and diverse group of national stakeholders, representing different relevant government institutions, private sector, civil society, academia and media representatives. In total, 1,500 national stakeholders actively participated. As a result, eight SCP National Action Plans were developed, which are a first step in a country's response to the 2015 adopted Sustainable Development Goals (SDGs) and in particular Goal 12: Sustainable Consumption and Production.

Moreover, there are national demonstration pilot projects implemented on the ground to promote implementation of policies and actions, which effectively change patterns of consumption and production and implement circular economy measures in the priority sectors previously selected by the target countries. In total, 20 pilot projects were implemented by the end of 2018: 2 in Algeria, 2 in Egypt, 3 in Israel, 2 in Jordan, 1 in Lebanon, 3 in Morocco, 2 in Palestine and 4 in Tunisia.

Meet our focal points in Tunisia

The National Focal Points (NFP) are key actors in SwitchMed and play a specific role in implementing policy activities and disseminating results at national level in their respective countries. A national coordination mechanism has been established in each country, coordinated and guided by the focal points appointed by their respective national governments. In most of the participating countries, two focal points—one from the Ministry of the Environment and one from the Ministry of Industry—work in tandem to lead the implementation of SwitchMed at national level.



République Tunisienne
Ministère de l'Industrie et des PME

Ministry of Industry and Small and Medium Enterprises

Created in 1972, the Ministry of Industry and Small and Medium-Sized Enterprises is the public body responsible for implementing government policy relative to industry and agribusiness services, energy and mining cooperation, industrial cooperation, and energy and mining safety.



Republic of Tunisia
Ministry of the Environment
and Sustainable Development



Ministry of Local Affairs and Environment

It is responsible for proposing legislation on environmental protection, nature conservation and improving quality of life. Its mission is to work towards integrating the concept of sustainable development into national strategies and plans. In cooperation with other ministries and parties concerned, the ministry establishes measures to protect and guard against environmental risks, and tackle potential or anticipated environmental problems before they actually occur, thus reducing or eliminating potential environmental threats. It also protects and develops spaces reserved for wildlife and landscape development, as well as open spaces needed for the growth of future generations.

The tourism and agri-food industries are now the main priorities for the Tunisian National Action Plan

The Ministry of Environment and Sustainable Development in Tunisia has adopted a Sustainable Consumption and Production (SCP) National Action Plan for two sectors that are considered the highest priority, the tourism and agri-food industries, over the next ten years (2016-2025).

The process to develop an SCP-NAP was started with an extensive assessment of the State of the Art on SCP in Tunisia and the publication of a structured report. This publicly available report is formulated around 6 chapters:

- (i) Overview of SCP internationally and the experience of some countries in its implementation;
- (ii) Institutional, legal and policy frameworks to implement SCP in Tunisia;
- (iii) SCP in the primary sectors namely agriculture and livestock, fisheries and forestry;
- (iv) SCP in the secondary sectors namely industry, power generation and construction;
- (v) SCP in the sectors of transportation, tourism and trade;
- (vi) State of play in the waste management and water/sanitation sectors.

Based on the results of this assessment report two ten-year plans have been developed for the tourism and agri-food sector. The action plans have been drawn up following and in-depth consultation process involving a large and diverse group of national stakeholders in Tunisia (government, private sector, civil society, media, academia).

The SCP-NAPs were built upon already existing and validated national strategies and plans to assure coherence, sustainability and implementation of the plans. Among the reference documents used are Tunisia's National Industrial Strategy at the Horizon 2016 (2008), the National Strategy for the Green Economy (2015), the National Strategy for Climate Change (2012), the Guide to Sustainable Industry in Tunisia.

The development of the strategy and action plan for the development of the agri-food sector was based on a participative approach that involved the different actors linked to the sector: Ministry of Industry, Ministry of Agriculture, Ministry of Environment and Sustainable Development, Ministry of Health, Agency for the Promotion of Industry, International Center for The Environment of Tunis (CITET), National Agency for the Protection of The Environment, Technical Center for Agri-Food, Tunisian Union of Agriculture and Fisheries as well as NGOs and civil society associations. The key stakeholders involved in the work on the tourism sector are: Ministry of Tourism, National Federation of Hotels, Tourist Foncière Agency, Tunis International Center for Environmental Technology, National Office of Thermalism and Hydrotherapy among others.

These action plans are a response to the need to insert sustainability in the daily actions. The aim is to raise awareness among Tunisian organisations in terms of the impact of their actions on the quality of life of present and future generations. Each ten-year action plan presents clear objectives, key activities and a list of expected achievements and impacts.

Objectives

The Ten-Year Agri-food Action Plan 2016-2025 puts forward the following proposals: (i) streamlining the use of natural resources and minimizing the causes of damage (pesticides and waste), (ii) promoting sustainable agricultural practices and local knowledge and (iii) ensuring sustainable agricultural activity.

While the Ten-Year Tourism Action Plan 2016-2025's objectives are: (i) promoting sustainable resource management and encouraging collective action, (ii) developing sustainable waste management and recycling, (iii) improving the quality of the options available and offering environmental certification, (iv) encouraging an integrated social and societal approach, (v) promoting the consumption of local and organic products and (vi) appraising the risk of flooding and coastal erosion.

Achievements and impacts

Each two ten-year plan includes a list of expected achievements and impacts - detailed lists are in the relevant SCP-NAPs:

Agri-food sector suggestions

- Establishment of a national registry of industrialized products;
- Promote sustainable procurement in public institutions;
- Promotion of rail transport as an alternative to road transport;
- Conduct a study on the valorization of industrial waste from the agro-food industry in Tunisia;
- Development / dissemination of a manual on best practices in the use of pesticides and training programs on organic fertilization methods and cultivation techniques;

Tourism sector:

- Introduce the theme of consumption of local/organic products and economic practices in the 4- and 5-stars hotel (magnetic cards, water saving practices);
- Identify the list of tourism activities that can be part of sustainable tourism, considering the cultural aspects and the natural and cultural archaeological activities (rehabilitation, accessibility ...);
- Develop and disseminate a good practice guide for consumers adapted to rural tourism;
- Developing a specific regulatory framework for ecotourism and other forms of sustainable tourism;
- Develop tourist circuits integrating the sites ecotourism and promote the creation of specialized agencies in Ecotourism circuits;

Implementation of the Sustainable Consumption and Production National Action Plans has started in Tunisia and first results will be monitored and presented during 2019.



Photo credit: @Mietek Wikimedia Commons

The valorisation of olive oil by-products is booming in Tunisia

The production of olive oil is considered to be one of the largest agricultural business sectors in the Mediterranean area. Specifically in Tunisia, the olive oil industry plays a key role in the country's economy, as it is the world's largest exporter and the second largest producer after the European Union. In fact, Tunisia has more than 67 million olive trees in an area covering 1.7 million hectares, accounting for approximately 80% of the country's arboriculture. Exports represent 43% of all exports from the agri-food industry and 5% of Tunisia's total of exported goods. According to the National Oil Office, Tunisia has 1,750 oil mills, 7 factories to extract residual oil, and 40 bottling plants, along with a number of refineries and coal-bunkers. However, there are less than ten processing units for olive industry by-products such as leaves, olive pomace that consists of olive pulp, skin, stone and water, and olive stones. By-products are important as they could be generally used for direct combustion, animal feed and as feedstock for direct combustion or pellet manufacturing. During the harvesting season, most oil mills discharge their waste into the natural environment without prior treatment, contributing to the degradation of soils and rivers due to the introduction of a very high organic load in a short period of time.

Deputy Director of the National Waste Management Agency of Tunisia, Afef Siala, explains that "every year, Tunisian oil mills produce an average of one million tonnes of olive oil mill wastewater, along with some 650,000 tonnes of pomace, approximately 70,000 tonnes of leaves and some 150,000 tonnes of high-energy-value sludge arising from the extraction of residual oil – making a total of two million tonnes of waste from all over the country." This has led the Ministry of the Environment and Sustainable Development to prepare a National Action Plan to manage mill wastewater in order to promote its valorisation and it is now working together with the Tunis International Centre for Environmental Technologies (CITET) to develop technical and ecological criteria for awarding a Tunisian eco label for packaged olive oil products. In September 2016, a Tunisian SCP National Action Plan was developed under the framework of SwitchMed in which the agri-food industry once again represented one of the two main sectors to be tackled.

One of these olive oil producers is Sabra Olive Oil, which operates from the Sbihka-Kairouan olive grove, situated 100 km away from Tunis. "At Sabra Olive Oil we are committed to excellence. Making the best olive oil by applying sustainable practices to minimise our ecological footprint is our core business," explains the company's General Manager, Fayçal Bouguerra. He returned to his hometown in Sbihka-Kairouan in 2012 to establish an SME in the strategic sector of olive oil and thus contribute to local development in his region. The plant is able to process up to 1.8 tonnes of olives per hour and, depending on the amount of olives, it runs for 12 hours per day for an average of 60-90 days per

season, producing both conventional and bio olive oil. "Why dispose of a resource that can be reused to increase the profitability of the company while polluting less?" says Bouguerra, going on to point out that, "Across all our activity, 23% ends up as oil to sell, the remaining 67% goes through the process of revalorisation and the rest goes to waste. We wanted to improve our business model by selling by-products, which, in turn, would also help to increase control over the value chain and reduce negative environmental impacts. That is why we were so happy when we found out that we had been selected by SwitchMed to conduct a pilot project at our facilities."

This company, that now employs four people, was selected to audit the whole process of olive oil production, from the tree to the bottle, in order to look at how the valorisation of the olive by-products was being done and identify actions that could be improved. "Looking at the compliance of the company with the criteria or the Tunisian eco-label under development was another objective of the pilot," explains Regional Activity Centre for Sustainable Consumption and Production policy expert, Magali Outters. "The SwitchMed programme, and the SCP/RAC, who have led the mission, in particular, have been extremely helpful with regard to providing guidance on the opportunities for transforming the company into a circular economy business model and listing the specific changes that needed to be implemented to make our business fully sustainable," emphasises Bouguerra. "We are one of the first organic oil mills in Tunisia to make use of nearly all of our by-products. For example, the pomace is sold to factories that carry out the secondary extraction of olive oil at 50 dinars per tonne. The leaves, which constitute 11.7% of the total quantity of olives we produce, are given away to the farmers of the region free of charge to be used as cattle feed. We collect and store them in watertight basins until they evaporate. In addition, we have a project in motion that enhances the vegetable water to be used as bio fertiliser. This natural fertiliser would be very beneficial to enrich the soil of our olive orchards."

Two missions were organised to carry out the environmental audit; one in November 2016 and the other at the beginning of 2017. Samar Khalil, an environmental and chemical safety officer at the American University of Beirut, who was one of the experts in charge of the audit, explains that "a variety of aspects were carefully studied, including, energy, water and solid waste management. Other parameters included air pollution, the quality of oil, noise and plans for the prevention and mitigation of environmental emergencies. Findings were noted and reported and a list of recommendations was provided." For instance, the experts noted that the volume of pomace makes up 58% of the total quantity of olives pressed. Although the quality of the pomace was not tested, it was clear that its moisture content was high and that the way the pomace was being stored could be improved

in order to avoid soil and also, where relevant, groundwater pollution. "For that, we recommended that the pomace storage area could be paved with concrete and the pomace leachate channelled and collected." In terms of saving water, just by installing a drainage system to recover rainwater and runoff from the olive storage area they would be able to save more than 20% of their total water consumption, the equivalent to 93 m³ of water.

The audit experts also studied whether the company met the criteria for applying to the soon to be launched Tunisia eco-label. There are a total of seventy five criteria; 57 mandatory and 18 optional, a minimum of nine of which must also be met in order to obtain the ecolabel certification. "As Sabra Olive Oil did not fulfil all of the necessary standards, we advised them to clearly set them out in order of priority prior to starting the implementation of the measures, listing them from the ones that represented the greatest environmental impact and the highest return on investment to the lowest. The valorisation of pomace is key, both environmentally and economically-speaking, when it comes to the nine optional criteria that need to be fulfilled for the eco-label," stresses Khalil. For Sabra Olive Oil, making all these adjustments to its facility in order to adopt a full circular economy business meant they needed investment. In this context, "we carried out a cost-benefit study that estimated that approximately 200,300 dollars were needed. We also designed a financial strategy and technical support plan to guide the company in the event that Sabra Olive Oil decided to implement the measures."

Improving the marketing and communication strategy to reach new clients and, ultimately, increase sales, especially in terms of by-products, was a clear priority for Fayçal Bouguerra. To this end, SCP/RAC commissioned DMI Associates international marketing, communication and business management consultant, Claire de Foucaud, to conduct a marketing study, which concluded that, "the company's marketing plan couldn't be developed according to a well-defined strategy with customised targets and clear positioning. Therefore, the content of the website and other communication tools used, including the product packaging, could be better thought out strategically to enable the company and its products to stand out from the competitors." The marketing expert also stressed that mass marketing is no longer an effective strategy, as each product must meet the specific needs of targeted customers, saying, "to succeed, Sabra Olive Oil must work on a coherent and efficient marketing mix." Other suggestions included employing in-house personnel with marketing and communication expertise and providing training to the relevant manager in order to improve sales performance skills. "Thanks to the results of the study, we saw that our communication material contained some misleading information and not all the messages were aligned, which could be confusing for the customers. Other messages should be reinforced such as the sustainability policy of our company. As such, we received some valuable feedback to help us improve our corporate website, for instance, together with a complete action plan for a new digital strategy including managing our social media networks," the company responded. The marketing expert went on to explain,

"we organised a two-day training session in February 2018 to go through the digital strategy action plan with the team and I was pleased to see how enthusiastic and determined they all were about implementing the changes needed to improve their presence on the web to improve traffic and visibility."

Selling olive oil in bulk is one thing, but selling packaged olive oil is another story, as the competition is fierce. "One of the many things I have learned during the mentoring programme is that you have to study the market and position yourself for an opportunity. An effective sales force is needed so we can reach customers with a value proposition that meets their needs. Investment is necessary, not only to produce an excellent product but also to sell it," explains Bouguerra. According to De Foucaud, "a budget equating to around ten or twenty per cent of the turnover should be allocated to marketing and communication."

Another interesting discovery was that, although Sabra Olive Oil sells the same quality olive oil in both bulk and bottled format, the consumers that buy one or the other do not have the same expectations regarding its quality. The enterprise also faces problems in terms of differentiating themselves through their packaging as there are only two bottle-suppliers in Tunisia, and any company looking for a custom design needs to import it and buy large quantities to make it profitable, which is not very environmentally-friendly. The packaging must be unique to the company and adapted to its target market. However, packaging is not everything. "I thought that having beautiful packaging for all our products was the be all and end all but, according to the results of the market study, the export potential of packaged Tunisian olive oil lies in organic bottled oil, but at the moment we do not have enough 'organic suppliers' to produce organic olive oil." To address this, De Foucaud stresses the importance of intensifying efforts to convert as many of the company's six hectares of olive trees as possible to organic production. To create a completely new product organic line, De Foucaud explains "the company needs the assistance of an oleologist to develop one or two exclusive products. This approach could be particularly interesting for the Oueslati variety which is very rare, as in Tunisia 95% of olive oil production comes from the Chetoui and Chemlali varieties." The expert suggested three or four products, all extra virgin-quality organic oils, with three different potential sales forecasts. "That was an eye-opener for me that I'm going to examine closely," he adds.

Given the high replicability potential of the circular economy model adopted by Sabra Olive Oil, besides its socio-economic and environmental impact in the region, the results of the eco-audit and marketing studies hopefully will set a precedent for others cases to gain inspiration and continue working on shifting the way we produce and consume goods. The application of circular economy in the olive oil sector has great potential and the valorisation of its by-products is proving particularly successful and, slowly but surely, developing into a promising market. Besides the quality of the products, marketing is also a key element in helping to increase sales of sustainable products in the marketplace.

Main achievements benefitting Sabra Olive Oil in 2018

- 1 Eco-audit on sustainable olive oil production in Tunisia
- 2 Preliminary assessments (marketing, fundraising)
- 2 Comprehensive action plans (2016-2018)
- 12 Months mentoring on access to finance ongoing in Tunisia
- 12 Months' mentoring on marketing and commercial strategies, including basic communication products and tools. Synergy created between the ongoing project with GIZ to facilitate the sustainable sourcing of organic olives from farmers to be turned into organic olive oil by Sabra Olive Oil
- 1 Study visit carried out aimed at knowledge exchange in Europe
- 1 Marketing study carried out, in order to improve the marketing and communication strategy to reach new clients to ultimate increase sales, especially those made of by-products
- 3 Main aspects carefully studied during the eco-audit: energy, water and solid waste management, amongst other included air pollution, the quality of oil, noise and prevention and preparedness for environmental emergencies

Reducing the environmental impact of eco-lodges without compromising the quality of the guest experience is possible

Located in the Dorsale Mountains, an hour's drive from Tunis, Dar Zaghoun is one of the ecological accommodation establishments in Tunisia to have adopted a circular economy model. Established in 2006, this charming farm offers an alternative ecotourism experience that benefits everyone in the community. For its founder, ex-banker and nature lover Skander Zribi, preserving the environment is an essential part of Dar Zaghoun's mandate. The eco-lodge uses solar energy and solar water heaters to reduce the need for non-renewable energy resources. Eco-friendly agricultural techniques are also used on the bed and breakfast's farm—the place where much of the restaurant's food is grown and harvested. The activities offered to guests all address conservation issues related to the surrounding area.

Today, Dar Zaghoun is a renowned haven of peace and a popular tourist destination, especially among city dwellers from Tunis looking for tranquillity. Over twelve years, Skander's estate has grown to include newly refurbished accommodation for fifty guests, a restaurant serving local dishes, a large meeting room for hosting events, a traditional hammam and two swimming pools for summer visitors to enjoy. Skander explains that, "Since I first launched my ecotourism project in 2008, I have always been very keen on preserving the environment and raising awareness about sustainability among Tunisians and foreign customers."

Dar Zaghoun offers an alternative tourism experience in an area that has not seen the tourism development that many other parts of Tunisia have benefited from. "We are receiving a growing number of international tourists, at the moment that represents 30% of our capacity. We see that they really value our sustainable approach and there is a growing demand for these sorts of services and products," the resort founder explains.

In 2012, Skander decided to take on a new challenge and convert Dar Zaghoun into an eco-friendly guesthouse, making significant environmental improvements to its design to minimise its impact on the environment. Five years later, he started building a new eco-chalet in order to increase the capacity of his eco-lodge. The new building features six separate rooms to accommodate between 6 and 16 people. "Despite using recycled and local materials, such as Nabeul terracotta and Sfax wood, to build the new site, as well as the expertise of local craftsmen using ancestral techniques, we weren't incorporating any sustainability measures. And that is why SwitchMed came along at the perfect time," explains Skander. "I was thrilled to find out that my business had been selected as a pilot project out of the many other

applications. Soon afterwards, we start looking at what circular economy measures could be taken into consideration for the eco-chalet and so make the business more environmentally sustainable." "The projects is a good fit, representing one of the two priority sectors included in the Tunisian National Action Plan developed under the SwitchMed framework," says Magali Outters, a policy expert at the Regional Activity Centre for Sustainable Consumption and Production and organisational leader for the development of the project.

Experts sent by SwitchMed developed a feasibility study on the potential integration of sustainable measures related to water, energy and waste for the eco-chalet that was under construction. After a preliminary assessment and over the course of two years, Dar Zaghoun received continuous technical support in eco-construction and, as such, sustainability measures in line with those recommendations were implemented.

For example, the ecotourism establishment may save between 20% and 40% of its total water consumption by limiting the flow rate from taps, making sure it does not exceed 8 litres per minute and the water flow from the showers does not exceed 9 litres per minute. "We have managed to reduce the environmental footprint through water savings and thereby cut costs without compromising the comfort of our guests," explains Skander. "We are recovering an average of 470 m³ of rainwater per year," he adds. Greywater from the Hammam and showers is also being recovered and re-used to water the organic vegetable garden. "That will save us money at the end of the year," says Skander. In terms of energy, the recent installation of a heat pump will enable the site to generate up to 60% of the heat required to heat a home. "We are also now saving 5% of our electricity through the use of wood energy and the installation of solar panels. Other measures include swapping all lights to LED and the installation of a biomass boiler to heat water and air in the eco-chalet and the hammam. This is fuelled by wood obtained locally and the burning of olive pulp on days when there is no sun, as well as by the solar thermal collectors on sunny days, which is managed by an auxiliary system that allows the use of one or the other depending on the weather conditions." These measures all translate into a positive impact for the environment. "The amount of wood consumed in 2017, which is equal to 5 tonnes, emitted 0.6 tonnes of CO₂ per year, representing a reduction of 4 tonnes of CO₂ had we been using natural gas as an energy source and 5.5 tonnes of CO₂ had it been diesel." The experts stress that "Dar Zaghoun has made a good choice of photovoltaic equipment

for an area of about 150 m² and it is regularly maintained by a manager at the site. These panels generate electricity for the old structure of the house, including air conditioning, heating and lighting, but are not yet sufficient to power the new eco-chalet, an additional installation of solar collectors and geothermal system will depend on researching financing options."

In order to promote the reuse and recycling of waste, Skander explains that, "We separate our waste now and it is stored safely, in compliance with the relevant national and local legislation." For example, oils are collected by a soap factory in the region. "To limit the use of resources and the amount of waste, we have introduced measures such as stopping the use of single-dose packages of butter and jam and only using biodegradable cutlery, dishes and cups at temporary events.

"Obtaining international recognition through a sustainable green tourism label would highlight our efforts and enable us to capitalise on those benefits," says Skander. SwitchMed experts looked at the different eco-labels and identified the Green Key Label certification as being best-suited to Dar Zaghoun, offering advice on how to monitor and reduce the consumption of resources and to identify which aspects needed to be improved in order to meet all the strict criteria that ensure the integration of optimum levels of sustainability in the management and operation of the tourism establishment. "We have successfully met 49 out of the 55 mandatory criteria to secure the Green Key Label thanks to the support provided by SwitchMed," stresses Skander. "The programme also helped me to reduce the environmental impact of my establishment without compromising the quality of the guest experience," he adds.

"We were also mentored by Bridge Consulting about the eco-labelling application process, and we have since applied. We are now waiting for the results. In Tunisia, there are only 12 certified establishments, none of which are green farms with accommodation like Dar Zaghoun. Ecology and sustainability are the founding principles of our establishment, involving additional short-term investments but leading to medium and long-term benefits and advantages. We would like to increase the occupancy rate of our accommodation and attract even more international guests, and the green certification will certainly help us achieve that," he adds. Green Key also has the added benefit of helping to increase the visibility of its certified sites.

Another of the SwitchMed programme's goals is to encourage the exchange of practical knowledge and learning experiences amongst

other likeminded enterprises. The owner of Dar-Zaghoun travelled to France as part of a week-long SwitchMed training programme to visit five eco-lodges located in the Rhône-Alpes region. "Having the opportunity to meet other people who have also had the experience of setting up eco-lodges and who have encountered and already overcome obstacles and problems, was really valuable for me in terms of learning what works and what doesn't work. I was also very pleased that Dar Zaghoun was chosen to host a national workshop on ecotourism in Tunisia organised by the SwitchMed programme. In that workshop I had to promote my business on a national scale as a model for circular economy with significant optimisation of water, energy and waste flows."

"Alongside traditional, eco-friendly agricultural and construction techniques we are also engaged in social entrepreneurship," explains Skander. "By providing an outlet within the area, we are enabling around fifteen artisans from the region to produce and sell local products, like cheese and handicrafts, promoting Zaghoun's heritage." Most importantly, we also created 11 green jobs, 8 of which were for women, which represents 50% of the income for the households concerned, contributing to the empowerment of women, as well as preserving the traditional knowledge for which they represent a major conduit.

Ecotourism is a sector with strong development potential in Tunisia, but which still faces many obstacles that need to be overcome. While several promising initiatives are moving in this direction, the sector still suffers from the absence of a clear and specific legal framework, which would imply a more sustained collaboration between the different key actors, adapted training, as well as more accessible administrative processes for entrepreneurs and companies developing ecotourism activities. The substantial consumption of resources per tourist, for instance, of approximately 550 litres of water per night remains above the strategic objective of 300 litres per night set for Tunisia. The production of waste, estimated to be 1 kg per tourist per night, which is twice the national average of 0.5 kg per inhabitant per day, is still high too and recovery rates are low. Despite the landscape and natural wealth as is the case of the Sahara and forest ecosystems, these resources are poorly exploited, and the development of ecotourism in Tunisia remains at an embryonic stage.

