

Winter 2018

# SwitchMed Magazine

# Morocco



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SwitchMed programme  
funded by the European Union



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.

# Morocco's facts and numbers

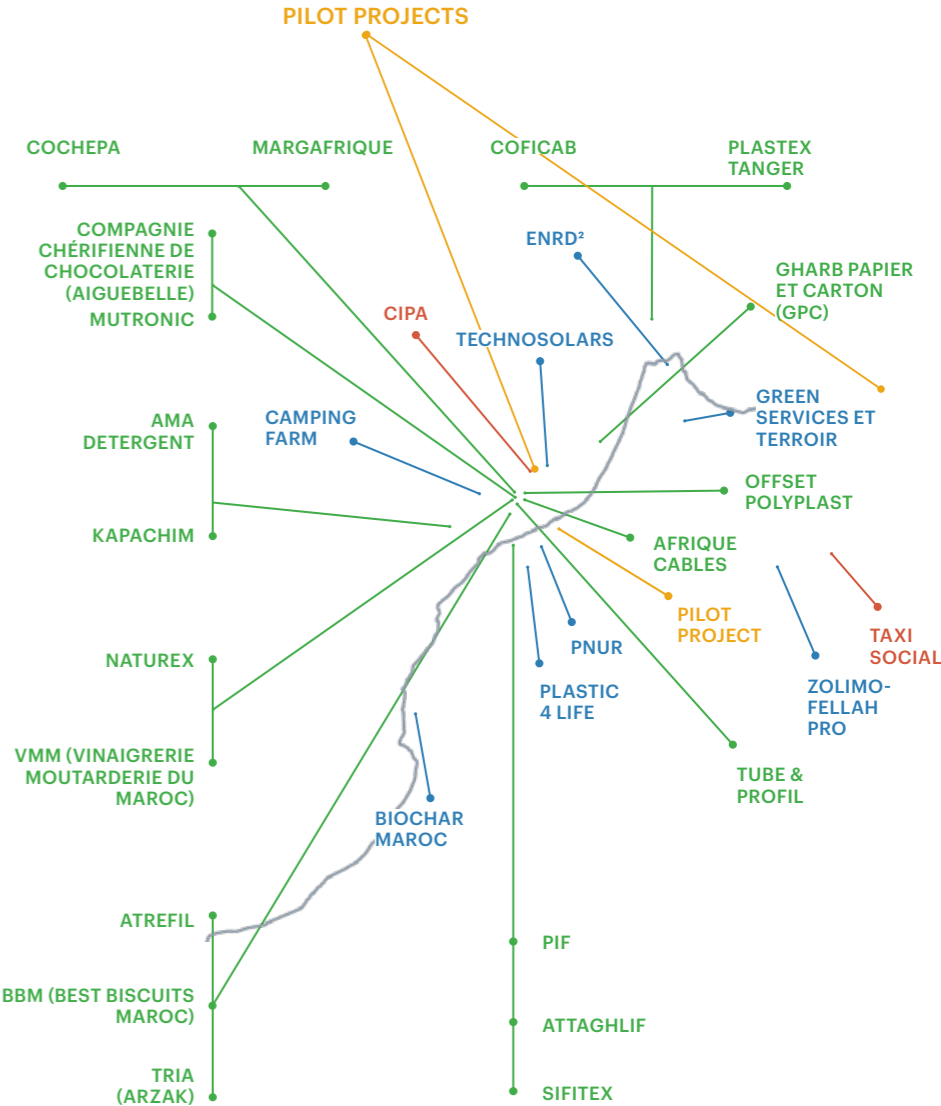
- Population**
  - Life expectancy at birth: 74.29 years.
  - Population growth: 1.4% (2016).
  - Major Religions: Sunni Islam.
  - Form of government: Constitutional Monarchy.
  - Capital: Rabat.
  - Population: 32,987,206.
  - Official Languages: Arabic, Berber, French
  - Area: 172 Square Miles (447 km²).
  - Major Mountain Ranges: Atlas, Rif.
  - Major Rivers: Draa.
- Geography & Economy**
  - Terrestrial protected areas: 30.81 % in 2016
  - Urban population growth: 2.162 % in 2016
  - CO<sub>2</sub> emissions: 1.7 (2014).
  - Land boundaries: Algeria 1,900 km, Western Sahara 444 km, Spain (Ceuta) 8 km, Spain (Melilla) 10.5 km.
  - Coastline: spans from the Mediterranean Sea and Atlantic Ocean on the north and the west respectively.
  - Tourist Arrivals in Morocco increased to 11,349,347 in 2017 from 10,331,731 in 2016.

- Currency: Moroccan Dirham.
- In the Drâa Valley there are 200 kilometres of date palms. Dates are harvested in October and are one of the main foodstuffs of the nomads. Even the sheep are fed dates. The average date palm tree produces between 100 and 200 pounds of dates in a year.

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

# SwitchMed beneficiaries in Morocco

- 4 Pilot projects from policy-makers
- 22 Industries from the food sector joined MED TEST II
- 8 Incubated green entrepreneurs
- 2 Civil Society Organisations



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

# Table of contents

1

8 – 21

Support to  
policy-makers

2

22 – 33

Enabling a green  
growth for  
industries

3

34 – 55

Green  
Entrepreneurship

4

56 – 63

Civil Society  
Organisations  
empowerment

5

64 – 75

Enabling access  
to finance

6

76 – 83

Business Networks  
& Intermediaries

7

84 – 87

Networking  
Facility

1

**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 19<sup>th</sup> 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 Morocco

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.