However, there is growing international demand for a kind of tourism that respects the natural and social environment that would help to valorise the Tunisian alternatives. The recommendations for replication of the national level circular economy model piloted at Dar Zaghoun are based on following specific best practices, such as the use of eco-building methods leading to resource efficiency and taking into account the regional climate, the development of ecotours which integrate nature reserves, and the valorisation of waste generated by the site, without forgetting the importance of gaining relevant international green labels and certifications.

Further information at:
<http://www.darzaghouane.com/>

Main achievements benefitting Dar Zaghoun in 2018

2 Years of continuous technical support in eco construction and sustainability measures thanks to 3 expert missions

1 Eco-audit carried out to advice on sustainable management and operation of the tourism eco-lodge

1 Eco-chalet built following circular economy criteria, which included 6 separate rooms to accommodate from 6 to 16 people, as per the recommendation of the eco-audit and promoted nationally as a model for circular economy demonstrating the priorities of the National Action Plan.
30% of energy saved

5% Of electricity saved through wood energy and the installation of solar panels

40% Of total water consumption saved

470 m³ of rainwater recovered per year

11 Green jobs created, 8 of which were for women to contribute to their empowerment and preserve the traditional knowledge

1 Green Key Label eco-labelling certification evaluation and mentoring. The certification is in process

1 Week-trip to France to visit 5 eco-lodges to enhance hands-on knowledge and exchange experiences amongst other likeminded enterprises

1 National workshop on ecotourism in Tunisia hosted in Dar Zaghoun

Diversifying the tourism sector in Tunisia

In Tunisia, tourism is an important economic activity with a ripple effect on other economic sectors. However, despite its positive impact on economic growth, tourism generates negative effects on the environment due to excessive concentration in coastal regions. Ecotourism is, therefore, a sector that represents enormous potential given the richness and diversity of the country's natural resources, ancient culture and unique gastronomy. In order to help Tunisia capitalise on this potential, SwitchMed has developed two pilot projects, one of which provided support to the Tunisia Ecotourism company for the design of new ecotourism products and the implementation of sustainable practices.

Ecotourism is a growing sector in Tunisia. It is a potential source of employment and a promising low-impact alternative to standard mass tourism. The Mediterranean is one of the world's favourite destinations but its popularity has a huge impact across the whole region, and Tunisia is no exception. With its 1,300 kilometres of coastline, it also suffers the adverse effects of mass seaside tourism. As of today, 95% of the tourism options offered in the country are still focused on 'sun, sea and sand' concept packages, presenting a major threat to coastal natural resources and impacting negatively on the environment, with problems such as water and waste pollution.

With stunning landscapes and a rich cultural heritage, Tunisia has the potential to easily diversify its tourism offer. In fact, the relatively new concept of ecotourism is one that is rapidly being seized upon by entrepreneurs and tourism companies, who are already starting to promote other areas of the country and switching their business models to more sustainable ones. They are aware of the growing demand associated with responsible travellers and ecotourists looking for experiences which combine nature, human and cultural values, favouring tour operators and tourist accommodation that are increasingly engaged with eco and social practices and have an eco-label.

This is the case of Tunisian Ecotourism, a local tourism operator that specialises in the design of eco-stays and organises environmental and cultural tours in Bizerte, the northernmost city in Africa and one of the oldest known settlements in Tunisia. With a background in ecotourism going back to 2005, and experience in running eco-tours, Aymen Louhichi launched his first company together with Ali Souissi. "After the revolution, we had the idea of developing a company specialised in nature travel and responsible tourism," Louhichi says, going on to add, "Through our activities, we encourage the preservation of natural resources of Tunisia together with the development of the local economy."

The project proposed by these two entrepreneurs aims to provide tourism alternatives

that are currently still far from commonplace in the Tunisian market, inviting tourists to take a different look at Tunisia and move away from mass seaside options. One of their goals is related to changing consumption patterns for both local and foreign customers, and building awareness with regard to sustainability. "We believe that ecotourism should promote a sense of environmental ethics and must be based on a 'biocentric' rather than homocentric approach, accepting the environment as it is without expecting to change it for own pleasure," explains Louhichi. "That way of travelling also provides an intense cognitive and affective experience," adds Souissi, "in addition to the many other positive impacts of ecotourism."

Tunisia Ecotourism was one of the two pilot projects selected by the SwitchMed programme, in conjunction with the Tunisian Ministry for the Environment and the European Union Delegation in Tunisia, focused on sustainable tourism in Tunisia. Prior to their collaboration with SwitchMed, the tours offered by Tunisia Ecotourism were quite general in nature and the lack of a clear communication plan made it difficult for them to effectively target a different type of customer. A review of their sustainable development values was also needed. The pilot project, therefore, aimed to support the tourism operator to strengthen its economic model and improve service quality, putting the entire focus on sustainable and socially inclusive practices. International experts sent by the Regional Activity Centre for Sustainable Production and Consumption also provided support during the environmental certification process. "We chose to apply for an eco-label because it is a certification standard that distinguishes the highest-performing business enterprises. We believe that this will enable us to increase our competitiveness in the market, while fostering the positive development of Tunisia's image as a nature destination," say the entrepreneurs. They know that for alternative tourism companies like them, obtaining an eco-label has many advantages. It adds legitimacy and credibility in terms of the company's image of sustainability for customers and partners. Another advantage is helping to obtain contracts with certain tour operators that see an eco-label as a guarantee of quality with regard to sustainable practices. "It's also an effective tool for motivating our staff to implement sustainability measures," adds Louhichi.

After two years of ongoing expert support and training, the company has now developed five new innovative ecotours in the north and central regions of Tunisia, adapted to both local and foreign markets. "For a more complete product, the expert advised us on services, hygiene, local guides, a welcoming pack for customers and, finally, on how to create a more inclusive business spatially in the protected

areas using local traditional knowledge," explains Louhichi. The steps for creating the new eco-touristic tours started with a marketing and competitive analysis to gain a better understanding of the positioning of the company, followed by a restructuring of the services offered with an expert in ecotourism. As a result, a new range of products was created and adapted to the market in terms of quality and price and communication tools and messages, such as 'Another look at Tunisia', were refined. This was achieved through the development of brochures for each new route and the placement of articles in various publications and media. "We also launched a website providing information on all the tour details and the values of the company," explains Louhichi. Working on the commercialisation strategy was another key element of implementing the pilot project. "To that end, we carried out activities such as upgrading our performance in terms of social media, networking with tour operators and travel agencies and holding meetings with young audiences to talk about the environment and its preservation."

The five new ecotours consist of a range of natural and mixed culture-nature tours at different sites, with the focus on environmental education and discovering the local culture. They include walking tours to discover historical monuments, archaeological sites and traditions, as well as the region's rich fauna and flora, such as the Persian cyclamen and the mountain gazelle. For example, one takes the form of a bird-watching weekend trip, in which people have the opportunity to visit the region's most important migratory bird roosting sites. Each year thousands of migrating birds leave Europe and fly to the Ichkeul National Park where they nest for the winter period. "Amongst some of the activities we include in our birding weekend, apart from birdwatching, is a presentation by the park ranger to explain a bit about how the park is run and a visit to the museum to understand its unique ecosystem, a chance to explore on a swamp walk and a visit to a thermal pool. Guests stay in eco-lodges, guesthouses or homestays." According to Souissi, "We promote the region in which we live and to which we are proud to belong. Our main motivation is to contribute to the preservation of nature and biodiversity by giving visitors an opportunity to discover its beauty." The ornithological tour has been so successful that it is now being made available and sold in France, thanks to a partnership with a French tour operator. As for future plans, Tunisia Ecotourism has a new partner that they are working with to access markets in Germany.

Following the pilot project, Tunisia Ecotourism has also generated a positive social impact, as the new tours have created 24 green jobs for 16 female and 8 male employees. "Women are the major custodians of traditional knowledge with regard to Berber pottery, handicrafts and local

gastronomy," says Louhichi, stressing the value and recognition being given to women by Tunisia Ecotourism in terms of developing their business and visual communications strategies and the promotion of traditional handicrafts in their newly created routes.

The work being done by Tunisian Ecotourism is also very positive in terms of environmental protection and local community development. The company transfers 5% of its profits to programmes devoted to environmental protection and the development of local accommodation. Their tours are organised in partnership with local restaurants, farmers and artisans, which not only stimulates the local economy and creates jobs, but also ensures the continuation of traditional crafts, favouring an inclusive company, and empowering women. Another outcome of the pilot project was the development of an online platform to promote sustainable products that are produced by local crafters, many of which are women, allowing them to gain recognition and helping to save traditions that are on the brink of disappearing.

Tunisia Ecotourism was also invited to participate in a final workshop on ecotourism that took place in December 2017, with more than 50 relevant active stakeholders in the sector, aimed at capitalising on the ecotourism and sustainable practices and experiences learned during the pilot project. These lessons and experiences gained from the project were used in the development of a guide for the certification of tourist accommodation and tour operators in southern Mediterranean countries. The project's successful results were achieved through a close joint collaboration between the international experts involved in the project and Tunisia Ecotourism. They have formed an excellent partnership, redirecting the company's range of services to integrate the values of sustainable development and the agency has now implemented a consolidated green economy model based on a sustainable, socially inclusive tourism services, with potential for replication within their country. This pilot project provides an excellent demonstration of the opportunities presented by ecotourism for the Mediterranean region, although efforts still need to be made to fully exploit this sector in the marketplace. A more harmonious synergy between all the key actors and a clearer legal framework specific to ecotourism will contribute to the development of sustainable tourism practices.

Further information at:
<http://tunisiaecotourism.com/>

Main achievements benefitting Tunisia Ecotourism in 2018

- 2 Years of continuous expert support and training
- 5 New ecotours created, which consist of a range of natural and mixed culture-nature tours at different sites, with the focus on environmental education and discovering the local culture
- 24 New green jobs created for 16 female and 8 male employees
- 2 Eco tours already sold in France (new partnerships created)
- 1 Communication and marketing strategy enhanced, including tools and messages sharpened to the newly created circuits
- 1 Website developed providing information on all the tour details and the values of the company
- 1 Online platform developed, to promote sustainable products produced by local crafters, many of which women
- 1 Final workshop on ecotourism with more than 50 relevant stakeholders active in the sector including Tunisia Ecotourism, aimed to capitalise good practices and experiences learned in the pilot project

Tunisia is making progress in lead paint elimination

Lead in paint is a serious threat to the long-term human health and although its use has been restricted in industrial paints in at least 67 countries, it is still being used in many others such as Tunisia. In fact, out of the Southern Mediterranean countries, only Algeria has completely restricted lead in paints.

Lead is a toxic heavy metal which is used in a variety of applications including in decorative paints as a pigment and in rustproof primer paints (trilead tetroxide). The World Health Organization lists lead exposure as one of the top ten environmental health threats globally. The Institute for Health Metrics and Evaluation (IHME) has estimated that in 2013 lead exposure accounted for 853,000 deaths due to long-term effects on health, with the highest burden being in low and middle income countries. Children are especially vulnerable to the negative health effects from lead, including decreased intelligence and increased behavioural issues. Childhood lead poisoning, can also take place during pregnancy and can have lifelong health impacts including: learning disabilities, anaemia and disorders in coordination, visual, spatial and language skills. Numerous scientific studies have concluded that there is no safe level of exposure to lead.

Minimising the adverse effects of chemicals in the Mediterranean region is essential for protecting human and environmental health which is why it was prioritised as one of the key areas to work on at the Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC). Prior to the design of activities, SCP/RAC did a comprehensive research on how to prevent and minimise the use of selected toxic chemicals that are widely used in the Southern Mediterranean region, and as a result, 20 cases studies were identified and presented in a publication. “In this context, we wanted to provide an overview of safe alternatives for these 20 hazardous chemicals, including the substitution of lead in industrial paint”, explains Kimberley de Miguel, expert on toxic chemicals at the SCP/RAC. “A major use of lead in paints in the North African and Middle East countries is for corrosion protection of metal constructions (normally iron or steel), such as pylons, bridges, pipelines, but are also used on private infrastructure for corrosion protection of buildings and other constructions”, she clarifies. Furthermore, high levels of lead in blood have been reported in the region’s inhabitants, including children.

In light of the current international campaigns and the projects taking place at the time, such as the Global Alliance to Eliminate Lead in Paint, the opportunity was seen to integrate a pilot project in the Med region within this wider scope, aligning objectives to present

a stronger and coordinated approach to tackle the issue. This small scale project could serve also as a case study of the Global Environmental Facility’s large-scale project “Global Best Practices on Emerging Chemical Policy” Issues of Concern in the UN’s Strategic Approach to International Chemicals Management (SAICM), that is a policy framework to promote chemical safety around the world.

A number of activities were identified as potential ways to address the particular needs in Tunisia, where several stakeholders were interested in developing a pilot project on this topic under the SwitchMed Programme. SCP/RAC coordinated with relevant experts at UN Environment, International POPs Elimination Network (IPEN) and the University of Sousse to screen and select feasible and effective tasks to raise awareness and help improve the regulatory status of lead-based paints in Tunisia within the scope of SwitchMed Programme.

During 6 months, the team aimed at designing an event that would bring together the actors who could help phase out lead and implement non-toxic alternatives. The pilot project developed into two main activities: an alternative supplier event for suppliers and SMEs on the substitution of lead in paint and the development and dissemination of technical guidelines on the best practices, tailored to the Tunisian market, for replacing lead-containing rustproof paints.

In June 2018, Tunis hosted the two-day event, in which over 50 people attended including a number of local companies operating in the paint industry, - that were previously identified-together with international companies and other providers that are currently offering lead substitute products. Douja Gharbi, founder and vice president of the Confederation of Citizen Enterprises of Tunisia and a local driver of business innovation and entrepreneurship, ensured that not only SMEs but also representatives from the Ministry of Health, Ministry of Environment and Ministry of Industry, other institutions from the public sector, research centres and universities and occupational Health and Safety organisations were also attending the event. Douja Gharbi expressed that “the transition to sustainable production is a win-win for all stakeholders”.

The event was organised with the purpose of encouraging policy makers to support industries in the transition to non-toxic alternatives and to raise awareness on the topic, engage the private sector and do advocacy for a better regulatory framework. During the opening of the event, the Minister of Industry, Mr Slim Feriani, stated that “lead in paint constitutes the most significant source of lead toxicity, for which there is no acceptable threshold and the

government will act on three fronts: raising public awareness, setting up a legal framework limiting the commercialisation of lead-based paint and boosting scientific research to find sustainable alternatives”. He also highlighted that green economy is one of the priorities of the new national strategy of the Ministry of Industry and that collective efforts need to be focussed on achieving a more sustainable and inclusive economy for all the Tunisians.

National and international experts from different organisations such as IPEN, a network working together to eliminate the production and use of toxic chemicals, provided a concrete view of the Tunisian lead-free paint ecosystem. The attendees had the opportunity to exchange know-how and in-depth experiences to increase their knowledge of sustainable production and consumption practices and discuss the alternatives as well as strategies that could be introduced safely and efficiently.

Dr. Karima Khalifa, from Astral, one of the first Tunisian paint company that decided to eliminate lead from its raw materials and finished products in order to protect its employees and its customers in collaboration with AkzoNobel, presented different lead-free alternatives. “Since 2001, a range of lead-based pigments and driers such as mineral red solipur BH 79662, solipur mineral yellow 6 G 7862X and G 7867 X and drying agent 36% Pb has been substituted by alternative lead-free such as yellow 74, red oxide blue 15: 3 and red 112”, she explained. During her talk, she emphasized that it’s time to introduce national laws and regulations that prohibit the use of lead in paint and all other materials that are harmful to health and the environment”. The current concern of our Research & Development center is to develop water-based paints, as efficient and less polluting”, she added. It is clear that progress has been done. Semia Gharbi, environmental expert, reassured that “there are cost-effective alternatives and manufacturers in different regions have switched to alternatives. For instance, the most common replacement for lead in solvent-based anticorrosive paints is zinc phosphate and zinc-aluminium phosphates”.

The fact is that, for over 30 years now, pigment manufacturers have been offering lead free alternatives to the coatings industry worldwide. For example, Zinc-rich coatings and primers (ZRP) have the unique ability to provide galvanic protection to the steel surfaces to which they are applied. A common substitute is also Zinc phosphate primers, used for corrosion protection of steel, iron or aluminium construction. Other solutions currently available include the industrial zinc coating system (Hot-dip galvanization) and electro-galvanization or zinc plating. All of which are technically feasible to implement and have been used for decades in practice. The drawbacks presented by the alternatives are often the cost. However, since zinc is a relatively cheap metal, the prices are still reasonable and its use is widespread in the Southern Mediterranean region, shows that both processes are economically feasible.

The audience pointed out the need to move towards stricter controls and legislation, particularly those enforced by the government and imposed by the industry association. Moreover, increasing consumer awareness with activities such as product campaigns, eco-labelling and education from an early age could speed up

the transition. “We carry out awareness campaigns to eliminate lead in paint through educating the population”, said Dr. Semia Gharbi, science advisor at IPEN who also explained the need for further cooperation between government branches, industry leaders, and research centres. Semia Gharbi, together with Dr. Sara Broche and Jeiel Guarino, developed the technical guidelines for replacing lead oxide in anti-corrosive paint in Tunisia, which was part of the second activity of the pilot project. In that way, the completion of the technical guidelines was presented by them at the event, also as IPEN’s technical experts in paint formulation and alternative raw materials. “This guide provides general information on paint manufacturing processes, paint ingredients and their properties, as well as the use of lead in anti-corrosive paint and alternatives to it”, explained Brosché during her talk, who also gave an overview about IPEN’s work supporting their partners in collecting market studies on lead paint. “IPEN is advocating for a global ban of lead in paint to protect the future of children and the future of coming generations.

The authors explained how the substitution with non-toxic alternatives would involve reformulation of the paints, which has related costs: the direct costs of the raw materials, testing of new formulations and potential new equipment; and the indirect costs incurred by devoting staff time to the process. However, using safe alternatives may also lead to cost savings throughout the production chain such as the handling of less hazardous waste. Also, as demand for alternatives is rising, the price of the alternatives is gradually going down, while the price of lead has increased approximately three times since 2005. The importance of labelling products appropriately was highlighted, as this would allow consumers to make better informed decisions when acquiring paints. Generally, customers are willing to pay more for a product that is safe for our health and environmentally friendly.

The pilot project raised awareness among participants and urged policy makers to take action and positive results are already taking place, as the Ministry of Environment assured weeks after the event, that a new law is already in drafting. Ms Asma Fenira, CAP Groupe Alliance, mentioned that it is also a priority to advocate for the protection of the industrial sector that has switched to alternatives and is acting responsibly, preventing the environmental and health risks, from unfair competition with the products of those who haven’t switched. A way could be organising SMEs in a cluster and set up funds and financing mechanisms to help them do the transition to free-lead paint products.

It is important that interested stakeholders come together to work on a clear substitution strategy and ensure its implementation. The project has shown that there is a clear commitment from all actors to move forward. Tunisia is certainly following the right path and is working hard in that direction.

Main achievements on Lead Paint in 2018

- 1 Fair trade organised to discuss the needs and steps to eliminate lead paint in the Tunisian market, bringing together key actors who will help phase out lead and implement safe alternatives
- 1 Technical guide on best practices, tailored to the Tunisian market, to encourage the substitution of lead-containing rustproof paints for non-toxic ones
- 50 People attended to the 2 day event in June 2018, including small and medium Tunisian enterprises, stakeholders and policymakers who engaged in the transition to non-toxic alternatives
- 1 Legislation currently in drafting to ban the use of lead in paint in Tunisia
- 1 Eco-label to favour industries that have switched to substitute products to be created, according to the needs identified during the event
- 1 SMEs cluster to be organised, setting up funds and financing mechanisms to help them switch to the substitution of lead in paint

Awareness campaigns about the harms of lead in paint and the available alternatives on the market to challenge policy makers and urge them to take action supporting industries during the transition to non-toxic alternatives

Scientific research to develop more sustainable and economic viable alternatives

Demonstrating the business case of a resource efficient and cleaner production (RECP) in the chemical, food, leather, mechanical, and textile sectors in Tunisia's industry.

Photo credit: @UNIDO



Working towards a resource efficient and greener production

At SwitchMed we support the adoption of sustainable production in the southern Mediterranean that enables industries to increase their ability to produce with lower cost, while reducing their environmental footprint. We do so through the MED TEST II project, a comprehensive approach that demonstrates the business case of a resource efficient production in 125 industries in 5 key production sectors of the southern Mediterranean, by using capacities of local service providers. This approach promotes the business case of a resource efficient production to industries in the southern Mediterranean, while advancing the supply of national capacities on sustainable production services.

Transforming industries to meet the needs of changing market conditions and a rising resource scarcity calls for a change in knowledge, attitudes and practices that can lead to a production that requires less resources and reduces pollution. The MED TEST II project, presided by the United Nations Industrial Development Organisation (UNIDO), applies the methodology named the Transfer of Environmentally Sound Technologies (TEST), a concept that addresses the challenges and barriers industries are facing in becoming more resource saving, energy efficient, and less-polluting.

The TEST concept approaches all management levels of a business, involving people with different professional backgrounds and operational responsibilities, in order to enhance and sustain the efficient use of production inputs and environmental performance. Connecting the resource efficient and cleaner production (RECP) assessments with present-day standards in environmental and energy management systems, helps building cross-cutting understanding and capacities within various management areas of a company and enables a holistic understanding and support for RECP within the business. This encourages a business culture where eco-innovative business solutions can thrive and a systematic assessment of the production can be set-up to monitor resource use and support a continuous improvement on the business performance. Furthermore, this approach encourages the production of goods that are responsibly managed throughout their life cycle, and increases the ability of companies to access international markets with good quality products and to reach compliance with environmental standards.

The MED TEST II project has displayed that the potential for improvements in resource savings within the production of the southern Mediterranean industry is significant. In the eight SwitchMed countries, the MED TEST II project identified 1,830 improvement measures within the 125 demonstration companies. The identified measures have stimulated a total investment of 87.6 million euros out of which 43% of the measures had a payback period below 6 months. A short payback period combined with an annual saving potential worth 41.7 million euros, has contributed to a high implementation rate of the identified measures (75 %), showing that investments in RECP is a feasible and a profitable business decision. Through the identified RECP measure in the MED TEST II project, industries in the Southern Mediterranean region now can annually save 3,512,660 m³ of water, 707 GWh of energy, reducing the solid waste generation with 19,602 tons and CO₂ emissions with 197,525 tons per year. In addition, 682 professionals from industries, service providers, government institutions and academia received training on the TEST methodology during the demonstration phase of MED TEST II in the SwitchMed target countries.

Resource efficiency is key in switching towards circular economy models. The MED TEST II project has revealed how additional economic and environmental benefits can be gained from the RECP approach using an integrated methodology of TEST that gives businesses an opportunity to invest in their future while reducing their environmental footprint.

Partners for green growth in industries

Strengthening national capacities and competencies related to Resource Efficient and Cleaner Production (RECP) is not only one of the key objectives of the MED TEST II project, it is also an effective way to ensure a sustainable impact that endures beyond the life of the project. For this reason, UNIDO is working closely with government institutions and industry and civil society stakeholders to raise the profile of RECP in the eyes of policy makers and knowledge networks able to strengthen national capacities with their RECP expertise.

Funded by the Ministry of Industry and Small and Medium-Sized Enterprises and the Ministry of Local Affairs and Environment, the MED TEST II Project in Tunisia was implemented by a consortium of five sector-specific centres, including and headed by CNCC: CTC, CETTEX, CETIME and CTAA. The MED TEST II project brought together influential organisations and institutions to achieve the sustainable application and implementation of RECP in Tunisia.

Training, combined with onsite technical assistance, is provided by local service providers with the support of international sector and thematic experts. The idea behind this approach was to demonstrate the business case for RECP in five of Tunisia's most important industry sectors, and establish reference cases for national service providers willing to offer the TEST concept to interested industries through Tunisia. Together with its Tunisian partners, UNIDO uses capacity-building activities and industry demonstrations to illustrate more sustainable manufacturing techniques and new green business models within 26 companies from the chemical, food, leather, mechanical, and textile sectors, thus stimulating the capacity of Tunisian industry to transform into a more resource-efficient production model.

A: Centre National du Cuir et de la Chaussure (CNCC)

Established in 1969, the CNCC is linked to the Ministry of Industry and works to develop and promote the leather industry sector in Tunisia. By providing Tunisian companies with technical assistance, coaching, analysis, testing, training, R&D, and promotion, the CNCC can give qualified support to the leather industry on how to adapt to new requirements and economic developments.

The CNCC has been the lead technical implementing partner for the MED TEST II project in Tunisia throughout the life of the SwitchMed programme, and has also demonstrated the TEST methodology in Tunisia's leather sector.

B: Centre Technique de la Chimie (CTC)

It was founded in 1996 under the supervision of the Ministry of Industry and Technology. The CTC offers the chemical industry in Tunisia assistance in modernising production methods, improving technology and quality control. During the MED TEST II project, the CTC was responsible for demonstrating the TEST methodology in selected companies from the Tunisian chemical sector.

C: Centre Technique du Textile (CETTEX)

Created in 1991, the Centre Technique du Textile provides advice and expertise to the textile and clothing industry and public authorities. CETTEX offers a complete range of services for operators, including technical assistance, expertise, R&D, analysis and testing, training and laboratory information. It accompanies and supports companies in their technical, managerial and organisational development and provides constant support in their quest for growth and innovation. As part of the MED TEST II project, CETTEX conducted the demonstration of the TEST methodology in selected companies from the Tunisian textile sector.

D: Centre Technique des Industries Mécaniques et Électriques (CETIME)

Founded in 1982, the Centre Technique des Industries Mécaniques et Électriques (CETIME) is devoted to providing the means and the skills needed by businesses in the mechanical and electronic industry sectors. CETIME offers technical assistance to the industry in line with its mission to improve the competitiveness of Tunisian businesses in the mechanical and electronic sectors. CETIME was responsible for demonstrating the TEST methodology in these sectors as part of the MED TEST II project in Tunisia.

E: Centre Technique de l'Agro-alimentaire (CTAA)

The Centre Technique de l'Agro-Alimentaire (CTAA) was founded in 1996 and is currently funded by the Ministry of Industry. CTAA's mission is to provide advice, assistance and support to industrial enterprises in the agro-food sector in Tunisia. CTAA promotes the growth and development of the sector by providing companies with technical assistance, training, R&D, promotion and facilitation of information campaigns as well as laboratories and quality improvements. As part of the MED TEST II project, CTAA was responsible for demonstrating the business case for RECP in selected companies from the food sector.



Resource efficiency a major opportunity for Tunisia's industries

In the aftermath of the revolution, Tunisia remains a country full of challenges that will continue require innovative solutions that can support the economic development of the country. While important steps in reforming the society has been taken, the economic growth has unfortunately not maintained the same pace with high unemployment figures and shrinking domestic demand as a result. For instance, the slow recovery of the buckled tourism sector has also affected the Tunisian food industry, as much of the domestic consumption remains linked to the development of this so important economic sector. This development, together with the regional security risk, has of course posed to become a growing threat to Tunisia's long term economic competitiveness.

Still, the country is determined to mobilize all efforts to accelerate its development and strives to increase its GDP while creating new employment opportunities. But in order to get there, the economic challenges that Tunisian SMEs are facing must be addressed, so that they can maintain their competitiveness and their role as an employer. The economic challenges of the Tunisian industry is closely connected to the reliance of expensive, carbon fossil fuels for energy, an increasing water scarcity, and soaring prices for imported raw materials. Creating opportunities for Tunisia's industry to save resources would not only improve the economic situation of the businesses, but would also help to ensure the availability of resources for other parts of society.

With 26% of Tunisia's GDP, industries, and especially SMEs, continue to play a key role in the process of economic diversification, not only as a resource consumer, but also as a supplier to other economic sectors and as a driver of economic growth and job creation. But the way industries deal with waste, energy and water needs to change fundamentally, especially if Tunisian businesses are going to be able to compete on the growingly important global export market. Therefore, industries require tools and investments that would make the production more resource and energy efficient, non-polluting, and safe – maintaining the competitiveness of the businesses.

Turning challenges into opportunities is at core to the UNIDO TEST methodology as it supports industries with a toolset to address the rising energy and raw material costs by integrating saving measures into current business operations. In 2009 UNIDO introduced the TEST concept in Tunisia as part of the MED TEST initiative, which was co-funded by the GEF and the Italian government. Between 2009-2011, the initiative targeted 4 industrial sectors and 11 industries, to become more resource efficient, safe and less pollutant and could already then reveal that there is a huge potential for resource efficiency in SMEs of Tunisia. Following the outcomes of the MED TEST initiative, the MED TEST II project, functions as a unique and innovative part of the SwitchMed programme and seeks to further demonstrate how the business case of a resource efficient and cleaner production can be unscaled throughout the Tunisian industry.

The MED TEST II project, implemented in Tunisia from 2015 to 2017, has enabled the 26 Tunisian industries, from the food, leather, textile, chemical, and the mechanical sectors, to identify 362 RECP measures. Thanks to the MED TEST II project, the 26 industries will reduce their annual water consumption with 448,950 m³ and their energy consumption with 111.2 GWh per year. These investments will require 14.1 million euros in investment from the businesses, with an average payback period of 1.5 years and accumulate annual savings worth 9.7 million euros for the 26 industries. Correspondingly, the leverage for

private sector investments in resource efficiency has compared to the MED TEST initiative grown with 40% in the MED TEST II project. This clearly shows that there still is a significant potential and profitability for the RECP concept in Tunisia.

If other businesses decide to take on the approach of a resource efficient production in the industry of Tunisia, the RECP concept could become a core element in assisting the economic development of the country, contribute to a more equal resource distribution, and maintain the role of the industry as a job creator. A more resource efficient production will also help businesses to generate responsibly managed products throughout their life cycle, while increasing productivity and maintaining access to international markets with good quality products that meet international standards. Therefore, if Tunisia's industry is about to change and tap into the full extent of their potential, it is fundamental that other businesses and sectors pick up and follow the business case of RECP - as it was demonstrated in the MED TEST II project. UNIDO, together with stakeholders from the civil society, government and the industry have developed a scaling-up roadmap on how to expand the RECP concept in Tunisia. An action plan that will support the facilitation and reinforcement of national competencies around the topic of RECP and green growth has been developed with the ambition to mainstream the RECP approach throughout the industry in Tunisia.

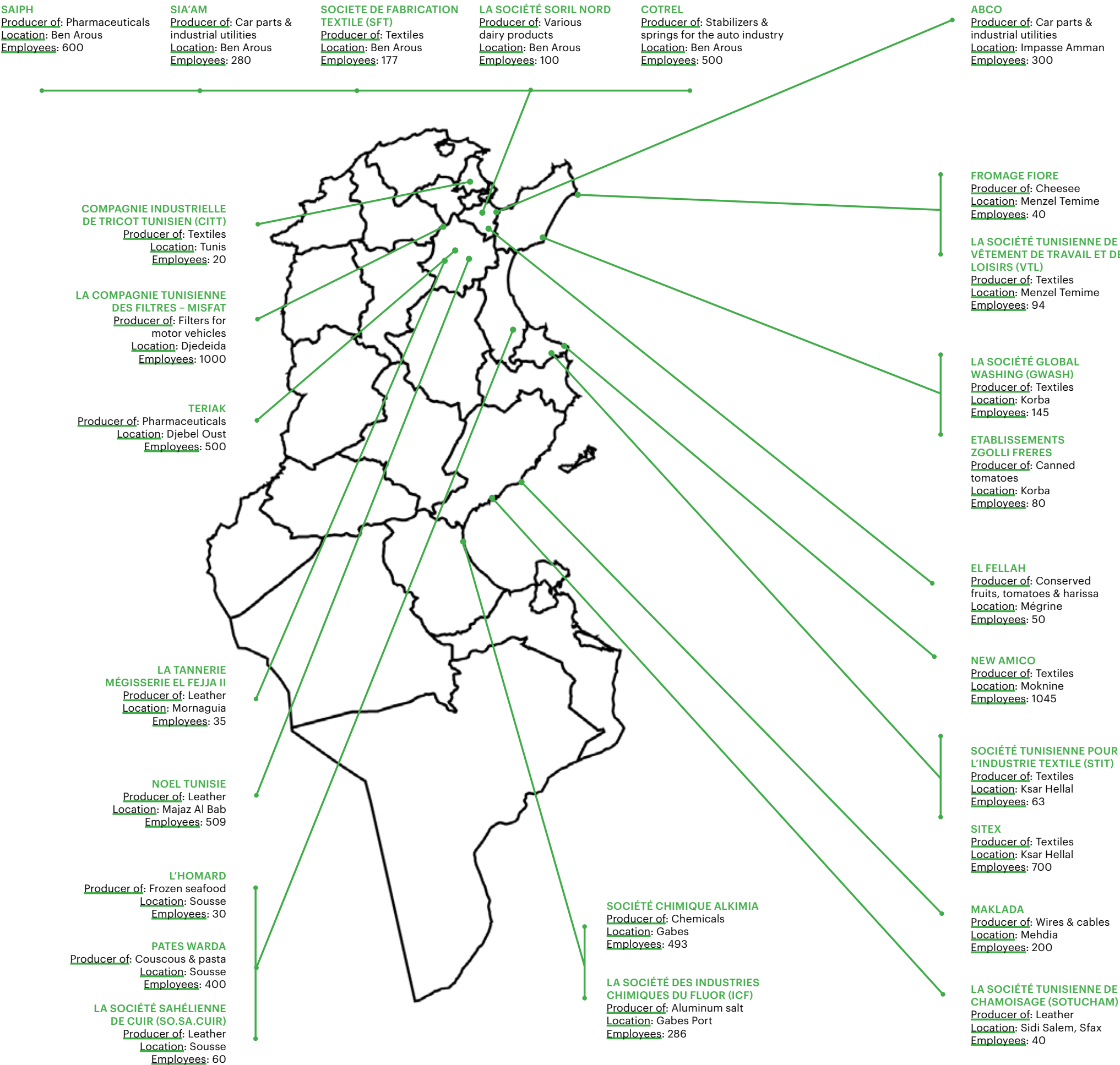
Download the scaling up roadmap for RECP [here](#), or download it over the QR code:



Photo credit: @UNIDO

Partners for a green growth

In Tunisia 26 industries from the food, chemical, mechanical, textile, and leather sectors joined MED TEST II:



Why Tunisian businesses should improve resource efficiency

Rachid Nafti's profile:

Rachid Nafti is a Senior TEST expert and has been working with UNIDO in developing the Southern Mediterranean industry for many years. He has a background in environmental management and is a consultant and researcher in the environmental field. With 25 years of experience in the management, coordination and monitoring of environmental projects in Tunisia, North Africa and Middle East region, Rashid shares with us how UNIDO managed to attract SMEs into the MED TEST II project, where the biggest challenges lie ahead for Tunisia's growing industry, and how the tools of TEST could remedy these challenges.

As a Tunisian, working for UNIDO in Tunisia, you have a unique insight into the current situation of businesses from the Tunisian industry. Where do you see their biggest challenges and what can be done to assist them?

By many measure, Tunisia has the best chance to develop itself and adopt a more inclusive and sustainable economic model. The democratic transition have despite some setbacks established a dialogue of consensus and a highly educated labour force is waiting to contribute to the economic development, but unfortunately the unemployment remains high diminishing the local demand and purchase power. The Tunisian industry sector plays a significant role for the economy and is Africa's sixth largest manufacturing sector. However, the growth rates after the revolution and the level of foreign direct investment have been poor, which has made the situation for the industry even more difficult. So, in order to compete better locally and globally, SMEs in Tunisia must modernise their information systems, acquire production practices and technologies that meet international standards. This would allow them to produce with fewer resources and at a better cost, which again would strengthen their role in the export market and maintain and create jobs in the country.

How can the UNIDO TEST methodology help industries in managing inefficiencies and become more cost efficient?

More often than not, companies are not aware on the losses that occur in their production. The UNIDO TEST approach, builds on the concepts and tools that are leaned on the model of a Resource Efficient and Cleaner Production (RECP). While the RECP approach envisions improving production techniques to become cleaner and more resource efficient as a preventive strategy to reduce pollution and increase cost savings for businesses, the TEST methodology also includes some specific features that embed the traditional "one-stop improvement" or "audit-like" approaches to resource efficiency in a system approach. This will help to drive continuous learning and improvement in an organisation. The TEST approach allows industries to identify the most important leverage points for improvement and the most appropriate tools that are customized in a way that matches the needs of a business. Enabling business to be part of the process in identifying the best intervention in the production, does not only allow a higher acceptance of the proposed solutions, it also gives ownership of the process and ingrains a culture where resource efficiency becomes part of a corporate culture. Moreover, the process of collaboration between different departments in a business also creates a culture of collaboration and understanding on the different priorities that the different departments have. Businesses that have put the TEST methodology in place in their organisations have not only been able to make considerable savings, but also adopted an innovation culture that will help the business to approach future challenges.

So how did the MED TEST II project work in Tunisia and how could industries get convinced to take part in the demonstration phase?

In the regional MED TEST II project, UNIDO worked together with local expertise to demonstrate best practices on RECP throughout the eight countries of the SwitchMed programme. In Tunisia, the MED TEST II project involved industries from the chemical, food, leather, mechanical, and textiles sectors and was implemented by five technical centres, each



Photo credit: @UNIDO

representing a sector and with the national centre of leather and shoes (CNCC) taking the lead for coordination. Projects that relate to efficiency measures in energy consumption typically appeal to many businesses as this often is a well-known costs factor for the business. However, the experiences from the MED TEST I project in Tunisia had also revealed that there is a significant saving potential in other areas, such as water, raw material but also in environmental compliance costs.

If you want to make business listen, you need to speak the language of the business, which eventually is about how to make more money.

The numbers that we could present from the MED TEST I project were naturally helpful in raising awareness on this issue. But essentially, the demonstration projects gave us numbers from the companies that confirmed that the TEST methodology really made an impact on the production costs for the businesses. For instance, the application of the Material Flow Cost Accounting tool set up an effective and supportive information system in the businesses. As a result, the actual costs of material and energy flows became evident in the production process. So, together with the company TEST team measures could be developed that would remedy the flaw in the production process. This could in some cases simply be a fine tuning of the equipment or in some cases an investment in a more efficient technology. In any case, it is when you reveal the monetary value of the losses that a business is doing every day that managers start to listen to improvement measures that can be done in their production.

What can be done to make investments in resource efficiency for SMEs more attractive?

As I already said, it is important to establish the connection that resource efficiency is not only about doing better for the environment - it is also about making good business. For many industries the connection between refining their

resource use and making a positive difference to their production costs is still not adequately tangible. Nevertheless, with rising prices for raw materials, energy, and water this will eventually become a problem for industries in the MENA region, especially since many governments also have started to reduce subsidies for industries on certain commodities. Now, what the industries need is to realize that there are solutions out there that could bring long term savings and in some cases do not even require a significant amount of investment. For instance, the average payback period of the investments identified in the MED TEST II project in Tunisia were below 1.5 years and out of the 362 identified measures 40% had a payback period below six months. Now if you take this figure and compare it to the potential annual savings of 9.7 million euros for the 26 demonstration companies in the MED TEST II project, you soon realize that the economic savings from investing in RECP really makes a difference and is achievable even for small businesses. I will give you an example: a small tannery with 35 employees managed during the MED TEST II project to identify savings in energy, water, and raw materials, which will help the company to save 270,876 euros on an annual basis! To achieve this, an investment of 186,400 euros would have been required. Now, imagine the impact this will have for the business and its ability to remain profitable.

Where do you see the long term benefit for Tunisia and the industries in adopting RECP?

As already illustrated above, the potential of RECP certain lies in the prospect for businesses to make savings in valuable resources and, hence, costs. In the end, a resource efficient production leads to lower production costs, which again will enable industries to make new investments into the business, to upgrade technologies, expand the production, and create new jobs. Now this is at the moment an important issue, as Tunisia really needs to have a competitive industry that can continue fulfill its function as an employer and to create additional employment. But there are of course also other benefits from adopting RECP and that is related to the environmental traits of RECP. The MED TEST II project in Tunisia revealed that the 26 demonstrations companies could

through the identified saving measures annually save 448,950 m³ of water and 111.2 GWh of energy, reducing their CO₂ emissions with 35,227 t per year and 2,371 t of solid waste reduction could also be achieved. Now these figures matter, especially in a country like Tunisia where water is much needed elsewhere and where energy needs to be imported at a very high cost. Consequently, switching to more resource efficient production is not only good for the businesses it is also contributing to a better environment and the redistribution of resources to other parts in the society.

Where do you see the challenges regarding the implementation of resource efficiency at different scales in Tunisia and what impact could this have for the future development of the country?

Although, the adoption of RECP is evident to me, we still need to look on how the situation looks like in Tunisia and what needs to be done in order to make the most of on the achievements of the MED TEST II project. This is important because we want to understand the structural barriers that hinder a sector wide uptake of RECP in industries. At UNIDO we have, in consultations with the national partners, the government, and key stakeholders developed a roadmap for scaling up resource efficient production in Tunisia. A set up of actions have been developed to support the uptake of RECP in Tunisia. The action plan focuses for instance on the issue of raising awareness on the benefits amongst industries and policy makers for RECP, but also on how to strengthen the national capacities on RECP in Tunisia, not only for service providers, but also in the curricula of the universities. Now, in order to remain competitive on the global market, Tunisia's industry need to take the path of RECP. But also, if you look on the growing market demand for environmentally friendly products, this has also become a growing issue for Tunisia's export industry. If Tunisia's industry chooses to take the path of RECP, this would add additional value, not only to the industry, but also to our position in the MENA region and Africa as a country where innovation and development go hand in hand.

Case studies from Tunisia

NOEL TUNISIE is a Tunisian company specialized in producing shoes for children under their own brand, but also as an exporter to various brands in France. With over 500 employees, the company is also an important employer in the Beja region. Improving the efficient use of materials in the production was together with the prospect of making water and energy savings, one of the reasons why NOEL TUNISIE decided to join the MED TEST II project. The TEST team could through the application of the Material Flow Cost Accounting tool quickly identify that leather summed up significant costs in the production. NOEL TUNISIE identified measures that will valorise leather scrap and together with the instalment of new cutting machines, the production can be optimized saving 64 t of leather per year and 12 t of steel for the cutting equipment. All in all, the MED TEST II project could identify savings in raw material, energy and water worth 1.3 million euros requiring investments of 1.4 million euros. The project demonstrated to NOEL TUNISIE on the importance of operating resource efficient and cost effective.

“The MED TEST II project made us aware the importance of our different uses of energies and materials and so from us to advocate for the protection and prevention of pollution throughout the realization of our products while respecting the regulation, improving performance environment and using energy and raw materials responsibly.”
Marc Leroux, General Manager, NOEL

TERIAK is a producer of pharmaceuticals for the local and export market (35%), employing 500 individuals in the Tunis region. With an annual production capacity of 650 t, any savings in the use of raw materials would make a significant impact on the production cost for the business. The TEST team suggested several options for improving the manufacturing process of the medication, such as; optimizing the process of filling the powdered products, increasing the size of the batches manufactured in order to reduce control times and cleaning water, improve performance and reduction of losses during filling capsules, and raising staff awareness about issues of improving yields and productivity. These actions helped TERIAK to save raw materials, energy and water while reducing waste worth 34,520 euros with a minimal investment of 8,467 euros. Collectively, the MED TEST II project could identify savings worth 219,750 euros in TERIAK and will also help the company to reduce 1 216 t of CO₂ emission per year.

“The MED TEST approach with its different aspects was the frame ideal to reinforce our commitment to the environment.”
Ms. Asma Sellami, Production Manager, TERIAK

ABCO is a producer of canned fish for the local and export market (49%) with an annual capacity of 4 555 t. As a flag ship enterprise in the Tunisian food industry, with 300 employees, ABCO has already adopted several management standards, such as the ISO 9001, ISO 22000, CE, FDA. Through the MED TEST II project, the company could make preparations to obtain the ISO 14001 certificate. Thanks to the project ABCO could also identify savings in energy, water and raw material consumption to annual value of 84,384 euros. A particularly innovative solution was found for the de-frosting of fish. By using an aerosol technology the annual water consumption used for this process can be reduced with 2,628 m³ and saving 20 t of sardines per year. On the whole, the MED TEST II project could identify savings in energy, water and raw material consumption worth 84,384 euros.

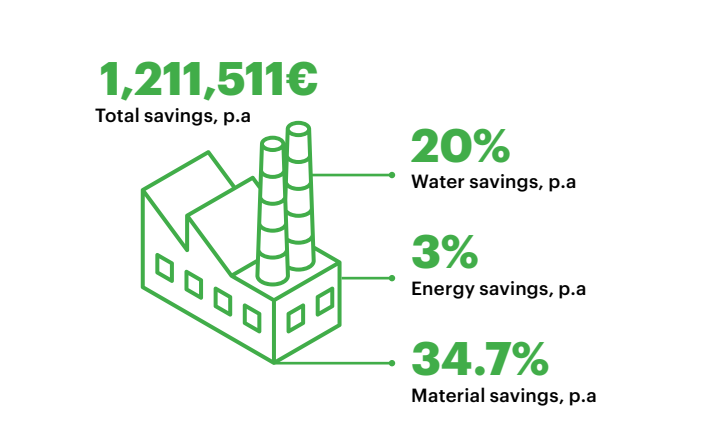
“Thanks to the MED TEST II project we were able to improve our cost accounting in place by determining the hidden costs and environmental issues. The TEST approach has also helped us to save resources and improve our energy management system.”
Samy Bellagha, Deputy General Director, ABCO

The Compagnie Tunisienne des Filtres – MISFAT – is a business which specialises in the manufacture of air and fuel filters for motor vehicles, and has 1,000 employees. Producing annually over 16 million filters, primarily for the export market (80%), the company was looking for new innovative ways in how reduce their production costs and to improve their environmental performance as this has increasingly become a requirement from international customers. Through the MED TEST II project improvement measures in the powder-coating and surface treatment processes could be identified. These measures would enable Misfat to annually save 11.7 t of coating powder and oil, worth 92,300 euros and only require investments of 55,400 euros, making it an outstanding investment with a brief payback period for the company. On the whole, Misfat was able to identify annual savings worth 415,522 euro through the MED TEST II project.

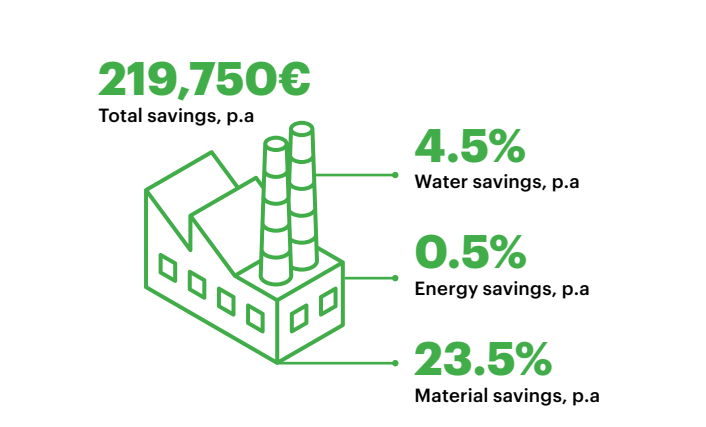
“The MEDTEST II project has allowed us to implement a large number of measures which are beneficial to the environment with considerable economic gains. This simply sustains and consolidates the company’s strategy in terms of sustainable development.” Imed Ellouze, QSE Director, MISFAT

Total savings by the selected companies

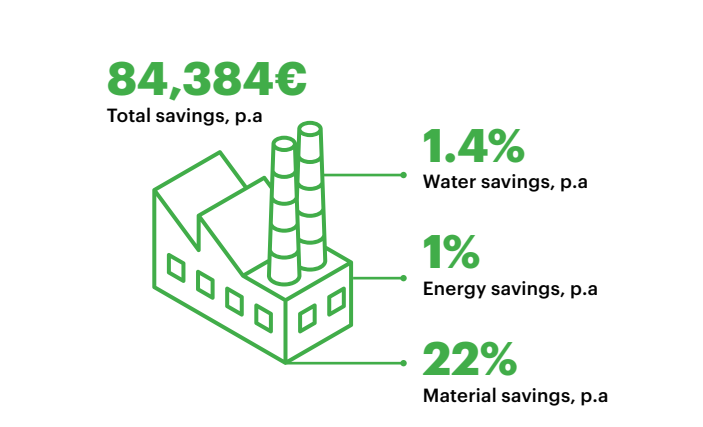
NOEL TUNISIE



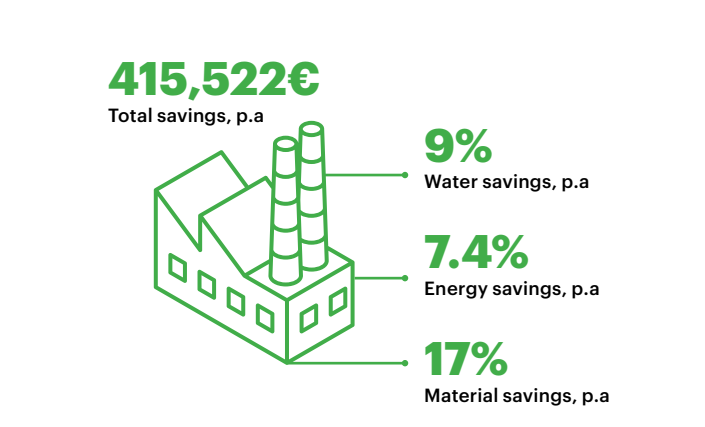
TERIAK



ABCO



MISFAT

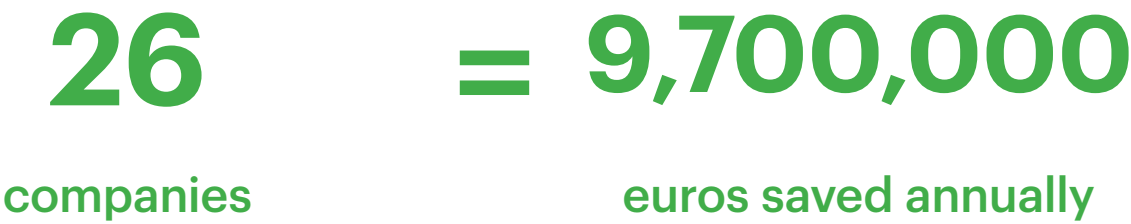
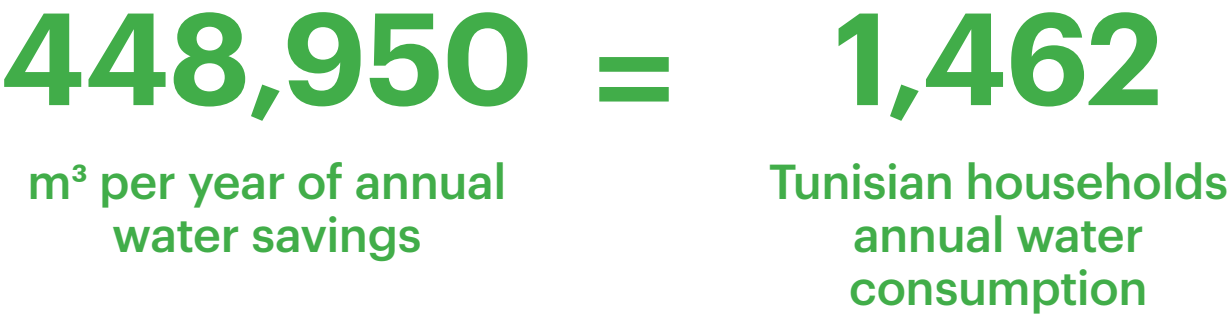


Annual environmental impact savings identified in the 26 Tunisian food industries

101

professionals

from academia, business associations, government institutions and industries received training on the TEST tools during the demonstration phase of MED TEST II in Tunisia



Scaling up a resource efficient and cleaner production throughout the Tunisian industry

The transition to circular economy is becoming a central issue in sustainable development strategies at international, regional and national level. To this end, the United Nations 2030 Agenda for Sustainable Development urges member countries to ensure sustainable consumption and production patterns for prompting resource and energy efficiency (SDG 12). By adhering to the goals of this agenda, Tunisia is committed to include the dimension of sustainable development in all of its public policies. At the regional level the SwitchMed program is, consequently, designed and implemented to facilitate the transition to Sustainable Consumption and Production (SCP) patterns in the Southern Mediterranean region. At the national level, Tunisia's commitment to sustainable development is realized through the adoption of a national strategy (NSSD)¹ and the development of an action plan for sustainable consumption and production patterns (SCP NAP)². In addition, the new investment law of 2016 encourages investments in sustainable production by providing financial incentives called sustainable development allowance³.

In this sense, the achieved results from the MED TEST II project are conclusive as they confirm the relevance and effectiveness of the TEST methodology as an instrument for industries that wish to overcome challenges related to a sustainable consumption and production. The cost effective measures, often with brief payback periods, will allow businesses to integrate RECP solutions in their current production without threatening the day-to-day business operations. However, despite the many benefits a more resource efficient production would offer and a relatively favourable institutional framework for SCP, the situation on the ground is still subdued regarding the uptake and generalization of sustainable production modes in industry and it is often limited to the implementation of pilot projects, justifying the need for a scaling up roadmap.

Making the transition from demonstration activities to a sector wide mainstreamed adoption of RECP in the industry of Tunisia, would be pivotal in helping achieving the SDGs in Tunisia. In this regard, UNIDO together with the Government, the local partners from MED TEST II, and stakeholders from the industry and civil society, have developed a roadmap with propositions on how to guide a sector wide adoption of RECP in Tunisia and what actions are required to do so. The goal of this action plan, which is based on the concept of leverage points and experience gained from the MED TEST II project in Tunisia, is to eventually create a system change around the topic of RECP for industries in Tunisia that will encourage an adoption and change towards RECP. Considering the skills and experience acquired in the field of RECP as the service providers of the MED TEST II project, the sectoral technical centres will be best suited for leading the implementation of the roadmap. They will have a significant role in mobilizing and cooperating effectively with key stakeholders consisting of policy makers, members of the public administration, funding institutions and target group associations.

The table below lists the priorities that were identified in the development of the roadmap for RECP in Tunisia and the required action, needed to accomplish the roadmap.

¹ National Sustainable Development Strategy, 2014-2020, Ministry of Equipment, Spatial Planning and Sustainable Development.
² National SCP Action Plan, 2016-2025, Ministry of the Environment and Sustainable Development.
³ Investment law number 71 dated 30 September 2016



- 1.1 Institutionalization of detailed environmental diagnosis (DEA)
- 1.2 Establishment of voluntary agreements (VA)
- 1.3 Strengthening the preventive approach through voluntary environmental reporting
- 1.4 Requirement for company self-monitoring as a condition for access to Environmental Fund (FODEP).
- 1.5 Integrate RECP criteria in the procedure for granting the allowance under the new sustainable development allowance scheme created by the investment law (70-2016)
- 1.6 Interest rate subsidies for loans used to finance environmentally sound technologies



- 2.1 Marketing campaigns on RECP with industrialists in the regions
- 2.2 Communication and outreach about the UNIDO MED TEST II success stories within industrial enterprises
- 2.3 Creation of a database on eco-innovative and sustainable technologies



- 3.1 Strengthening and developing the skills on RECP through training of support structures
- 3.2 Integration of TEST modules in the university curriculum (industrial engineering, process, chemistry, etc.)
- 3.3 Tailoring TEST training toolkit to local context
- 3.4 Creating a local guide on the TEST approach

Building technical capacity and supporting green businesses in order to build a green entrepreneurship ecosystem in the Mediterranean.

Photo credit: @CGIAR Research Programme



Capacity building for green and circular economy business models

At SwitchMed we are building a green entrepreneurship ecosystem in the Mediterranean by supporting green entrepreneurs from southern Mediterranean countries. 10 local partners were selected to follow-up closely the programme on the ground. In parallel, an innovative training methodology was developed to support the creation of green business and adapted to the context of the Southern Mediterranean. The methodology – comprised of a handbook and workbook on green business model development and green business plan development & incubation– guides green entrepreneurs through the entire process of growing their green business idea into a full-fledged enterprise. The methodology also provides tools and test the green entrepreneur's business models, by explaining step by step how to validate the business model's hypothesis with targeted customers and stakeholders.

Many of these individuals have a sound business idea but may lack the knowledge needed to transform their idea into a viable business. For this reason, the Green Entrepreneurship programme also includes a comprehensive training and incubation programme for individuals on how to launch a green business, led by the Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC). The training programme – a five-day module delivered over three months in each of the SwitchMed beneficiary countries – requires green entrepreneurs to reflect on and articulate how their business idea will bring value to the economy, the environment and the community. Through the practical exercises, entrepreneurs must clearly identify the underlying problems and needs they are addressing, map their stakeholders, interview potential customers, document their mission and their environmental and social value proposition, evaluate the resources and energy needed to create their product or service and think about how they will generate revenue streams, amongst other activities. A key component of the training programme is the module dedicated to eco-design, which requires entrepreneurs to take an in-depth look at the entire life cycle of their products and services to evaluate and improve their environmental performance and to challenge them to incorporate innovative solutions in their business models. Circular economy principles form the

cornerstone of this module, which gets entrepreneurs thinking about the many dimensions of environmental sustainability that can be incorporated in their product or services. Materials, for example, can be chosen to maximise recycled content, renewability and recyclability to preserve natural resources and give value to other waste streams in the community. The incubation programme includes 55 hours individual follow-up advisory service by a local mentor, a tailor-made external technical assistance and support to develop a crowdfunding campaign, if applied, as well as support to access to finance throughout a period of 8 months.

In total, 123 local trainers were trained on-site, and finally, 84 were selected for the implementation of the training programme. Out of the 6,000 applicants who submitted an application to join the training programme, +2,300 green entrepreneurs were selected and trained. In the aftermath of the trainings, 166 entrepreneurs were selected and received a 10 hours individual coaching to improve their green business models. Out of the 157 entrepreneurs who submitted an application for the incubation phase, 49 were selected by an International High Level Jury that operated pro bono and included a group of independent experts from business, technical, institutional and academic sectors.

A national synergy workshop in each SwitchMed country was held to identify challenges and opportunities to promote green entrepreneurship and social eco-innovation initiatives, to identify specific measures and tools to strengthen the regulatory framework as well as to stimulate the market for sustainable products and services. In the end, a white paper was published, to highlight the strengths and weaknesses of the country green entrepreneurship ecosystem, in order to reveal the areas and axes where the needs for action are greatest and a whole collection of interviews.

Meet our local partners

Our local partners, selected by the Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC), are organisations with extensive experience in delivering training programmes specifically addressed to entrepreneurs and promoting environmental sustainability, as well as identifying and mobilising local trainers who have already trained potential entrepreneurs. The main task of the local partners is to assist the SCP/RAC in identifying and selecting local trainers as well as potential green entrepreneurs to join our training programme. They are also responsible for disseminating information, organising of training workshops, and follow-up and evaluation.



Confederation of Citizen Enterprises of Tunisia (CONECT)

It is an employers' union organisation that brings together small, medium-sized and large Tunisian and foreign companies operating in different sectors of the economy. Through its many professional structures, CONECT is present in all regions of the country to defend the interests of its members, represent them before public authorities and promote private initiative to develop the economic and social fabric of the country. CONECT is guided by values of citizenship, solidarity, transparency, responsibility and equity.

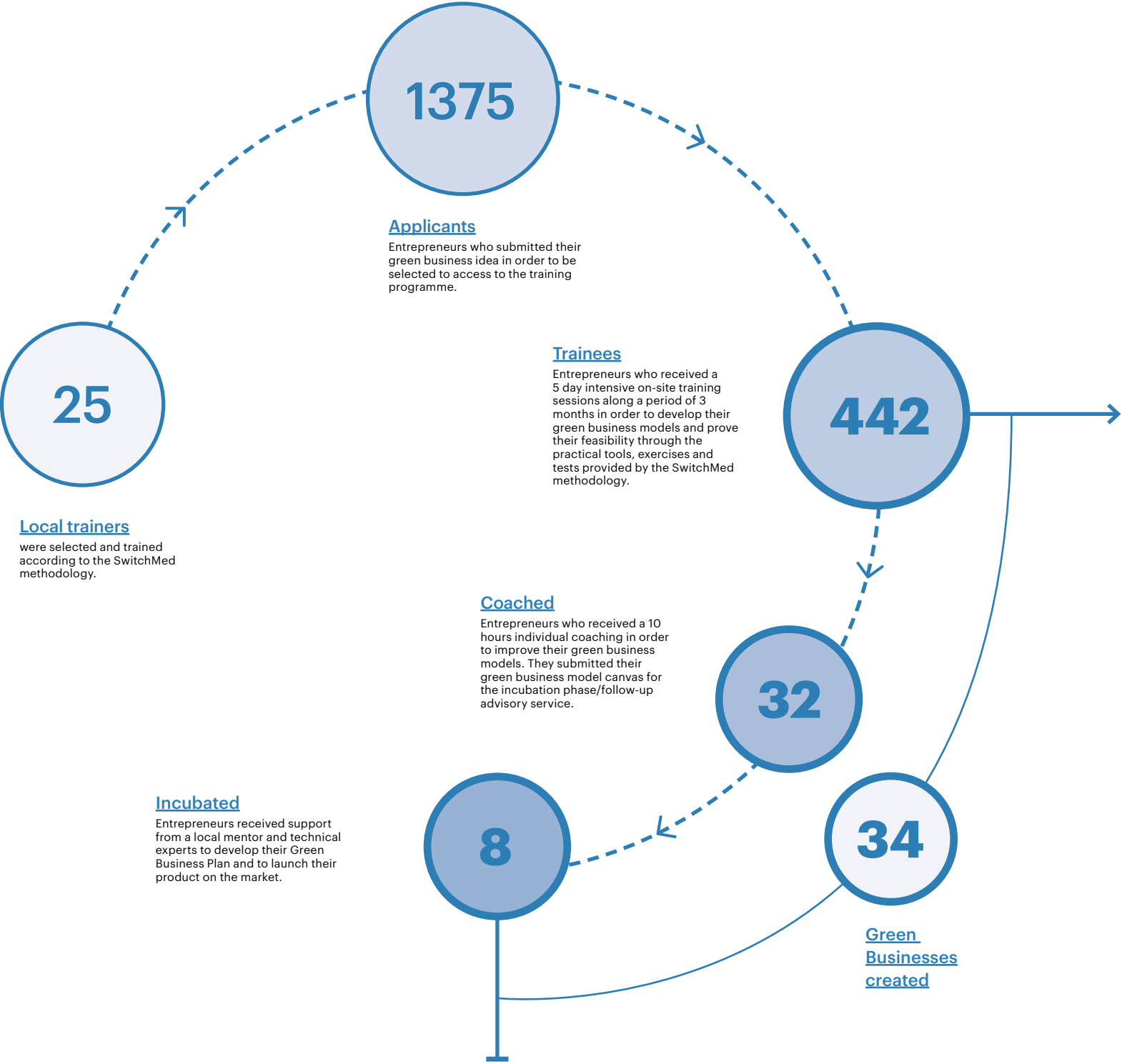


Tunis International Centre for Environmental Technologies (CITET)

It is a non-administrative public institution (EPNA) supervised by the Ministry of Local Affairs and Environment. Created in 1996 in response to international recommendations from the RIO Summit (1992) for capacity-building in developing countries and support for the transfer of environmentally sound technologies, CITET is committed to developing Tunisian skills to ensure an environmentally sound technology transfer that is well adapted to the local, national and international context.

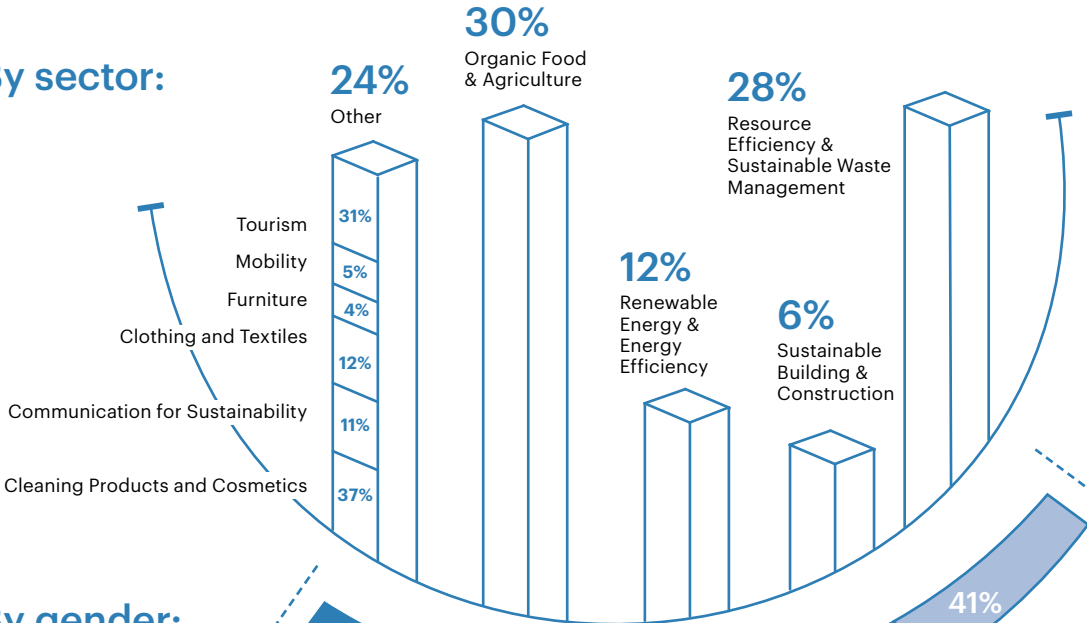
Our local mentors, carefully selected by the SCP/RAC, have drawn up a solid framework of cooperation for carrying out the activities associated with the Incubation programme. As trusted counsellors and guides, the local mentors' main tasks are to help and advise green entrepreneurs selected by the International High Level Jury to participate in the Incubation programme. Over an eight-month period, our local mentors' specific role is to provide 40 hours of one-to-one coaching as part of the main incubation support, plus some extra administrative hours, to help the green entrepreneur to successfully produce a solid Green Business Plan, among other things. The mentoring framework is implemented according to the work plan and methodology developed by the SCP/RAC, including the principal document "Launch Your Green Business," and other supporting documents. In addition to support from their local mentor, green entrepreneurs will receive technical expertise based on their specific needs, to help them develop their Green Business Plan and guide them through other activities (e.g. marketing and communication, etc.). Members of the SCP/RAC Green Entrepreneurship team are in constant communication with all stakeholders and regular follow-up is essential to ensure that qualitative and sustainable support is available to green entrepreneurs.

How is the green entrepreneurship programme contributing to the environmental, social and economic impact?

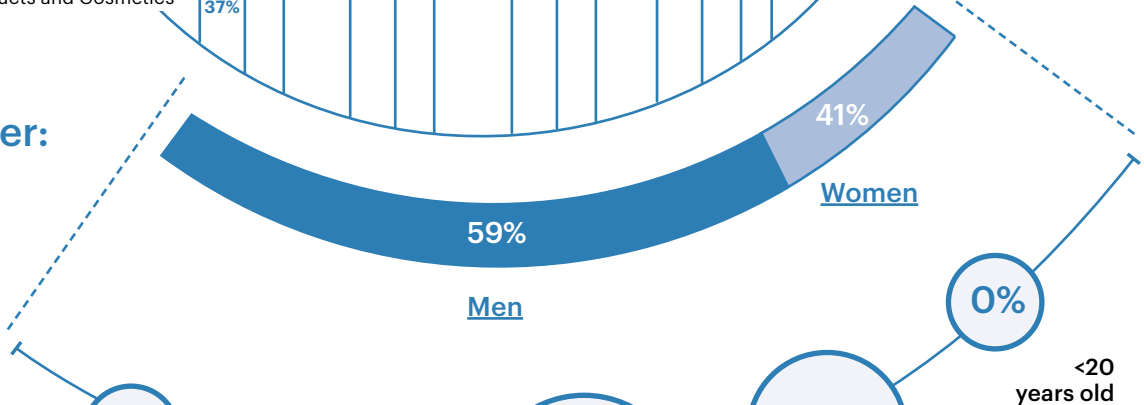


Analysing our Tunisian 442 trainees

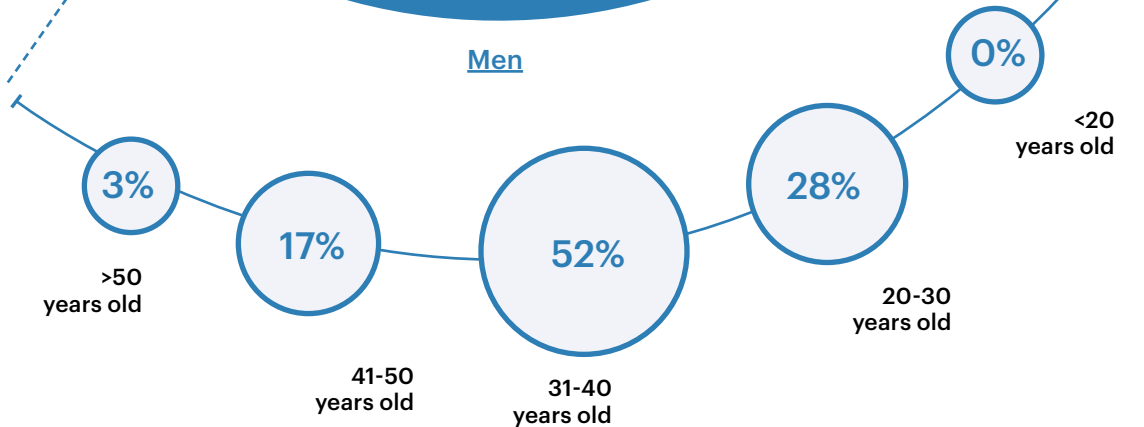
By sector:



By gender:



By age:



Meet our Tunisian incubated green entrepreneurs

Ferme Bio Warda

A new revolution in Sidi Bouzid called organic farming

Leila Horchani founded 'Ferme Bio Warda' with the dream of introducing organic farming to her town of Sidi Bouzid, the cradle of Tunisia's Jasmine Revolution, while reducing the use of pesticides and improving the life of rural women. With organic agriculture, environmental costs tend to be lower and the benefits greater and, as such, Leila's ambition is to spark a change in perceptions regarding agriculture farming systems, while boosting the local economy and preserving natural resources.

Tell us about yourself and how the idea for your business was born

Growing up in Sidi Bouzid, I inherited a love for the land from my family. Every morning, even as a child, I would roll up my sleeves, plough our small vegetable field and tend our cattle. Nothing made me feel as happy and fulfilled as working with my hands in the field and taking care of the animals. After graduating from university with a degree in food hygiene and safety, I returned home with an idea: to improve our agricultural sector by growing organic foods. My work experience in an agricultural research laboratory consolidated my knowledge and ambition even further. Then, after losing two family members as a result of the consequences of pesticide and agrochemical fertiliser use, I decided to take up the cause to fight against the use of chemicals and established my project. Initially, I plan to grow organic potatoes and olive and almond trees and organically raise animals, such as sheep, cattle and poultry. Later on, I will diversify to ensure food security for consumers. This method of farming also saves resources and increases the profitability of production. Promoting responsible entrepreneurship in the region is another aspect I would like to address with Ferme Bio Warda.

What is the environmental and social impact of your project?

In Tunisia, over 1170 tonnes of obsolete, non-degradable, highly toxic pesticides are dumped into the environment. Through my project, I hope to reduce this amount by 20% over the next 10 years by expanding my activity and converting more land from conventional to organic farming. At the moment, I am growing organic vegetables on the three-hectare plot belonging to my family and I have applied for a loan to expand across another two hectares. By doing so, I will partially reverse some of the negative environmental effects created by our agricultural system and its associated impact on global warming. Overall, organic farms tend to have better soil quality and reduce soil erosion compared to their conventional counterparts. Organic agriculture generally creates less soil and water pollution, generates fewer greenhouse gas emissions and is more energy efficient. Organic agriculture is also associated with greater biodiversity of plants, animals, insects and microbes, as well as genetic diversity. Also, by reducing the exposure of farm workers to pesticides and other chemicals it makes a positive contribution to the health of farmers and the consumers.

Just in my small village, 175 rural women work in unfavourable conditions in the agricultural sector on a daily basis. Despite considerable efforts to improve working conditions in rural areas, very little has changed. Income levels are still very low, investment capacity is practically non-existent and there are many obstacles to economic growth, such as lack of access to credit, land, water, means of communication and transport, new technologies and knowledge. My aim is to create positive social and economic impacts and my business will create over 100 jobs for rural women in my region, either directly or indirectly, over the next five years. Ultimately, Ferme Bio Warda is a step towards revolutionising Tunisia's agricultural industry by supporting sustainable development, empowering local economies and giving autonomy to local farmers. In fact, I believe that organic consumption and production has

many advantages, which is why I am working hard to promote it. I would like to set an example for others, especially women, and encourage the development of more and more organic agriculture farming initiatives.

How have you benefited from the SwitchMed programme?

As a result of SwitchMed's support, I have received training on how to implement my green business canvas, as well as coaching during the incubation phase. Among many new concepts, I have acquired valuable knowledge on the legal aspects associated with setting up a business. SwitchMed-assigned experts have also helped identify the best way to develop my business. One provided me with great advice on grants and special incentives offered by the government, such as tax incentives, as my region falls within the regional development support programme. I hope to transfer all this knowledge to my community. Another expert provided support with regard to the international certification process related to the 99/30 'Ecocert' standard for my organic products. Financially, I received valuable training from another expert on all the steps associated with launching a crowd funding campaign. In my case, SwitchMed has given me the means to make my green dream come true.



Photo credit: @CGIAR Research Programme



Photo credit: @CGIAR Research Programme

Waste-to-Value

Coffee grounds to fight climate change

Waste-to-Value (W2V) aims to recycle used coffee grounds to produce naturally biodegradable fertiliser, fighting global warming while reducing the use of chemical alternatives and their negative impact on soil fertility. Mohamed Khelil is behind this ambitious project.

Tell us about yourself and how the idea for your business was born

I grew up in the northeastern Tunisian peninsula of Cap Bon, a region well-known for its agriculture. I began working as a mechanical engineer, but always had an entrepreneurial spirit. Working in and around nature, I developed a special passion for upcycling, which is the process of converting waste into usable products. For me, waste was an opportunity to innovate, create products and improve the environment.

The impetus for founding W2V came in 2015, when I noticed employees at a cafeteria throwing coffee grounds in the bin. The next morning, I went back to the cafeteria to collect the fresh grounds. At home I mixed the grounds with other organic supplements to try and produce organic fertiliser. I eventually succeeded in producing a natural, completely biodegradable soil amendment. The product impressed neighbouring farmers, who confirmed that it was both practical and effective. That was how W2V acquired its first happy customers and identified agricultural professionals as its main target market. Most of my customers grow potatoes, lettuce, citrus fruits and leafy vegetables. The production process for my product has been already patented with IN-NORPI. Called Orga Ferti, the product is very rich in available primary nutrients and trace elements. It comes in 25-litre bags and gives the best yield at 0.5 litre/m² (5 m³/ha).

My research revealed that Tunisia consumes approximately 350,000 tonnes of chemical fertiliser each year, contributing to an annual 2% loss in soil fertility. For this reason, coffee grounds can be considered my "black gold."

What is the environmental and social impact of your project?

W2V collects and recycles coffee ground waste. Some 20,000 businesses in Tunisia throw away coffee grounds. So far, 1,000 recovery points have been identified in my project area alone. We collect grounds by bike and on foot in order to minimise our carbon impact. After collecting the coffee grounds we add in carefully selected natural additives such as algae and wood chips. The mixture is transformed into an efficient and innovative organic fertiliser that meets farmers' fertilisation needs while restoring soil fertility structure and tilth, especially in terms of water retention and aeration. The start-up aims to reduce the harmful effects associated with chemical fertiliser use and to avoid the decomposition of coffee grounds in landfills and its contribution to greenhouse gases. The 240 tonnes of Orga Ferti organic fertiliser produced yearly by W2V increases the storage capacity of carbon in soils and further inhibits the production of greenhouse gases. Beyond positively impacting on the environment, Orga Ferti is cheaper than its harmful chemical equivalent. It has proven to be a valuable resource for farmers, who responded positively to it after experimental trials. Orga Ferti helps root development, ensures balanced vegetative growth, improves nutrient availability and helps overcome the stress resulting from transplantation. These good results have been confirmed by laboratory tests, which certify Orga Ferti's richness in nitrogen and essential minerals. My project will continue to develop the agricultural sector, contribute to the fight against global warming and will create up to 15 jobs.

How have you benefited from the SwitchMed programme?

My project took off after I embarked on a training programme with SwitchMed, as this provided me with clear objectives and guidance on how to turn my green business idea into a sound green business. The methodology is simple but inspired, as it teaches you how to do your own needs analysis and market study for your product. SwitchMed also offered me the valuable assistance of technical experts, who helped me develop a technical feasibility study and to understand the legal and administrative aspects of business creation. Another major help was my dedicated mentor, who guided me in selecting the right machines for my production unit and advised me on the best way to adapt my innovative business model to the legal context of the area and country. All this support and my achievements have reinforced my self-confidence and have helped me to move forward and draw up expansion plans.



Photo credit: @Bernat Mestres (White Horse)



Photo credit: @Bernat Mestres (White Horse)

Bio-Chevre-Lait

The goat sector goes organic

Habib Chakhari radiates enthusiasm for his land, the region he was born in, and the animals he cares for. And he is particularly enthusiastic about Alpine goats, which he has decided to introduce in his region, with one overriding goal: to promote organic livestock raising and give added value to goat products. His project aims to help and mentor farmers in their transition toward green agriculture and livestock raising; the result is better quality milk and meat, whether sold to producers or consumers, and helps create jobs, particularly for women.

Tell us about yourself and how the idea for your business was born
I couldn't conceive my green entrepreneurship project as happening anywhere else than in my home region: Kasserine. Having been born there, I am very fond of this land, with its mountains, its livestock, its traditions and its authenticity. So it was natural that I would want to use my experience and knowledge to contribute to the social and economic development of Kasserine, which, because of its remoteness, is still a deprived area.

It is the goats that have enabled me to return to my origins. And not just any goats. So that my project would address simultaneously the region's environmental, economic and social challenges, I decided to introduce a new breed, with the idea of offering certified 100% organic products. This meant finding a certified pure goat breed, and implementing new husbandry techniques that were compatible with organic husbandry. In the end, I chose Alpine goats, which are perfectly at home in the typical terrain of my region and who differ from the local breeds for their milk output. The quality of the milk lends itself to a certain amount of diversification in the products obtained from the livestock, selling the meat, the milk and the milk products, all certified bio.

This project would have little impact on the region if it was limited to only one herd. That is why I view my activity as a pilot project whose ultimate purpose is to encourage other livestock raisers to take up organic farming and Alpine goat raising, gradually developing green entrepreneurship and replacing imports with more locally produced goods. My ambition is to share my knowledge and the lessons I have learned about raising Alpine goats and organic farming techniques, offering training to the region's livestock farmers. This knowledge transfer will favour growth of economic activity, job creation and will slow down the rural exodus and desertification of farming land, while at the same time increasing the supply of products. Thus, both consumers and producers benefit from more choice and higher product quality.

A range of products are offered: meat, milk, but also cheese. In fact, a contract has been signed with a cheese producer, which guarantees purchase of 66% of our milk output. Obviously, this cheese will be certified bio.

What is the environmental and social impact of your project?
This project's impact is seen on three levels: environmental, economic and social. I decided to focus on organic livestock raising because, in the process, it improves husbandry practices. The idea is to rethink how we raise, produce and sell our goat-related products. Product diversification reduces imports and strengthens direct circuits, which in turn reduces carbon dioxide emissions. The improvement in animal nutrition, sustainable manure management and production of an organic compost also help reduce methane and nitrogen emissions. From the economic and social viewpoint, my project forecasts that eight permanent jobs and five indirect jobs will be created within my own company. I also plan to promote employment for the region's women, by creating a livestock cluster that will eventually manage a herd of 5,000 goats and which could provide work for up to 54 women. Direct know-how transfer to livestock raisers will also provide extra income and the possibility of creating more jobs.

How have you benefited from the SwitchMed programme?
The invaluable advice and mentoring provided by the SwitchMed Programme's experts and mentor have enabled me develop my green business plan and produce concrete arguments for implementing my project. The challenge was to identify the new organic husbandry techniques and also to take into account all the features of the new goat breed. In this, I benefited from the support provided by an expert agricultural engineer in establishing the basic content of any training document. Thanks to this person's expertise, we have been able to draw up a document on goat husbandry adapted to the Alpine breed. As regards the financial aspect, another expert has supported me in applying for subsidies and helped me to develop a financial plan adapted to the specific requirements of the BFPME (Banque de Financement des Petites et Moyennes Entreprises) in Tunisia. I was able to present my project to a panel of investors during an event organised by SwitchMed and I had a first meeting with the BFPME, who expressed interest in my project. Taking part in the Elevator Pitch was an enriching experience that has given me new communication and marketing skills and which has also helped me broaden my network of contacts. Lastly, the SwitchMed programme's experts have supported me in launching a crowdfunding campaign whose goal was to generate the necessary financial resources to start my company on a strong base.



Photo credit: @Lalit Sahu on Unsplash



Photo credit: @Agence Producteurs Locaux Damien Kühn on Unsplash

BioIntrants Technologie

Biotechnology at the service of sustainable agriculture

BioIntrants Technologie aims to contribute to the shift to sustainable agriculture by transforming biocompost into soil-friendly agricultural products. Yassine Ben Menadi, in his innovative start-up, combines ancient agricultural practices with current high-tech achievements in farming.

Tell us about yourself and how the idea for your business was born
I am a Tunisian biotechnology engineer, a graduate from Marseille's Institut de recherche pour le développement (IRD), where I specialised in solid-medium fermentation. That is where I learnt how to cultivate microorganisms and discovered the very important role they play in agriculture. My interest in farming has led me to meet with Tunisian farmers and discuss their needs. In fact, in this era of consumerism, there is increasing pressure on them to produce more, better and faster. These constraints compel them to use short-term solutions, which have lasting harmful effects on the soil and, consequently, on their medium-term revenues. I also noticed that they feel deeply connected to the earth and want to upgrade agricultural practices, provided a sustainable alternative was available that was economically beneficial and safe for the soil as well as for consumers. This has become my mission: to provide farmers with high-performing, soil-friendly agricultural products such as organic amendments, biofertilisers, biostimulants and biopesticides. My company, BioIntrants Technologie, is located in Chorfech, Sidi Thabet, and consists of a laboratory and a 14,000-m² agricultural field. I am developing new formulas based on microorganisms that aim to mitigate the excessive use of chemical pesticides and fertilisers. Organo-mineral fertilisers improve soil tilth and plant quality and so increase production. My biopesticide protects plants from parasites, mycotoxins and other diseases.



Photo credit: @Bernat Mestres (White Horse)



Photo credit: @Bernat Mestres (White Horse)

What is the environmental and social impact of your project?
I believe that the future lies with our young farmers, who can hopefully perpetuate sustainable agricultural practices for generations to come. BioIntrants Technologie products are inspired by ancient agricultural practices that have almost been lost to us, which can contribute to reducing or mitigating pressures on our environment. Our products are chemical-free solutions that help boost farming productivity while they protect the soil and crops, promote food security and conserve soil fertility. The use of fewer chemicals also means reducing groundwater contamination, and, consequently, less contaminated food. In the initial phase I will buy compost and use it to make soil-friendly agricultural products. The production units will be implemented in the northwest of Tunisia, a region historically known as the breadbasket of the Roman Empire for its once plentiful fields of grain. My primary ingredient is agricultural waste, 2,500 tonnes of which, when recycled, produces 1,200 tonnes of compost. This means that 42,720,00 kg of CO₂ emissions are avoided even before production starts. In the first year of operation, BioIntrants Technologie will produce 1,050 tonnes of granulated organo-mineral fertiliser, 37,500 litres of liquid fertilisers and 37,500 litres of liquid biostimulant. These products in these quantities will avoid the use of 1,200 tonnes of chemical fertiliser per year and will help restore soil fertility to 1,000 hectares.

My project, by organising awareness campaigns for the public and special sessions for farmers, promotes organic and healthy food production and consumption in the region. It will also create jobs. In fact, in my first year of operation I will need to hire 13 employees including a general manager, a technical director, a quality manager, a secretary, an administrative clerk, two sales people, four operatives and two security guards. I expect this number to double by the third year of project expansion.

How have you benefited from the SwitchMed programme?
I stepped in with just a green business idea. The SwitchMed training workshop allowed me to better understand the green business approach, which matches perfectly with my principles regarding the environment. I also really appreciated the strategic and personalised support from both local and Spanish teams. It was very reassuring that experts and professionals cared about my project and its success. Thanks to the help received from SwitchMed experts, my project took shape rapidly. Together we developed environmental impact and technical feasibility studies for my project. We also designed my production facility according to national safety standards. But the most valuable skills were most certainly those I learnt during the coaching sessions on access to finance. SwitchMed organised these mentoring sessions, as well as an event where green entrepreneurs met investors. I did not win first place in the competition, but having received very constructive feedback from real investors was one of the most enriching experiences of my life. Now more than ever, I feel ready to knock on bankers' doors and confidently ask for funds to launch my business.

Queen Luzerne

A plant with a thousand virtues to revitalise a whole region

Multiply ten-fold the benefits of a unique plant and put them at the service of the community: This was the challenge with which Abdelkrim Bessadok returned to his home region, Gabès. He sees alfalfa as a godsend for his region, a plant with many qualities that could benefit both the ecosystem and the local social and economic context.

Tell us about yourself and how the idea for your business was born

My beginnings go back to when I started farming the land of my home region, Gabès. From being a farmer, I went on to become an agricultural engineer specialised in livestock and animal fodder production, before getting my PhD in Animal Biology. I wanted to use the experience I had acquired in agri-business, agricultural production, in both the public and private sectors, to help my region. And I owe this return to my origins to a single plant: alfalfa. A plant with a thousand virtues, it is the ally of any oasis, any farmer and any livestock raiser. Growing alfalfa helps regenerate and detoxify the soil and improve farm sustainability by lengthening production cycles and reducing the use of phytosanitary products. After it has been harvested and dried, it offers excellent properties for livestock raisers, with a high nutrient content that covers their animals' phosphorus, magnesium and potassium requirements, at an affordable, competitive price. All these benefits make it a plant with almost magical powers that it is heartening to see flourish in our region.

However, I realised that alfalfa growing was very undeveloped and was sold at ridiculously low prices as a fresh product, that is, without going through any drying process and without being processed into alfalfa pellets. This means that neither the grower nor the livestock raiser gets much benefit from it. This is an enormous lost opportunity for the region's farmers, who suffer from high unemployment rates and lost revenues, but also for the livestock raisers, who have to import the alfalfa pellets, as dried alfalfa production in the Gabès region does not cover all their needs.

With this realisation, my first idea was to encourage farmers to grow more alfalfa and implement it in the crop rotation system, growing alfalfa instead of letting the land lie fallow. The benefit of this approach is that it enables them to accelerate soil regeneration, preserve oasis ecosystems and earn extra income from the alfalfa they harvest. This idea was the genesis of the project for a cooperative whose goal is to federate, bring together and provide technical and financial support to the farmers who agree to commit themselves to growing alfalfa.

My project couldn't be complete if it was limited to just planting and harvesting alfalfa. So I created a sun-drying company that can generate large volumes of alfalfa pellets, which will then be sold to local livestock raisers.

What is the environmental and social impact of your project?

My project, which includes the farmers' cooperative and the alfalfa drying and processing company, addresses environmental, social and economic challenges.

When you talk about alfalfa growing, you're also talking about conservation farming: alfalfa is capable of fixing atmospheric nitrogen in the soil to the point that it doesn't need nitrogen mineral fertilisers, and it also acts as a natural soil cover. This has an amazing impact on soil quality, and it does this in a completely natural way. And after it has been dried, it also offers huge environmental benefits. Livestock fed with alfalfa will produce 10% less methane than conventional grass silage.

From an environmental viewpoint, my project addresses a regional need to find a use for waste water, which used to be just dumped. In fact, the local authorities have granted us a right of access to a public area irrigated by waste water from Disa. Little use is made of waste water for irrigation in the region and my goal is to prevent this water from being discharged into the Mediterranean Sea.

It was also important for me to use environmentally sustainable methods in the drying process. Sun-drying the alfalfa in a barn offers many environmental advantages over drying by other methods: there is less waste, mechanisation costs per hectare are halved, and 30 litres of fuel are saved per hectare, which gives an estimated saving of 950 litres of fuel for the project's first phase.

Still on the environmental aspect, local production of alfalfa pellets will enable imports to be reduced and will contribute to creating a direct link between farmers and livestock raisers.

This environmental impact is accompanied by an improvement in the social and economic situation of the region as a whole. The development of alfalfa production and its direct sale will generate additional revenues for farmers. I expect 15 direct jobs to be created for the company and about 30 new jobs in the region, with the goal being to reduce unemployment, economic hardship, and rural exodus, due mostly to young people leaving to find work. This project also seeks to bring 100 farmers into the cooperative and provide them with technical and economic support.

How have you benefited from the SwitchMed programme?

The SwitchMed programme's 'green entrepreneur' training has equipped me with a complete kit of tools, knowledge and entrepreneurial practices. I received personalised monitoring during the incubation phase, which empowered me to develop a strong, convincing green business plan. Working on this green business plan with the experts from SwitchMed enabled me to define my main idea so that it would be realistic and achievable. The financial and legal expertise provided by SwitchMed has proved to be invaluable in giving shape to my project. For example, until recently, I had never heard about forecast operating costs and performance indicators. Lastly, SwitchMed has enabled me to find potential investors, particularly thanks to the Elevator Pitch event organised in Tunisia.



Photo credit: @Valleybrook Gardens Ltd.



Photo credit: @Olivier & Pascale Noaillon Jaquet

M2M

Energy efficiency technology is now available in Tunisia

M2M is a start-up specialising in smart energy efficiency solutions. With this project, Mohamed Makki Maalej plans to rationalise energy consumption and reduce climate impact while offering an alternative to increasing energy prices in Tunisia. He has developed a real-time monitoring platform for energy management applications called ALL-SAVE, which retrieves and analyses data collected from the electricity network in order to present useful and exploitable information in a customisable web interface. Based on continuous improvements in energy consumption control, the system acts on companies' environmental impact, strengthening overall performance and ensuring sustainable energy savings. It also reduces the amount of CO₂ released into the atmosphere. In the short term, reducing companies' environmental impact decreases wastage in materials and energy and, therefore, costs.

Elma Eco

A Tunisian entrepreneur's water recycling system is a valid water-saving solution

Elma Eco is a phyto-purification approach to greywater treatment aimed at providing scalable domestic recycling water systems, with low operating and electricity costs and maintenance requirements. Mona Lamine launched this project with the vision of treating waste water in small, mainly coastal Tunisian villages not connected to the sanitation network. Treatment and recycling systems can save drinking water and also reduce marine pollution. Phyto-purification systems currently on the market have the disadvantage of being bulky and requiring significant implementation works and complicated maintenance. Elma Eco's system is a novel lightweight, flexible filter configuration consisting of two interconnected vertical compartments. The compartment located at the bottom of the filter contains esparto grass (*Stipa tenacissima*) and the other compartment consists of laterite rock, as a filling material, and aquatic plants. The system is easily installed and deployed. The risk of clogging is minimal as the system is mobile and can be moved at any time of the year.

Le Carré Traditionnel

Traditional Tunisian handicrafts pave the way for a sustainable future

Le Carré Traditionnel is a sustainable clothing startup that produces unique decorative items such as lampshades, painting boards and mirrors made from quality natural raw materials. Assma Zarkouna aims to create a national artisan-artist-designer network in continuous collaboration. She believes that using recycling materials will ultimately raise awareness of industrial pollutants present in furniture items among young generations and currently among the children that participate in workshops organised by Le Carré Traditionnel. Subcontracting and long-term partnerships and training in design for local women artisans can create jobs and contribute to reducing regional inequalities.



Photo credit: @Mohamed Ramzi Youssef



Photo credit: @Elma Eco



Photo credit: @Le Carré Traditionnel

Photo credit: @CGIAR Research Programme



“Waste to Value aims to reduce the harmful effects associated with chemical fertiliser use and the decomposition of 240 tons of used coffee grounds in landfills. By producing yearly 240 tonnes of organic fertiliser we are reducing the emissions of CO₂ and restoring the soil fertility.”

Mohamed Khelil, Waste to Value

“My goal is to develop my current craft workshop to continue producing handmade, durable and 100% natural products establishing collaborations with other craft workshops, artisans, artists and designers.”

Assma Zarkouna, founder of Le Carré Traditionnel

“The reuse of wastewater has the major advantage of providing an alternative resource for limiting water deficits, better preserving natural resources and reducing water shortages caused by climate change.”

Mona Lamine, founder of Elma Eco

“An efficient system that rationalises the consumption of our customers will help to reduce not only their bills but also the extreme levels of global warming.”

Mohamed Makki Maalej, CIO & founder of M2M

The Switchers: Discover inspiring changemakers who are switching towards a cleaner Mediterranean

Photo credit: @TNAGEM

There are 340 Switchers showcased in the Switchers platform. They are all shining examples of how circular economy approaches can lead to business opportunities and also drive innovation that benefits people and the environment. In Tunisia, there are 27 Switchers at the moment in the platform.

The Switchers is a community of inspiring green entrepreneurs and changemakers in the Mediterranean region hosted by SwitchMed and SCP/RAC. Switchers are individuals, enterprises or civil society organisations implementing innovative ecological and social solutions that contribute to a switch to sustainable and fair consumption and production. They are active in a variety of fields, including organic farming, sustainable tourism, waste management, organic textile, recycling of electronic waste, sustainable building, organic cosmetics production, among others. Most importantly, the Switchers is a community with a voice and a meeting place for people in the region who are passionate about shaping their environment towards a more sustainable future.

For the Switchers, circular economy solutions are at the heart of their business models and also inspire them to seek ways to innovate and achieve even higher levels of environmental sustainability in the design of products and services they provide. Together, these important economic actors are making significant progress towards the goal of the SwitchMed programme and one of the region's key sustainable development objectives: to accelerate the shift to more sustainable modes of consumption and production. In doing so, they are setting a positive example of how economic growth can also lead to protection of the Mediterranean and its precious, limited natural resources.

To read more on the stories of change makers at our new online Switchers platform at www.theswitchers.eu



Meet our Switchers in Tunisia

Tnagem
Crossbreeding and animal welfare while aiding society’s most vulnerable
Tnagem, which means ‘you can!’ in Tunisian dialect, is a project created by the Youth Science Association that promotes sustainable artisanal fishing in the archipelago of Kerkennah. The ancestral technique involves fishing using palm leaves cut and arranged into V-shapes to form a path in the water. Tnagem contributes to the economic development of the island, where the main activity is fishing. The company offers a new source of income, ensuring complementary revenues for islanders and encouraging traditional fishing practices. It is almost the only way to work towards the conservation of marine biodiversity and represents a reliable alternative to the current coastal tourism. Tnagem aims to revive artisanal fishing techniques that are respectful to the environment, foster the relevant skills within the local fishing community and nurture the archipelago’s cultural traditions.

Tunisia Coop
The cooperative for responsible consumers
Tunisia Coop is a cooperative that develops short circuit chains in agricultural products to encourage responsible consumption. Naoufel Haddad sees consumers as potential agents of change in the promotion of sustainable agriculture. He organises a weekly market, Le Souk de la Coop, which allows consumers to buy fresh products from small local producers. Tunisia Coop’s goal is to encourage short circuits in the consumption of food. They purchase products directly from small farmers and sell them without intermediaries. This increases the financial reward for farmers, and consumers benefit from being able to buy at lower prices. The enterprise showcases quality products and advises farmers on implementing environmental conservation measures, giving them support when difficulties arise. At the weekly market, local farmers sell their products without the need for intermediaries, improving their own profit margin while offering better prices for consumers. The cooperative currently involves a collective of 18 people but hopes to be able to increase that figure to 100 in the near future.

Chanouf Farm-Biofire
An agricultural company that produces biomass briquettes
Chanouf Farm-Biofire is a farm that grows pears and olives, but it is also home to a recycling project that produces high-performance, eco-friendly, low-cost biomass briquettes, which enables the company to expand its sources of income and extend its zone of activity beyond the harvesting seasons. The Chanouf Farm-Biofire briquettes are made from agro-forestry waste. Their production is based on exploiting the abundant supply of the organic material biomass, which is found in wood, bark or straw. As a renewable energy source, biomass is harnessed through a combustion process. This is an environmentally friendly alternative to the use of firewood, one of the major contributors to deforestation. The company has been able to take on ten additional employees since establishing its recycling unit and plans to double that number to meet growing demand.

Dar Zaghouan
Tunisia’s first eco-friendly bed and breakfast
Dar Zaghouan is a sustainable tourism experience that is benefitting both the environment and the local community. It is the first Tunisian eco-bed & breakfast, where all the activities on offer are focused on the preservation and conservation of the surrounding area. Dar Zaghouan’s guests are invited to participate in various activities, from climbing and cave exploring, to horse riding and trekking in the mountains. It also has an on-site restaurant that serves food made using homegrown produce, and residents are able to get involved in the preparation of traditional dishes in order to share the region’s gastronomic heritage with other Tunisians, which also empowers women living in this rural region. Preserving the environment is a key part of Dar Zaghouan’s overall mission and, as such, it uses solar energy to run its facilities and solar water heaters to reduce the need for non-renewable energy sources. So far, the bed & breakfast itself has created around 20 jobs and has indirectly created more than 60 others.

El Mensej
Giving life to old clothes while preserving expertise
El Mensej is a social company that provides support to artisans, helping them to rethink their products and better understand the needs of their customers. Mehdi Baccouche’s goal is to preserve knowledge and expertise with regard to traditional weaving techniques that have remained unchanged for centuries. El Mensej breathes new life into second-hand clothing, producing socially and environmentally responsible products made from recycled materials. The raw materials are obtained from second-hand clothing, unravelling the wool to be reused in carpet weaving. This quest for protecting the environment is also reflected in the very essence of the activity, with zero water or energy consumption required for the operation of the looms, which are set up in the homes of the artisan weavers. The social company works with women weavers of Nefta, who were no longer able to make a living from their handmade products.

SICAP
Bringing nature to Tunisia’s rooftops
SICAP specialises in the creation of green roofs and living walls. Both aesthetic and eco-friendly, green roofs help to improve the living environment of citizens while reintroducing nature into cities. Khaled Fatnassi has been developing innovative solutions to reintroduce fauna and flora into the city since 2001. SICAP’s green carpets help fight the phenomenon of urban heat islands by returning a proportion of the rainwater to the atmosphere. Besides reintroducing fauna and flora into the city, these green roofs also offer other significant advantages, particularly in terms of thermal insulation and improved air quality. In a parallel initiative, the company also works with a group of women from rural areas in the production of handcrafted bags made from recycled second-hand clothing, perpetuating the practice of traditional skills and craftsmanship and further promoting the green walls’ ideals.

Mornag Eco Farm
An environmentally responsible farming model
Mornag Eco Farm is an ecological farm focused on promoting the use of sustainable living techniques. Amine Draoui organises visits for schools, volunteers and tourists throughout the year in order to share his expertise and passion for nature. Mornag Eco Farm is an eco-friendly site where people come to be inspired, learn and apply alternative techniques in the fields of energy, water, construction, waste management and agriculture, with the aim of preserving a range of traditional skills and trades that are starting to disappear. The farm is a participatory place with workshops where visitors can learn to make olive oil or bread and distil essential oils. The farm’s philosophy is to reinvest all profits back into the project to foster its continued growth and build a strong network throughout Tunisia.

KF Refuge
The recycled bag initiative developed in a refugee camp
KF Refuge is a workshop that uses recycled materials, principally burlap coffee sacks, to create bags. Karim Traoré’s goal is to promote the integration of immigrants as part of the country’s economic development by showcasing their skills and fighting prejudice and racism. KF Refuge is deeply committed to raising awareness about recycling and strives to create jobs for both immigrants and Tunisians, providing a positive representation of refugees as capable of developing, integrating and generating economic activity. The collective currently consists of six members, with two permanent employees and the designers, who are paid by the piece. The company hopes to increase its workforce in the near future as the volume of orders increases.

Karhbetna
Tunisia’s first carpooling platform introduces passengers to their environmental footprint
Karhbetna is the first online carpooling platform in Tunisia. Wael Mohamed Soltani aims to connect individuals with drivers making the same journey at the same time. Drivers are thereby able to reduce their costs, while passengers have access to an affordable transport solution that benefits the environment. Karhbetna is on a mission to raise awareness of environmental issues by offering an alternative long-term solution to the problems of pollution and congestion in Tunisia’s cities. Carpooling not only reduces the use of fuel but also improves city congestion and CO₂ emissions. The platform, which is planning to release its mobile application in the near future, also has a ‘Ladies Only’ section to ensure the safety of women interested in carpooling and travelling together.

Green Power Service
A company laying the foundations of renewable energy in Tunisia
Green Power Service is a distribution, installation and consulting company that offers renewable energy solutions. Ghassen Saadaoui believes photovoltaic systems represent a good alternative to fossil fuel resources for Tunisia. Green Power Service builds a wide range of clean energy products, such as photovoltaics, solar water heaters and solar pumps. These green alternatives can be used instead of fuel-based ones such as oil and gas. The company covers residential, business, industrial and off-grid solutions, as well as solar pumping. Off-grid solutions offer the option of accessing electricity through an autonomous photovoltaic system. Green Power Service believes that Tunisia can readily continue this rapid expansion of renewable energy by utilising existing technologies and investing in improvements to its electricity system.

Jinen Nefzawa
A new venture is turning palm tree waste into fertilisers
Jinen Nefzawa works to transform palm tree waste into compost to improve soil structure and productivity. Fethi Dkhil’s goal is to tackle the alarming palm waste problem being faced in the region coupled with the absence of landfill facilities. Jinen Nefzawa recycles and treats all palm tree waste in a sustainable manner. Given the lack of availability of manure, the treated waste would then be fortified to produce a fertilising compost to be used by local farmers. The need for organic fertilisers is growing steadily because the nature of oasis soil, which is poor in organic matter, requires the use of all composted waste for fertilisation. The burning of waste on bonfires in the open leads to toxic chemicals being released into the air in the form of smoke, and into the soil and groundwater in the form of ashes, a practice that is largely contested as a result of the health risks and harmful environmental impacts.

Collectun D3E Recyclage
Electronic waste recycling contributes to the circular economy in Tunisia
Collectun D3E Recyclage has been certified by the Ministry of Environment to create new products and jobs by recovering electronic waste. Ines Temimi’s company collects all sorts of electronic equipment, from computers to fax machines, mobile devices and home IT materials. Collectun D3E Recyclage recovers valuable materials from electronic waste in an environmentally responsible manner. Choosing clean solutions from transport to recycling prevents the possible release of harmful substances into the environment. Collectun D3E Recyclage encourages civil society organisations to reuse their equipment and runs awareness campaigns to inform the public about the impact of e-waste. Collectun D3E Recyclage employees are trained in the specifics of e-waste disassembly and have also participated in training to calculate their carbon footprint.

Photo credit: @BioIntrants Technologies



Photo credit: @Unspash

Photo credit: @Unspash



Photo credit: Queen Luzerne, organic food & agriculture

(1) **BioIntrants Technologies**, organic food & agriculture (2) **KF Refuge**, making bags from recycled materials (3) **Green Power Service**, renewable energy & energy efficiency (4) **Queen Luzerne**, organic food & agriculture

Photo credit: @TNAGEM



Photo credit: @SICAP Green Roogs



(5) **TNAGEM**, organic food & agriculture (6) **Mornag Eco Farm**, ecological farm (7) **SICAP**, green roofs (8) **Namnamfood**, organic food & agriculture

Photo credit: @Mornag Eco Farm



Photo credit: @Namnamfood



Over 100 Tunisian leaders identify specific measures and instruments to promote green entrepreneurship and grassroots ecological and social innovation initiatives

As part of SwitchMed's activities in Tunisia, a meeting was organised between stakeholders involved in the green economy transition as a way to identify the main challenges faced by sustainability actors in Tunisia. The development of new, affordable and more easily accessible financing mechanisms and the simplification of administrative procedures for green entrepreneurs are, among many others, some of the specific recommendations proposed to support the implementation of sustainable development within the country. The key messages provided by these stakeholders have been included in a new White Paper, entitled, 'The Promotion of Green Entrepreneurship and Grassroots Ecological and Social Innovations in Tunisia.'

A workshop on green economy, organised by the SwitchMed programme, with the collaboration of the Ministry of the Environment, the Regional Activity Center for Clean Consumption and Production, the Confederation of Tunisian Citizen Enterprises and International Center for Environmental Technologies in Tunisia took place in Tunis on 23 March 2016. The event provided the 100 attending stakeholders with the opportunity to present key recommendations on the development of a green economy in the country.

The workshop forms part of Tunisia's commitment to help reverse the effects of climate change and promote the adoption of green and circular economy. The drive to move towards this type of economy in Tunisia has received an increasing amount of support in the past seven years since the political revolution of 2011. Indeed, by 2015, the Tunisian administration had already conducted a study for the development of a national strategy for the green economy in the country. This study was actually timely in the post-revolution context, as solutions needed to be found to address many national issues such as the sharp increase in social and regional inequalities being experienced, which, in turn, was causing numerous economic, financial and environmental crises. Public sector and civil society organisations, both national and international, are now particularly interested in supporting the efforts of those actors of change seeking to develop an innovative ecosystem of sustainable consumption and production patterns in Tunisia. These efforts are focused on sustainable tourism and agriculture, energy conservation and renewable energies, forest preservation and renewal, sustainable transport, clean production and waste management.

"This is the first time that Tunisian public and private actors from many sectors have demonstrated such a clear commitment to working together," commented General Commission for Regional Development Director, Zeineb Chemkhi.

These sectors were familiar territory for the attendees, all of which were representatives of the interdependent pillars of the green transition. As evidence of the Tunisian government's keen interest in the matter, the Ministry of Environment and Sustainable Development, the Ministry of Vocational Training and Employment, the Ministry of Development and International Cooperation, the Agency for the Promotion of Industry and Innovation and the National Agency for Waste Management were just a few of the public institutions present. Business enterprises such as Bio-chèvre-lait, Collectum D3E Recycling, Tunisia EcoTourism and Tunisie Coop, and civil society organisations such as Pedalo, the Associative Network of Sustainable Development of the Oases, and the Tunisian-Mediterranean Association of the Environment, provided crucial hands-on experience towards developing concrete actions to support green activism and entrepreneurship. One of the most valuable contributions to this successful discussion, however, was the presence and involvement of the financial institutions. The Tunisian Solidarity Bank (BTS), one of the main loan providers for young entrepreneurs, as well as the Financing Bank of Small and Medium Enterprises (BFPME) and the Industrial Promotion and Decentralization Fund (FOPRODI) presented their supporting initiatives and available funds for the promotion of green entrepreneurship. Additional valuable insights were

also provided by other supporting initiatives such as, CoopMed, Fikra Program, Afrikwity-Cofund and a number of academics. Each participant brought their own expertise and unique perspective to the table, resulting in a series of comprehensive and informed recommendations being formulated to stimulate the market for sustainable products and services.

"This pilot project responds to the priorities of the country in terms of switching to green economy," pointed out the Head of the SCP/RAC Green Entrepreneurship and Civil Society programme, Giorgio Mosangini.

The group of participants, which included Nabil Hamdi, from the Ministry of the Environment and Sustainable Development and focal point in Tunisia and Stefano Corrado from the European Union Delegation in Tunisia, were given an overview of the current position in Tunisia with regard to the green economy by environment and sustainable development expert, Samir Meddeb. Giorgio Mosangini highlighted the efforts being made by the European Union to support all key actors in the area of sustainable consumption and production in Tunisia and throughout the Mediterranean through its funding of the SwitchMed programme.

"This programme aims to support the transition towards sustainable consumption and production through the promotion of social and ecological innovations by establishing 'a green network' for the benefit of entrepreneurs," said the Head of the European Union Delegation in Tunisia, Stefano Corrado.

In fact, Tunisian green entrepreneurs and civil society organisations have both benefited from the support and capacity building provided by SwitchMed and its local partners. In the same context, Mosangini announced the publication of a national white paper, which will highlight the recommendations made by the stakeholders during the event and integrate the conclusions of the in-depth interviews conducted with stakeholders prior to the workshop.

After a series of presentations showcasing the experiences of green entrepreneurship and eco-innovation initiatives, setting out a global vision for the Ecosystem of Green Entrepreneurship and Social Eco-innovation in Tunisia, the participants formed five groups which worked to come up with recommendations to be submitted in the form of advocacy.

"Despite the rich diversity of the ecosystem there is a lack of dialogue and cooperation between the different actors, especially between public actors, entrepreneurs and financing professionals," stressed the founder of the Waste to Value start-up, Mohamed Khelil.

The Working Groups first focused on the challenges faced by the green entrepreneurs and social eco-innovation initiatives that represent a driving force in this transition to a green economy. Access to financing was highlighted as one of those challenges. In fact, some testimonies revealed that the range of financing options currently available do not adequately correspond to the needs of Tunisian green entrepreneurs. Group discussions also concluded that business professionals had a limited understanding of the fundraising possibilities for green SMEs and entrepreneurship.

The working groups then went on to discuss the potential links and synergies between the different actors in the green ecosystem. They were thus able to elaborate notes on public and private support for a more inclusive and decentralised approach. The moderators subsequently asked the participants to suggest a limited number of recommendations for the priority actions to be considered in order to overcome these difficulties. At the end of this synergy workshop, each group representative put forward their proposals. Recommendations concerning the alleviation of the conditions for granting tax incentives and public funding and pairing them with professional support, as well as the development of crowd-funding schemes were echoed across all the presentations, underlining the common challenges faced by the participants. Other outputs included the simplification of administrative procedures with less bureaucracy and more transparency, and the creation of a national platform to present an overview of the green ecosystem.

To conclude, SwitchMed's implementing partner for green entrepreneurship and civil society initiatives, the Regional Activity Centre for Sustainable Consumption and Production, has produced a national report to summarise the common trends identified during the Synergy Workshop, conducted in the eight countries participating in the SwitchMed programme. This regional report provides evidence of the need, identified by country, for sustainable support for capacity building and technical support to encourage environmental and social enterprises in the Mediterranean.

photo credit: @TNAGEM



The White Paper on “[Promotion of Green Entrepreneurship and Grassroots Ecological and Social Innovations in Tunisia](#)” highlights the strengths and weaknesses of the Tunisian green entrepreneurship ecosystem, in order to reveal the areas and axes where the needs for action are greatest. It summarises the opinions of some forty stakeholders interviewed individually (public institutions, financial institutions, support structures, project sponsors) as well as the results of the Synergies workshop held on 23rd March 2016 in Tunis, which brought together over 100 key actors from nearly 60 different organisations. The document is available only in French for the moment.



Empowerment of civil society organisations and citizens to lead innovative solutions addressing environmental and social challenges.

Photo credit: @Bernard Hermant



Supporting eco and social grassroots innovations

At SwitchMed we support community-based social eco-innovation initiatives to maximise their influence and impact, thereby contributing to the emergence of more sustainable models of consumption and production. A training methodology is developed to support eco and social innovations and grassroots initiatives on sustainable consumption and production which included a Handbook that provides basic knowledge and understanding on the fields of SCP and eco and social innovations. Furthermore, this Handbook presents challenges and opportunities for civil society organisations and grassroots initiatives aiming to work within these fields. It also helps to inspire and build a practical way of looking at collective projects or initiatives.

An intensive 4-day national workshop is organised in each of the SwitchMed target countries in coordination with our local partners. The attendees are gathered in an inspiring framework in order to develop different spheres of their projects, get inspired by other initiatives and help one another during the particularly participatory sessions. Specifically, the training aims to provide practical expertise in what concerns community initiatives while giving them the opportunity to take important steps in the development of their projects. A key component of the training is the module dedicated to analyse in depth the issues to tackle to start an initiative. Through the practical exercises, the leaders of the initiatives must prototype their projects, develop a canvas model particularly addressing the social eco-innovation within grassroots initiatives and develop a SWOT analysis. On average, 20 community initiatives were shortlisted in each country, making a total of 180 initiatives across the programme as a whole that received the training.

Afterwards, all the trainees have the opportunity to apply for the supporting phase of the programme to receive further coaching and technical support for the development and implementation of their initiatives. Two civil society ecological innovation initiatives are selected in each country. The assessment of the applications is done by a jury composed by the local partners, the local trainers, SCP/RAC and the external experts involved in the development of the training methodology.

The initiatives selected in each country for the support phase benefit from 50 hours of training that includes the development of a “support plan” for their initiative and regular coaching sessions for six months to support the implementation of the initiative. Also external technical or expert support based on the needs identified in the “support plan” is provided and when possible, support for the development of a crowd-funding campaign as well.

In total, 260 change agents and civil society organisations were mapped and, 16 local trainers selected and 8 local partners were selected and trained on-site for the implementation of the training programme. Out of the 570 candidates who submitted an application to take part in the national workshops to train civil society initiatives, 160 people were selected and trained belonging to 80 different initiatives. In the end, 14 initiatives received further support, as explained earlier. Civil society organisations also participated in the Synergy Workshops organised together with the Green Entrepreneurship programme.

Meet our local partners

Our local partner selected by the SCP/RAC is an organisation with extensive knowledge of the current situation in Algeria in relation to civil society organisations, social movements and empowered communities in line with SCP and ecological and social innovation, as well as experience in organising and managing workshops. The main task of the local partners is to assist the SCP/RAC in identifying and selecting local trainers as well as potential grassroots initiatives to join our training programme.

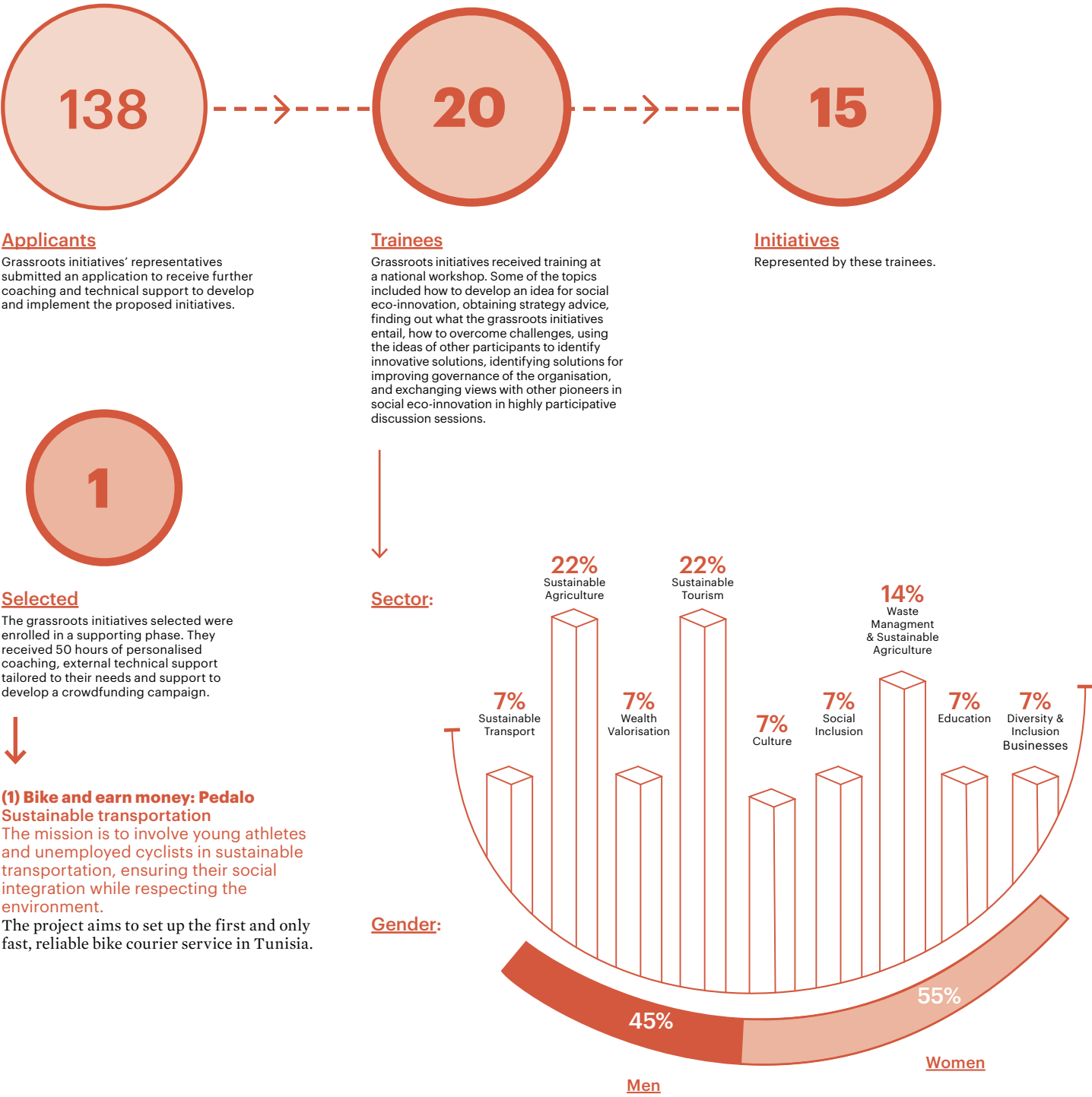


Laboratory of Social and Solidarity Economy (LAB'ESS)

It is a social innovation space dedicated to the creation and development of self-employment in Tunisia. Focused on the emergence of social entrepreneurs, LAB'ESS defines itself as a collaborative incubator designed to create a favourable space for entrepreneurs to venture, innovate and share. The LAB'ESS project was launched in 2013 and is supported by Development Without Borders, an association of the SOS GROUP, the leading social enterprise in France. LAB'ESS works to strengthen the capacities of Tunisian associations and promoters of social entrepreneurship projects through counselling, training and networking.

Our local trainers, carefully selected by the SCP/RAC, have extensive experience in initiating, implementing and evaluating environmentally and socially innovative projects, as well as a broad understanding and knowledge of training methodologies based on empowerment, collective learning and the participative approach. At SwitchMed, they actively participate in the regional co-creation workshop alongside other local trainers from all the participating countries. They also support the local partner organisation from their own country and the SCP/RAC in identifying grassroots initiatives and guaranteeing the participation of at least 20 social eco-innovation actors or initiatives in the national workshop. This also includes providing support by disseminating the call through the available channels in order to attract potential actors and initiatives to attend the workshop. They are responsible for facilitating a four-day national workshop with the support and guidance of SwitchMed's Civil Society Empowerment team. After that, the best two initiatives among those participating in the workshop are selected to receive further technical support. Local trainers therefore participate in the multi-stakeholder selection process of the best two initiatives. In addition, they provide 50 hours of individual “coaching” support to one initiative for the development of a “Support Plan” to identify the technical requirements needed to properly develop and implement the initiative over a six- to twelve-month period.

Civil society organisations are empowered to act as agents of change and to start community innovations



Promoting craftsmanship: Carré traditionnel Wealth creation

To preserve the crafts of the different regions of Tunisia.
The project aims to promote and sell handicrafts via an e-commerce platform and contribute to fairer trade for artisans.

Raw earth architecture: De terre et d'argile Sustainable tourism

To introduce raw earth architecture to communities, promoting respect for the environment and rediscovery of ancestral techniques.
The project aims to convey raw earth architecture know-how to communities and demonstrate the benefits of ancient eco-construction techniques through workshops.

Stopover for rural dwellers Social inclusion

To reduce the isolation of Tunisians from interior regions travelling to Tunis and to improve their reception.
The project aims to provide a multifunctional space in downtown Tunis to accommodate people coming from interior regions during the day.

Sakiet Sidi Youssef goes green: Dar Elmouna Sustainable agriculture

To contribute to the economic insertion of rural women and youth through small income-generating activities while raising awareness of healthy nutrition.
The project aims to create vegetable gardens and a small unit for the transformation and sale of local agricultural crops in Sakiet Sidi Youssef.

Fair-trade essential oils in Nabeul: Green essential Sustainable production

To create income-generating activities for rural women through the sustainable collection and sale of forest plants.
The project aims to promote fair-trade essential oils made by rural woman and support their sales by developing a new distribution channel for their products in Tunisia.

Educating our youth: Debbo 52 Culture

To promote cultural and artistic training in a green space in a popular district in Tunis.
The project aims to develop a creation and co-working space for artistic projects by young people living in underprivileged areas.

Organic dates in Zaafrane oasis: SNAM Bio Dattes

Waste management and sustainable agriculture
To promote organic farming practices among oasis farmers and preserve biodiversity.
The project aims to support the creation of a small producers' group for organic dates in Zaafrane oasis and promote and sell their produce.

Bir Salah switches to organic Sustainable agriculture

To fight climate changes in Bir Salah by promoting environmentally friendly agriculture.
The project aims to train local farmers in Bir Salah in organic farming and to plant specific trees that will produce a material exploitable by local women.

Establishing a permaculture network Waste management and sustainable agriculture

To build awareness of the economic and environmental benefits of permaculture and promote the concept of sustainable agriculture in Tunisia.
The project aims to empower agronomists and farmers to find local solutions to environmental challenges through permaculture. It will also create a network for new permaculturists to exchange know-how and good practices.

For the children of the Medina: Twiza Education

To contribute to reducing social exclusion through cultural and artistic education for children.
The project aims to encourage creativity, freedom of expression and artistic production through the sharing of skills with children of the Medina of Tunis.

Ecotourism in Ain Draham: Dar el ain Sustainable tourism

To develop ecotourism in Ain Draham that reconciles inclusive economic development of the region and protection of its environmental heritage.
The project aims to promote sustainable tourism and appreciation of the region by creating circuits of accommodation and tours that create job opportunities for locals.

Dive sustainably: Ecomel Sustainable tourism

To raise awareness of the need to protect the submarine eco-system in the Bay of Melloula-Tabarka.
The project aims to establish underwater educational trails in the Bay of Melloula-Tabarka that make sustainable use of resources in collaboration with local inhabitants.

Gluten-free food is an option: Tunisian Association against Celiac Disease Sustainable agriculture

To build awareness of and offer training and support to people with celiac disease.
The project aims to raise awareness of celiac disease, to develop gluten-free cookbooks and inaugurate a gluten-free bakery in Djerba.

Entrepreneurs cooperative: Tunis'Actif Business diversity and inclusion

To reduce problems faced by young entrepreneurs, especially isolation and lack of material and human resources.
The project aims to create a cooperative of entrepreneurs in Tunis, provide them with training in entrepreneurship and equip them with information on legal and financial schemes for start-ups.

Meet our Tunisian civil society organisations supported

A bike-delivery company tackling pollution and unemployment

In Tunisia, opportunities for cyclists interested in combining their passion for cycling with earning a living are non-existent. Traffic and traffic jams do not facilitate business trips during the working day and the existing range of courier services do not promote the development of win-win initiatives. Pedalo has spotted a gap in the market which aims to satisfy the increasing demand for messengers and delivery people in the Tunis area and the need to shift towards more sustainable methods of transport in cities.

With around 1.8 million cars on the roads in Tunisia, it comes as no surprise that all the country's major cities suffer with traffic problems at all hours of the day and night. The number of cars is estimated to double over the next five years, with the Grand Tunis area set to be particularly affected by the resulting rising levels of pollution. Adnen Ben Haji, founder of Pedalo, saw a business opportunity with the creation of a bicycle delivery network, based on two main principles: "The primary focus is to reduce the impact of pollution in urban areas, but it is also a way for young people to earn an income," explains Adnen.

"My interest in sustainable mobility began in earnest when I was on holiday in Montreal back in 2007. I came across a bicycle courier company called '911 Corriers', and spent a whole day with them, giving me the chance to see how they were operating. Ever since then, I have wanted to create a company like 911 Corriers in Tunisia, but I had neither the means nor the knowledge or the support." Since then, Adnen Ben Haji, who studied at the Tunis Business School and has a degree in Management, specialising in marketing, new technologies and global business, started working hard to make Pedalo a reality.

Pedalo combines multiples missions, as it represents a social co-working space and a bike-delivery company that tackles pollution and unemployment. The initiative aims to combat youth unemployment, while encouraging them to lead more sustainable lifestyles. Pedalo also works to raise awareness among its clients. "Whatever the reason a customer is booking our service; whether it's to order a pizza or drop off a dress at the dry cleaner's before it closes, we believe that the bike is the best way to do it, as an ideal delivery method for all sorts of products, and therefore sustainable mobility forms the heart of my business," Adnen stresses, going on to add, "It is important to change our mindsets regarding urban mobility. Our clients are very pleased with this green delivery alternative and more and more are acknowledging that more bike deliveries means having to use less motor vehicles which leads to a healthier environment."

Pedalo currently operates in Greater Tunis. In addition to not having any cycle paths, another challenge for couriers who ride 20 kilometres per day is the fact that roads are not tailored to cycling. "The infrastructure doesn't help as there are almost no bike lanes but it's better than making the trip by car with traffic," says Adnen. "One aspect of SwitchMed's support phase that was particularly useful was the help we received with



Photo credit: @Max Bender on Unsplash

defining our economic model," says Adnen, before adding that Pedalo is currently housed and incubated at El Space, a strategy suggested by his SwitchMed local mentor. "SwitchMed has provided us with support in terms of business planning development, market research, community management and awareness about sustainable transport in Tunisia," stresses Adnen.

"The infrastructure doesn't help, but it's better than making the trip by car with traffic."

Adnen Ben Haji, Pedalo

The need for a technological solution to manage orders, bike messengers and clients is of tremendous importance. "We clearly needed technical support, thus one of the external experts funded by SwitchMed gave us help with developing a website and mobile application. With that, on the one hand, customers can book a service online and track the delivery status in real time and, on the other, bike messengers can accept services from clients through the mobile application and contact them easily. We are going to launch the website and the mobile application in the very near future," says Anen.

Most social enterprises fail because they lack the expertise to build a strong brand and communicate their impact. "That is why I'm so grateful for the advice we've received from SwitchMed experts with regard to communication. It's fantastic to now have a new marketing strategy that we will be implementing in the next couple of weeks."

Pedalo currently employs five members of staff and is expecting to recruit an extensive community of bike messengers in 2019. Adnen and his team are evaluating the possibility of franchising Pedalo to replicate their experience in other cities, such as Sfax, the economic capital of Tunisia, as well as Sousse. "Sometimes I also think about changing and moving to a solidarity cooperative model in which couriers are partners. That is a model that could be particularly suited to rural areas and thus contribute to the integration of young Tunisians within the working world," he explains. Pedalo is also looking for new collaborations. "There is a new food delivery company launching in Tunis and we are thinking about collaborating with them to capitalise on each company's strengths in a coordinated manner," explains Adnen.



Photo credit @Tarek MRAD

Enabling access to finance for green start-ups and entrepreneurs by mobilising impact investment: The Switchers Fund

Photo credit: @SwitchMed



Financial instruments for innovative green businesses

At SwitchMed we are supporting the region's green entrepreneurs by enabling access to finance, providing direct finance to new and established green entrepreneurs and mobilising local investors and enterprise support programmes as well as European resources through the newly created SwitchersFund.

The Switchers Fund's mission is to support innovative green entrepreneurs in the development of their projects, first through grants to test new ideas and attract new funders, and as these projects grow by introducing adapted financial products such as concessional loans and ultimately through equity participations.

In the current situation where private and public financial institutions have difficulties to channel their investments to Medium and Small enterprises in our partner countries in Africa and the EU Neighbourhood region, the SwitchersFund core business lays at facilitating international capital flows from investors to entrepreneurs to facilitate, thus contributing to achieve the Sustainable Development Goals. As the first activity of the Switchers Fund, the Call for OSCE GEMS Award, granted a total of 90,000 euros in six South Mediterranean countries, 15,000 euros in each country to the best business idea. The OSCE GEMS Award was the result of the partnership between the Organisation for Security and Cooperation in Europe (OSCE) and the SwitchersFund, and was established thanks to the support of the Italian Government.

In addition to this, the Business Support Services Facility complements the SwitchersFund's financial instruments by supporting innovative entrepreneurs via capacity building initiatives, and, in general, enhancement of their access to finance, which focuses on the following actions: green business model and plan development, mentoring and technical expertise, crowdfunding campaign support a "Green Start-ups Meet Investors". The latter, that connects start-ups with the right investors

during matchmaking events, is a national event held in each beneficiary country. By covering the major issues that an experienced investor will look for (and expect) before they invest and getting to know the upcoming start-ups to the international investors' community, SwitchMed aims at mobilising investment capital to help with the growth of green business in the Southern Mediterranean. Prior to the pitch, the green entrepreneurs that are selected receive 30 hours of capacity building session to improve their communication skills and to prepare their business to be evaluated by the financial players. The stages of the investment process are also taught during that session. In the aftermath of the events, an individual feedback on the strengths and weaknesses of the project submitted with a monitoring of the contacts made with the investors during the meeting is offered to the green entrepreneurs with the aim of improving their capacity to meet the appropriate financial players. In total, 245 applicants submitted an application to join the Green Start-ups Meet Investor, 67 green entrepreneurs were selected and coached to give their pitch in front of investors. A total of 79 investors attended the events. A total 2,150,000 euros potential investment raised by the entrepreneurs is expected by the end of the programme.

An on-line financial toolkit for the green entrepreneurs, whether they are in ideation phase or already fully operational companies, was also developed to help them to better access to finance in the MENA region. The practical tool allows discovering their finance opportunities and all the necessary instruments and knowledge to approach potential investors, and determining, in 4 easy steps, the right funding strategy for their green business.

These activities, carried out by SCP/RAC, are jointly done with the European Federation of Ethical and Alternative Banks (FEBEA) and the Union for the Secretariat of the Mediterranean (UfM).

Meet our service providers

Our local service providers, carefully selected by the SCP/RAC, are organisations with extensive experience in supporting green entrepreneurs in business development and positive impact assessment, as well as providing them with the necessary support in access to finance. These organisations are selected on the basis of their capacity to empower the green entrepreneurs and their knowledge of financial opportunities in each country.

The main task of these organisations is to develop and implement capacity-building sessions on access to finance and improvement of the entrepreneurs' communications skills. Subsequent to training, the green entrepreneurs have the opportunity to pitch and showcase their innovative solutions to potential investors during a specific national event.

Local providers also supported SwitchMed in the development of the first green regional portfolio. The green portfolio lists the profiles of each entrepreneur and has been disseminated among potential Moroccan investors.

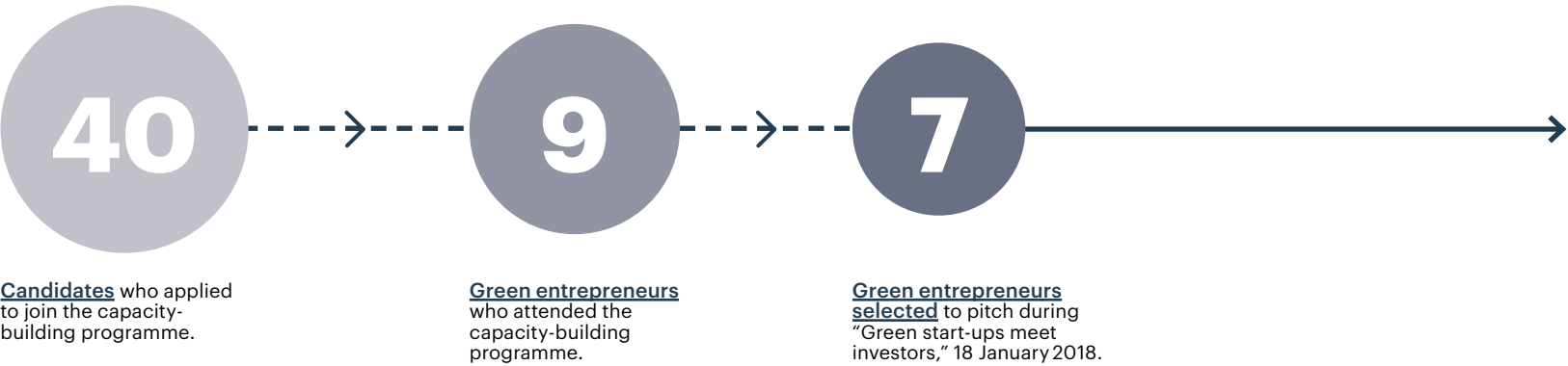


The Agency for the Promotion of Industry and Innovation

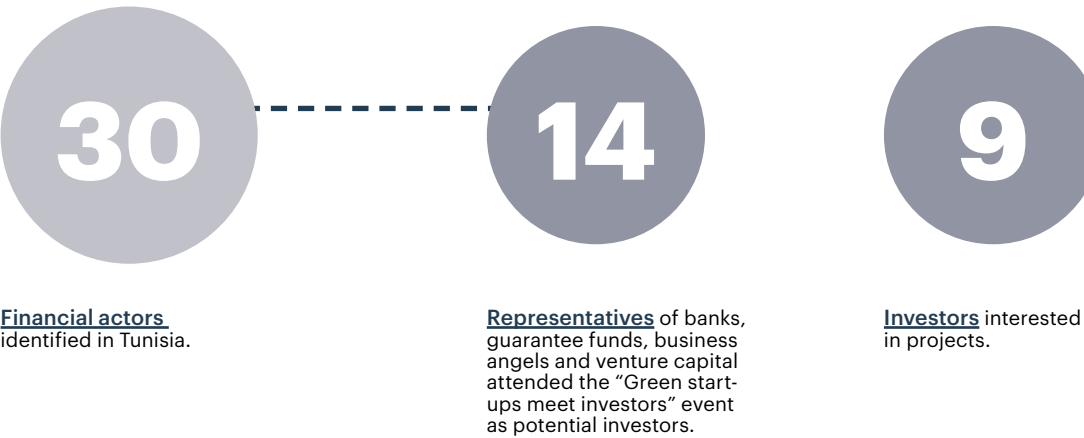
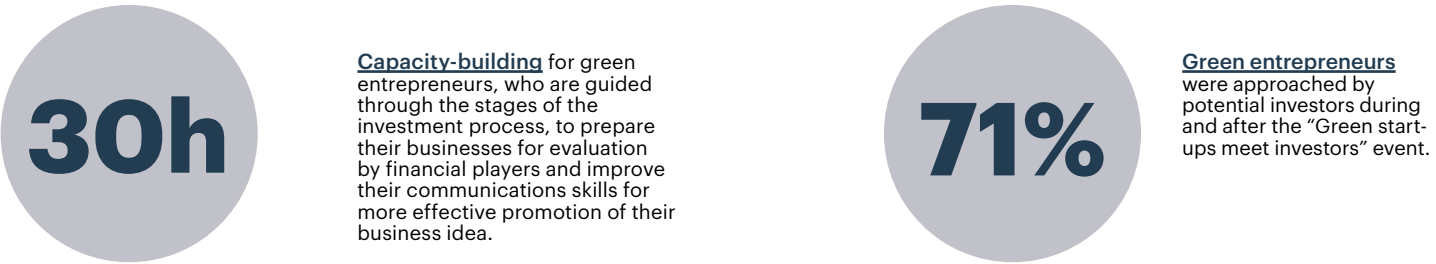
It is a public network of services for entrepreneurs and enterprises that identifies the best green initiatives, encourages them and provides them with the necessary support to grow and attain their goals.

The agency's nationwide network and experience in access to finance enables it to reach out to a large number of green entrepreneurs, potential investors and business support organisations and provide services for the benefit of the green economy sector in Tunisia.

Access to finance capacity building programme for green entrepreneurs



Discover our 7 green entrepreneurs who pitch during the “Green start-ups meet Investors” event



Name of the company	Business stage			
Passport Bio	●			
BIO-CHEVRE-LAIT		●		
Eco Explore Ain Drahem	●			
W2V		●		
M2M			●	
BIOFIRE			●	
Biolntrants Technologie		●		
	Ideation	Early stage	Growth	Scale

40,000€ **110,000€**

The amount of potential investment raised by Tunisian green entrepreneurs.

Loans granted as result of the meeting.

The impact of the SwitchersFund OSCE GEMS Award in Tunisia: Interview with Gian-Luca Gasparini

Gian-Luca Gasparini's profile:

Gian-Luca Gasparini holds a Bachelors in International Development and Cooperation, a Masters in International Relations, and a First-level Masters in Global Economics & Social Affairs. Has worked for the Italian Ministry of Foreign Affairs during the Italian Presidency of the Council of the EU, the Rabat and Khartoum Processes and the ASEM 2014 Summit. In 2015 he started working for SEFEA Consulting in the Projects Department, providing support to the consultancy services and project management offered by the company, which focuses on supporting ethical finance and the social economy in Europe and beyond.

The European Federation of Ethical and Alternative Banks and Financiers (FEBEA) acts as an economic lever for a sustainable, active and supportive Europe by bringing together financial institutions from 15 European countries. Working in their own countries, these institutions contribute to world solidarity by disseminating the importance and urgency of developing ethical and solidarity-based financial models in the European economic and political area.

Gian-Luca Gasparini holds a degree in International Development and Cooperation,

a master's in International Relations and a first-level master's in Global Economics and Social Affairs. He formerly worked for the Italian Ministry of Foreign Affairs during the Italian Presidency of the Council of the EU, for the Rabat and Khartoum Processes and for the 10th Asia-Europe Meeting (ASEM) summit in 2014. Since 2015 he has worked as Secretariat Officer for the European Society for Ethical and Alternative Finance (SEFEA) Consulting, an investment branch of FEBEA, supporting ethical finance and the social economy in Europe and beyond.

As one of The SwitchersFund Award's partners, could you tell us what made FEBEA decide to collaborate with this initiative?

The SwitchersFund emerged step by step by working with SwitchMed and talking to relevant stakeholders in the MENA, who high

As a SwitchersFund partner, could you tell us why FEBEA decided to collaborate with this initiative?

The SwitchersFund emerged, step by step, by working with SwitchMed and talking to relevant MENA region stakeholders, who highlighted the need to provide not only funding but also technical assistance to entrepreneurs and start-ups. They fit very well.

The SwitchersFund OSCE GEMS Award is a way to create opportunities for green entrepreneurs in the MENA region, isn't it?

Exactly, the OSCE GEMS Award aims to be the first step for green entrepreneurs who need access to finance. It is also helpful to prove that green entrepreneurship can be an economically viable way of dealing with social and environmental challenges in the MENA region.

Photo credit: @SwitchMed



To be eligible for this Award, what criteria were considered?

We took into account the innovative component of the project, as well as its social and environmental impact and its economic sustainability.

Was it difficult to select the finalists?

It was hard because we received many interesting applications that fulfilled the selection criteria. We decided to first create a shortlist and then contacted those on the shortlist for further more detailed information such as how they would envision spending the grant.

Tunisia was one of the eligible countries for the Award. What kind of eco-innovative sectors do you think need to be boosted in this country?

Tunisia presents several opportunities as it is in a strategic location and has a young and educated workforce. Judging from the applications received from this country, there seemed to be a lot of interest in sustainable agriculture, renewable energy and sustainable tourism.

"The SwitchersFund OSCE GEMS Award aims to be the first step for green entrepreneurs who need access to finance. It is also helpful to prove that green entrepreneurship can be an economically viable way of dealing with social and environmental challenges in the MENA region."
Gian-Luca Gasparini, SEFEA Secretariat Officer

Which are the main sectors that investors are most interested in?

That is a tough question, as green entrepreneurship is still a new concept for investors in the MENA region. However, there are some urgent problems, for instance, water scarcity. The Mediterranean Basin is one of the world's regions most vulnerable to climate changes, as well as a region highly impacted by human water demand. I think investors need to direct their attention to green projects that provide solutions for this issue.

Everyone needs water!

Yes, and energy. I would say that water management, sustainable energy and waste management are the three greatest challenges that financiers should address when investing in Mediterranean green projects.

Connecting objects, big data and artificial intelligence solutions to rethink energy consumption

Mohamed Makki Maalej's profile:

Mohamed Makki Maalej, Software and Telecommunications Engineer graduated from the Private High School of Engineering and Technology (ESPRI) in Tunisia. He has actively participated in several entrepreneurship competitions and has won several awards nationally and internationally, such as Venturewell in March 2016 in Tunisia, the Bigbooster in October 2016 held in France, and Green Africa Booster Innovation Awards, in July 2017 in Morocco. He won as well the first place in the SwitchMed's Green Elevator Pitch in 2018.

M2M is a Tunisian company that developed Allsave, a real-time monitoring platform for energy management applications. This platform retrieves and analyses the data collected from the electrical network and presents it as useful and exploitable information via a customisable web interface. Mohamed Makki, the winner of the SwitchMed Elevator Pitch, asserts that his platform will deliver continuous improvement in terms of consumption control and improved energy rationalisation for companies.

How did you hear about SwitchMed and the Elevator Pitch?

The SwitchMed adventure began in June 2015 by participating in the Green Entrepreneurs Training Programme in Tunisia, which not only was a success but also was very helpful for me to approach the social & entrepreneurship field, and to develop the product Allsave, owned by my company M2M.

How did you hear about SwitchMed?

My SwitchMed adventure began in June 2015 when I participated in the Green Entrepreneurs Training Programme in Tunisia, which was not only a success but also helped me with breaking into the social and entrepreneurship field and the development of the Allsave product for my company, M2M.

What did you gain from participating in the Elevator Pitch?

It was helpful on many levels because not only did it give me an opportunity to practice pitching my company's product, but also gave me a better understanding of the steps involved in the investment process. I realised that I didn't know how to convince an investor to put money in my project, so the training offered by SwitchMed before my presentation really helped with improving my communication skills.

Being able to successfully explain your business idea is key.

Yes, and even more importantly, the training programme altered my vision and approach so that now the focus is on selling a concept that will be profitable for my clients rather than on selling a product. I think that was the main lesson I learnt from this experience.

So, would you say that SwitchMed helped you to better understand your business?

Yes. Actually, after my investors meeting, I found I became better at validating my business model, and I understood the need to stress the energy savings provided through M2M's activities.

What kind of customer can benefit from your services?

All the M2M products and services, including Allsave, are intended for industrial companies and tertiary sectors, such as clinics, airports and local authorities.

And how do they benefit?

All those companies improve their environmental performance as a result of controlling their consumption. Thanks to the Allsave platform customers are able to monitor the energy consumption of each machine and each device they own, which could contribute to strengthening their overall performance, and, in case of a fault, the system alerts the customer thanks to an artificial intelligence system based on the deep learning of the consumption behaviour of each machine.

Do you have specific annual goals regarding environmental impacts, such as the amount of energy saved or number of beneficiaries?

Our overall impact goal is the reduction of the rate of CO₂ release into the atmosphere. Thanks to the recommendations and corrections required by Allsave Artificial Intelligence, our customers have access to an ongoing source of data regarding the performance of their plants. By reducing their energy consumption by more than 30%, the environmental impact is also automatically reduced, which is calculated from the greenhouse gas emissions unit toe (tonne oil equivalent). By reducing current consumption by 10% to 30%, a company can also reduce its waste of energy materials and, therefore, costs in the short term, contributing to reducing the environmental impact. During the first pilot phase, M2M plans to sign contracts with five customers that are large energy consumers. Our goal for the next three years is to apply our solution to more than 100 national and international companies.

“The SwitchMed training programme altered my vision and approach so that now the focus is on selling a concept that will be profitable for my clients rather than on selling a product.”

Finally, could you outline the main strengths of your project?

The Allsave system is based on continuous improvement at our customers' sites, with whom we have five-year contracts, which include close support and advice from the client for maximum profitability. All data is processed and updated at a high frequency of 200 recordings per second and the systems are being enriched through artificial intelligence and deep learning. Our platform is also scalable and follows the latest recommendations and international standards.

Support eco and social innovations of green entrepreneurs and Switchers through a mix of grants, loans and equity participations. Join now

The Switchers Fund and contribute to the first MENA impact investing Fund.

What financial tools are available for green entrepreneurs in Tunisia?

Despite the relative abundance of banks in Tunisia, green entrepreneurs do not have many options to finance their start-ups. Nevertheless, in the current process of change in the country, new entrepreneurship programmes, incubators and venture capital funds are emerging, and international actors are likely to be attracted by the opportunities offered by green entrepreneurship in Tunisia.

Despite its large number of banks, Tunisia still offers very few funding opportunities for SMEs and start-ups, and especially for green entrepreneurs. Banks tend to be risk-averse and funding is a slow and bureaucratic process that requires a high level of guarantee. However, it is essential to know what tools exist and to understand the current process of change in Tunisia. New funds, incubators and entrepreneurship and support programmes are likely to develop nationally, and the emerging opportunities could attract international actors.

But what interest might financing institutions in Tunisia have in terms of investing in eco-innovative businesses and initiatives created by green entrepreneurs? In order to find out, in June 2016, a delegation from SwitchMed travelled to Tunisia to meet different key actors, including governmental and financing institutions (the Ministry of Environment, the Ministry of Industry and Finance, the World Bank, Carthage Business Angels) as well as many green entrepreneurs from the SwitchMed community.

The mission reported that only a few initiatives developed by non-commercial banking institutions concerning the green economy were identified. Furthermore, entrepreneurs did not seem to be aware of these initiatives. The findings started with an overview of the Tunisian economy, which is quite advanced and diversified compared to other economies in the region, but largely dependent on natural resources, whose depletion and degradation, added to the pressure of production activities, are an obstacle to economic and social development. Nevertheless, and even though the current political climate in Tunisia is relatively unstable, the transitions the country is experiencing also open many new opportunities. Pro-

“We suggest using a combination of different types of financing (equity, investment loans, working capital) along the lifetime of a start-up company, to greatly increase their chances of success.”

Fethi Cherni, Product Manager of the Enda Tamweel credit institution

moting the concept, technologies and economic opportunities of green entrepreneurship will be a key factor in attracting financiers to this sector. The report concluded that while this is one of the roles of SwitchMed, it also needs to become a policy priority for the Tunisian government and a vector of innovation for Tunisian entrepreneurs and civil society.

To increase their investment readiness and be more bankable, initiatives with high growth potential can make use of existing mechanisms to support SME growth, such as incubators, and coaching programmes like Réseau Entreprendre. Even though the current offer is limited, those who know the expectations of investors, particularly highly innovative SMEs, can qualify for early-stage venture capital investment. The existence of several small venture capital funds in Tunisia dedicated to SMEs and small companies (which do not necessarily need to be hi-tech or IT-based) represents an exciting opportunity to be explored by Tunisian green entrepreneurs. Besides, the current legal framework attracts local

investors to venture capital, thanks to existing tax breaks for this kind of investment.

Regarding future green entrepreneurs trained and supported by SwitchMed, there are no specific financial solutions readily available in Tunisia that can respond to their needs as new start-up companies with varying degrees of growth potential in a myriad of different sectors. For those who have established companies, as already qualified Switchers with a particular track record, bank loans may be an option. While Tunisian banks are generally said to be very conservative, bureaucratic and slow, some loan products are available for green entrepreneurs; for example, the Solidarity Bank of Tunisia offers loans that seem to be well adapted to start-ups and existing guarantee schemes for SMEs. For green entrepreneurs who have the patience and financial resilience, it is indeed worth trying. Naturally, there may also be green initiatives that, because of their educational or experimental nature, do not initially qualify for private financing.

Future green entrepreneurs need to be aware of the financing options available and the differences and advantages of each tool. Investors and banks represent different opportunities as they look for different things regarding growth, ownership, risk and future obligations. Considering this, the development of a specific and dedicated financing instrument would seem to be the best option to develop green entrepreneurship in the future in Tunisia. Having access to such an instrument would provide the space to grow and to build the track record that would allow an initiative to qualify for regular bank finance. A financial product called Credit Vert, launched by the Solidarity Bank of Tunisia and specifically addressing green businesses, has to date invested 300,000 euros, for an average of 20,000 euros per project. The World Bank is also creating a fifty-million-dollar fund, to be managed by the Tunisian government, to finance local entrepreneurs with a Tunisian quality label.

A number of institutions, including the European Bank for Reconstruction and Development, do not finance start-ups or green businesses unless there is a solid sponsor for the project. Moreover, regarding the Tunisian ecosystem, the EU Delegation has explained that “there are some other problems the country faces such as corruption, lack of transparency of their structures and lack of banks capacity to analyse the risk of small business.” Other problems, such as bureaucracy, regulatory hurdles and overly restrictive microcredit financing brackets, also exist. As Medji Kilian, CEO of Shams Technology, expressed it: “Tunisia enjoys a good geographical position which can provide many opportunities for entrepreneurship. However, it is difficult to find credit, due to a rigid financial system and the collateral that is asked in return for the loan. A heavy bureaucracy does not help the situation.”

The green economy in Tunisia is potentially a crucial source of jobs but must consider developing in the context of a multi-dimensional, integrated vision that takes into account limited natural resources and a necessary improvement in industrial competitiveness. The lessons learned from current experiences should be enhanced and strengthened within the framework of the national strategy for the economy, still under preparation. For example, recycling and recovery of solid waste constitute a potentially important but largely unexploited market; for example, the potential of electrical and electronic waste is estimated at around 75,000 tonnes per year. In other areas, like wastewater treatment and renewable energy, sustained efforts are needed to encourage participation by the private sector, particularly in facilitating access to funding

and technology. To upgrade the business environment, companies need to increase their awareness of the benefits of integrating green and social values in their business model. The World Bank has also highlighted the lack of communication and coordination between the different elements in the economic system in Tunisia, the lack of impact on reducing poverty and the low interest in building associations. To mitigate such issues, awareness raising is paramount. The Tunisian Association of Capital Investors (ATIC) has stated that while accelerators are starting to emerge, there is a lack of incubators and of business angels, the fiscal system is overly rigid and the survival rate of enterprises is very low.

“Tunisia enjoys a good geographical position which can provide many opportunities for entrepreneurship. However, it is difficult to find credit, due to a rigid financial system and the collateral that is asked in return for the loan. A heavy bureaucracy does not help the situation.”

Mejdi Kilani, CEO of Shams Technology

It can be concluded that the existing offer is still rather limited and will leave many new green entrepreneurs behind, particularly small initiatives or less innovative ones, which may need more funding than just a microloan: they do not meet the growth expectations of venture capital funds and are too young for banks to consider them. According to Fethi Cherni, Product Manager of the Enda Tamweel credit institution: “We suggest using a combination of different types of financing (equity, investment loans, working capital) along the lifetime of a start-up company, to greatly increase their chances of success.”

“To reduce risk in green entrepreneurship, technical assistance is essential.” This was a comment by Mohamed Kaaniche, General Director of the Solidarity Bank of Tunisia, who further remarked the importance of collaboration between his organisation and other organisms such as the United Nations Industrial Development Organisation, the United Nations Office for Project Services, the Tunisian Confederation of Citizen Enterprises and the Ministry of Employment, adding that “in this sense, a collaboration with SwitchMed could be interesting, especially in the long term.”

Finally, one of the keys to developing the green entrepreneurship sector in Tunisia is to work on establishing the overall potential of the green economy market in terms of number of projects, total investment required, possible returns and job creation. This would allow a greater number of financial actors and entrepreneurs to be mobilised in this sector.

Stepping up internationalisation of SMEs on green business models and resource efficiency in the Southern Mediterranean.



Photo credit: @UNIDO

Enabling conducive technologies and frameworks for green businesses

Small and medium-sized enterprises (SMEs) play a key role in national economies around the world and provide a significant contribution in employment generation and added value to the economy. Therefore, increasing the internationalisation SMEs and helping them to access third markets, and thus, becoming drivers of a green growth, is crucial, not only for the businesses but also for the economy in the Southern Mediterranean.

Eco-innovative business solutions for the Southern Mediterranean

At SwitchMed, we recognize how important it is to engage and exchange best practices and solutions on innovations that can further the uptake of SCP in existing businesses models. For this reason, we support the development of networks that can create business partnerships between European companies and SMEs in the Southern Mediterranean in order to promote the uptake of green business models and eco innovations that can strengthen productivity, deliver a more inclusive growth and assist SMEs in the Southern Mediterranean.

To increase the cooperation between businesses and innovation networks in Europe, UNIDO together with local institutional partners, organized six B2B for eco-innovation events in Egypt, Lebanon, Morocco and Tunisia. 35 selected eco-innovative business solutions were presented at the B2B events where local businesses could get in touch with the latest eco-innovations for their sector. The eco-innovations had been selected from a pool of relevant and ready for market uptake solutions developed under the framework of EU “Eco innovation Programme”, “Best Life Environment”, the “European Business Award”, and innovation Seed initiative. All in all; 725 local businesses attended the six B2B events; to have 315 business to business consultations with providers of eco-innovations from the European Union. As a result of these consultations; 16 business partnerships were concluded during the months following the B2B activities resulting in technology cooperation agreements; skill transfer and innovation research collaboration have been enabled across several industrial sectors such as: textile, food, waste and wastewater management, wood and furniture, constructions, leather, plastic, agriculture. Preliminary investments in eco-innovative technologies concluded to 1.4 million euros and with the potential of totally saving valuable resources, such as 8,432,860 m³ in annual water consumption. The B2B events have displayed the need and potential for eco-innovations in the region and that cooperation between businesses from the EU and the Southern Mediterranean is an attractive bid for the environment as well as for the economy.

Pilot studies for the Product Environmental Footprint framework

Developing the potential of SMEs to participate and reap the benefits of a global and green economy, will also depend to a great degree on enabling framework conditions that can ensure a healthy competition. For instance, the EU single market is one of the most important trading partners for businesses in the Southern Mediterranean region, and every new regulation on this market will eventually also affect businesses ability of producing and exporting goods that are standing in compliance to these market regulations. One example of such a regulation, which might also affect Southern Mediterranean producers, is the EU Single Market for Green Products initiative. This initiative envisages a labelling scheme that will require the provision of meaningful and verified information from producers about the environmental footprint of products to the consumer. Based on the Product Environmental Footprint (PEF) assessment, the EU Single Market for Green Products initiative is currently evaluating how producers of environmentally friendly products, in Europe, and in other regions, are currently performing and what criteria needs to be applied for certain product categories in order to label a product “green”.

Starting in 2017, UNIDO invited relevant partners in Egypt, Lebanon, Morocco and Tunisia, such as, industrial associations and export orientated businesses, to take part in local organized PEF workshops. The workshops were organized to present the outcomes of the European pilot studies related to the PEF framework development, to inform industry stakeholders on the methodology, and to find suitable businesses from four sectors which could undertake a pilot PEF study in order to see how this new framework would work in the region and the specific sector. The selected sectors for these studies are related to the product category of wine, intermediate paper products, pasta and olive oil, and were selected on the basis of an existing PEF category rules and their financial value in the national exports to the EU and consequently the importance of this sector to the national economy. The selection process was done in this way to ensure not only the interest of the export oriented industries but also the potential for replication in the national or regional context later on, based on the capacity built during the project.

A high interest from local companies was noted and nine companies were selected for the implementation of the PEF CRs on a specific product that they export or plan to export in the EU. Their motivation to participate in this activity, even though the PEF CRs were not yet final at that point, was mainly based on the need to understand their products environmental footprint and the potential for improvement. For each company product, one local expert has been assigned to implement the PEF CRs, after receiving an in-depth training from the international PEF experts from PRE Sustainability, a Consultancy based in the Netherlands involved in their development. These experts now form the core which can respond to future demands from the industries that wish to have the PEF Category Rules implemented on their products.

The studies developed demonstrated the need for national Life Cycle Assessment (LCA) databases which can be used by the LCA and PEF experts. Hopefully, this will be addressed in the near future, enabling the companies and experts in the region to optimize the production faster and much more accurately. In addition, national partners in Egypt, Lebanon, Morocco and Tunisia were assisted in raising awareness among national stakeholders about the framework for a Single Market for Green Products initiative, contributing to the adoption of greener standards for the national manufacturing businesses in order to compete on equivalent terms in the EU market.

Applying eco-innovations can become a strategic success factor for denim produced in Tunisia

How a textile producer in Tunisia improved his business and environmental performance by investing in eco-innovative technologies that will save water and costs.



Photo credit: @UNIDO

Producing denim requires a lot of water. Throughout the various supply chains one pair of jeans can alone consume up to 10,000 litres of water in the production drawing resources from all over the world. This contributes to the fact that the textile industry has established itself to become the second most polluting industry in the world. But the textile sector is also an important contributor to job creation and growth, especially for emerging economies such as Tunisia, where textile goods make 29% of the country's total export.

New Amico is a Tunisian producer of jeans – part of the Demco group- and is specialized in washing, dyeing and applying special treatments to denim. Similar to many other Tunisian textile producers, jeans from New Amico are primarily produced for export markets such as the EU. The consumer preferences from these markets have increasingly moved in favour towards more environmentally responsible produced denim, which have stimulated jeans producers to look for more environmentally friendly production techniques.

The company decided to join the SwitchMed MED TEST II project to identify measures in the production that could improve the economic and environmental performance of the jeans production. It was also in this process that thanks to the SwitchMed B2B networking events for eco-innovation, New Amico got in contact with Jeanologia – a Spanish technology provider, with more than 20 years of experience, focused on the development of sustainable and efficient technologies for fabric and garment finishing. Technology from Jeanologia, had been selected by UNIDO for the SwitchMed series of B2B networking events in Tunisia, Morocco and Egypt, with the objective of promoting business partnership between eco-innovation providers from the EU and industries in the MENA region.

With the support from the EU, Jeanologia has developed the E-flow Nano-bubbles, a new technology for garment finishing processes that can treat garments and apply different chemicals like softeners, resins for wrinkle-free treatments, dyes, etc., without using hundreds of litres of water. The new process is based on transferring chemical properties to fibres using Micro-Nano Bubbles (MNB) that can get directly inside the fibres, reduces the consumption of water by 85%, electricity by 47%, chemicals by 50% and it eliminates the waste and wastewater treatment associated with chemical and water usage because of its zero discharge process. In combination with the Ozone G2 system and the laser treatment technologies from Jeanologia, the eco-innovative process modifications does not only save resources and emissions making the processing of textiles cleaner, it also can change the processes to become less resource consuming and give textile products a better environmental footprint.

“Our mission at Jeanologia is to offer the denim industry an ecological, eco sustainable and efficient system at the industrial level. We offer this technology to our clients on a global level. We should thank UNIDO who helped us transfer this new concept to new markets in North Africa like Tunisia and Morocco where UNIDO has organized B2B events between local industries and which has helped further these concepts”. Stefano Tessarolo, Jeanologia

The meetings during the SwitchMed matchmaking with Jeanologia, made New Amico aware that investing in the eco-innovation would not only give the business valuable saving in energy, water, and raw material costs, but also give the final product a competitive advantage for the export market.

“Thanks to the event organized by UNIDO in 2016 we were introduced to the new technologies and developments by Jeanologia. The different processes that we use today using this new technology gives us different options for reduction like 70% of water savings and 20%-30% energy savings and 80% chemical reduction due to the pulverization process. So we could save more than 135.000 Euros in total and this helps us to become more competitive”. Bouguila Jelloul, Director General – New Amico

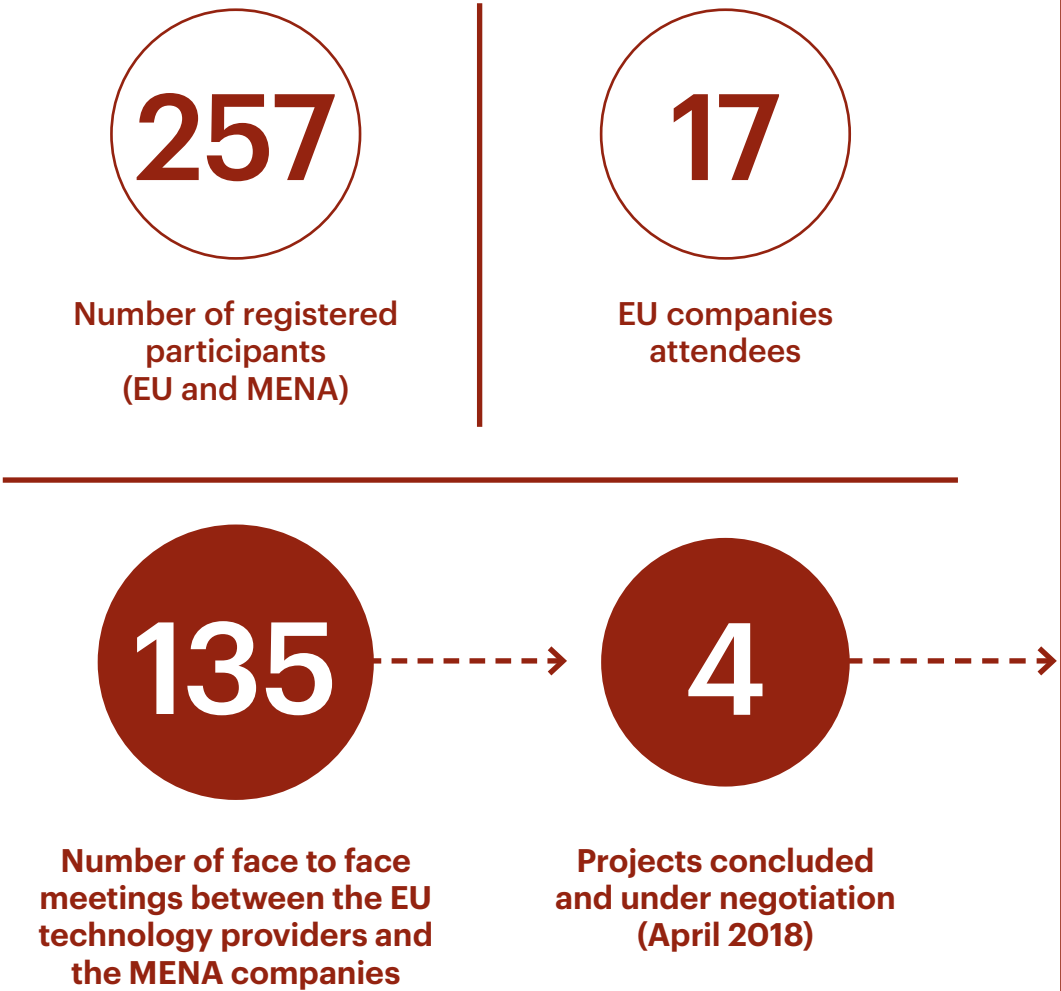
Due to the SwitchMed B2B networking event, New Amico has introduced both the G2 ozone-washer (2 machines) and the E-flow Nano-bubbles technology (3 machines) investing 300,000 euros in total. The economic benefits of these solutions, which allow a quick return on investment while guaranteeing a better quality of end products, would have significant impact if they were adopted throughout Tunisia's denim industry.

According to Amel Boujnah and Ahlem Jerb, the Water Treatment Managers of the DEMCO Group, the adoption of “E-flow” technology has led to an optimization of the production process as well as significant economic and environmental benefits in relation to traditional systems: in addition to reducing by half the wash cycle, this technology saves huge quantities of water, resin and energy and eliminates the use of chemicals in the different finishing treatments. In the case of G2 ozone-washer, this technology eliminates the water use (80 litres by piece) and replaces bleach and permanganate substances with ozone. In addition to this, the drying process takes 15 minutes instead of 45 minutes of the traditional water-washing process, which increases the productivity of the plant.

The impact of such technologies at national level, would have an important impact in water consumption: considering Tunisia's production of denim, which is equal to about 26 million pieces per year. It can be estimated that if the Jeanologia eco-innovative solutions would find a wide adopted in the Tunisian textile sector, a total of 2.2 Mio m³ of water savings can be achieved, which equivalent to the annual water consumption of 7,160 Tunisian households.



Promoting eco-innovative solutions from the EU for Tunisian SMEs



BIO AZUL Spain, EU Partner		+	ABCO Partner in Tunisia
Type of license: Technology transfer	Investment: 6500€	Sector: Agro-food	Environmental savings: 2,628 m³/year water, 632 tonnes CO ₂

WDE-MASPELL Italy, EU Partner		+	CETIBA Partner in Tunisia
Type of license: Technology transfer	Investment: 300,000€	Sector: Wood and furniture	Environmental savings: 30,000 m³/ year of local wood, 1,700 m³/year water, 5 GWh saved

JEANOLOGIA Spain, EU Partner		+	NEW AMICO Partner in Tunisia
Type of license: Technology transfer	Investment: 300,000€	Sector: Textile and garments	Environmental savings: 28,532 m³/year water, 150 Kg/ year chemicals, 3,011 GWh/year

VAN MAREN SYSTEMS Netherlands, EU Partner		+	PARTNERS IN TUNISIA Lebanon, Morocco and Egypt
Type of license: Agreement	Investment: 10% royalties on turnover	Sector: Plastic	Environmental savings: 9.45 Mio kg of plastic to be reused

7

**Exchanging,
synergising
and engaging
with business
& investment
networks to
scale-up demo
actions.**



Supporting the visibility, effectiveness, long-term sustainability and impact of the SwitchMed programme

The SwitchMed Networking Facility, led by SCP/RAC, aims to contribute to the visibility, effectiveness, long-term sustainability and impact of the different activities carried out under the SwitchMed programme. In order to deliver this, the Networking Facility focuses on three main areas of activity:

Firstly, we enable extensive communication and networking and facilitate the exchange of best practices and lessons learnt among SwitchMed partners, connecting them with key external stakeholders. We have been working closely with 32 strategic partners in order to achieve common goals. We have also developed the SwitchMed Action Network, an online platform with a mobile app, to exchange knowledge related to SCP initiatives taking place in the Mediterranean, provide inspiration through disruptive innovations integrating closed-loops and collaborative consumption business models, showcase stories and participate in facilitated in-country stakeholder dialogues. It also functions as a database of experts. Another major activity is the organisation of SwitchMed Connect, a gathering of Mediterranean stakeholders to build synergies, exchange knowledge and scale-up eco and social innovations. Leading start-ups and entrepreneurs, industry agents, initiatives, change agents, policy and financial institutions working on applications related to productive, circular and sharing economies in the Mediterranean come together in Barcelona every year. In total, three events have been held, bringing together more than 1,000 stakeholders from 16 different countries.

Our second area of activity involves encouraging the scaling-up of activities and impact, with a focus on harvesting lessons learnt in order to replicate demonstration pilot projects, thereby contributing to activities' long-term sustainability and increasing visibility with regard to the impacts effected during the programme. To that end, the Networking Facility has promoted the production of regional and national scaling-up roadmaps that aim to replicate and continue the green innovations and demo activities beyond the lifetime of the programme. The Networking Facility has designed a general theoretical framework for scaling-up analysis based on the identification of a specific strategy tailored to the SwitchMed programme. In order to gain traction with regard to

sustainable consumption and production and generate greater impact, the scaling-up of the SwitchMed programme has been defined as “expanding, adapting and sustaining demonstration actions in more locations and over time to reach beyond the original target groups, with the ultimate vision of sustainable consumption and production being mainstreamed into everyday economic life across Southern Mediterranean countries”. For instance, the compelling outcomes and impact achieved by the SwitchMed Green Entrepreneurship programme indicate the growing demand for business support in Southern Mediterranean countries for the creation of circular economy business models, and clearly demonstrate the potential benefits of these business models. As the full potential equates to the creation of millions of jobs, effective strategies should be explored for scaling up the impact achieved.

The third line of action includes reinforcing the internationalisation of green start-ups and SMEs through closer cooperation between businesses and investment networks in Europe and Southern Mediterranean countries. As such, the Networking Facility has mapped the range of financial instruments available in four selected countries (Egypt, Lebanon, Tunisia and Morocco), as well as in Europe, and has organised seminars with national and international investors to discuss the barriers that restrict access to markets and sources of finance.

Despite the results for the relevant countries being collected at national level, it is important to process the results achieved across beneficiary countries and to provide a regional perspective; thus we collect data and facilitate information exchange across all SwitchMed activities, primarily at regional and thematic levels, communicating these to external stakeholders in line with the programme identity, as has been done since the start. Indeed, well-proven methodologies, tools and initiatives that avoid unnecessary efforts are used or carried out on a regular basis.

Meet our strategic partners

We work in strategic partnership with international and national organisations that are very experienced and active in addressing the shift to sustainable consumption and production in the Mediterranean region. Our strategic partners are like-minded organisations to facilitate the exchange of ideas, build bridges and synergies and foster cooperation among diverse organisations in different countries with shared goals.

Our strategic partners represent a diverse range of organisations whom we trust to help us execute our mission. Their expertise enables us to do far more than we could alone, and their passion and talent inspire us.

Our strategic partners have long-term commitment in the Mediterranean region have deep technical expertise on sustainable consumption and production work on a broad range of topics such as eco and social innovation, collaborative economy, life cycle assessment, green entrepreneurship business models...involve the Mediterranean countries in project design and implementation share the same values and vision for the region with us.

Our current strategic partners are:





Photo credit: @SwitchMed

Credits

Concept
SwitchMed

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