Royaume du Maroc  
Ministère de l’Industrie,  
de l’Investissement, du Commerce  
et de l’Economie Numérique



المملكة المغربية  
وزارة الصناعة  
والاستثمار والتجارة  
والاقتصاد الرقمي

**Ministry of Industry, Investment, Trade and Digital Economy**  
It is responsible for formulating and implementing government policy relating to industry, commerce and new technologies. It also promotes the enhanced competitiveness of small and medium-sized enterprises by conducting studies and generating statistics related to innovation, quality certifications, enterprise safety, market development and consumer protection.

ROYAUME DU MAROC



Secrétariat d’Etat auprès du Ministre de l’Energie,  
des Mines et du Développement Durable,  
Chargé du Développement Durable

**Ministry of Energy, Mines and Sustainable Development**  
It is responsible for developing government policy on the environment, energy, sustainable development, climate change, and the roadmap toward a greener and more productive social model.

# National action plan for sustainable modes of consumption and production

The Ministry of the Environment of Morocco decided to launch a process to develop a National Action Plan for Sustainable Modes of Consumption and Production (PNA-MCPD), starting with an in-depth evaluation of the MCPD concept in Morocco, which involved a diversified group of actors. The results of this situation assessment have suggested the drafting of sectoral plans for agriculture and construction.

In this context, Morocco has decided to prepare three key documents: (i) a national framework for promoting MCPD and two sectoral action plans—(ii) agriculture and agribusiness and (iii) eco-construction and sustainable buildings. These action plans have been drafted through multi-party consultations with the representatives of various constituent parts of society (public sector, private sector, civil society, academic society, international institutional partners, etc.).

The national framework for the promotion of MCPS is thus structured around the following four priority economic sectors: (i) food and agriculture, (ii) production of goods, (iii) tourism and (iv) housing and construction. This choice was based on the following selection and relevance criteria:

- (i) Relevance to implementation of existing commitments arising from the Barcelona Convention;
- (ii) Contribution to Mediterranean economies and to social well-being;
- (iii) Environmental impact generated (waste, pollution) by these sectors of activity; and
- (iv) Contribution to the Mediterranean's ecological footprint.

A number of workshops and working sessions have been organised to polish, validate and finalise the various documents with a view to getting national approval, which is the guaranty of future implementation.

Taking into account sustainable development and the preservation of the environment in the modes of production and consumption is accepted by the political authorities but it still does not describe reality in the daily life of producers and consumers.

## National Framework Plan For Sustainable Consumption and Production in Morocco

The process of preparing the National Framework Plan for MCPD in Morocco made it possible to move on to a cross-analysis of modes of production and of consumption, and to define the seven strategic orientations which comprise a reference and action framework for the promotion of MCPD in Morocco:

- Anticipating economic and behavioural changes linked to ecological transition;
- Encouraging national companies to get involved in the process of sustainable production;
- Supporting the development of green chains;
- Promoting a circular economy and an economy based on low carbon intensity;
- Implementing systems of ecological labelling and of environmental certification;
- Promoting eco-responsible modes of consumption; and
- Disseminating information and raising awareness.

## Sectoral Plan ‘Sustainable Agriculture and Food Supply’ Morocco

In Morocco, the major finding that comes out of the analysis of the present situation is the fact that the main concerns of consumers, government departments and consumer associations revolve around three areas: (i) the prices of agricultural and food industry products, (ii) health and (iii) coverage of food needs.

The present scheme of the MCPD highlights a certain number of issues:

- The shortcomings resource use efficiency (non-sustainable management of water resources, poor energy efficiency in the areas of irrigation and of mechanisation, poor use of agri-chemical inputs, not very rational use of soil resources and of rangelands, etc.).
- The principles of the circular economy are not being applied.
- The modes of production and consumption in the agricultural and food sector generate quantitatively large deposits of waste and agricultural, crop-related and agri-industrial by-products. They are, in a manner of speaking, not being taken advantage of. This leads to breakdowns in the life cycle of matter which have repercussions in terms of ecological footprints and greenhouse gas emissions.
- The squandering of food resources is without doubt the biggest issue in the sector of agriculture and food supply.

There are only a small number of projects aimed at cutting greenhouse gas emissions and at practices of adaptation to climate change.

The action plan for “sustainable agriculture and food supply” is structured in six parts: (i) Concepts and methodological approach; (ii) Shaping the agribusiness systems; (iii) Issues of sustainability of the agri-business system; (iv) Analysis of the levels of integration of sustainability in the sectoral policy; (v) Strategic directions for promotion of sustainable agriculture and food supply; and (vi) Modalities of implementation.

Four working groups shall be responsible for implementation of the four groups of activities of the programme, having the following objectives:

- (i) Increase access to information about MCPD and innovative means of dissemination—creation of an international platform on sustainability of the agribusiness systems;
- (ii) Develop a communication for consumers about the MCPD to allow them to make informed decisions, in order to promote more sustainable consumption and reduce squandering of food resources;
- (iii) Create favourable conditions for integration of MCPD in agribusiness systems in order to encourage active implementation of policies and initiatives promoting MCPD; and
- (iv) Develop a market approach for all the actors of the agribusiness branches in order to give them access to tools which help them raise the efficiency and the sustainability of agribusiness systems. The purpose is to put in place framework conditions which contribute to MCPD in the agribusiness systems.

## Sectoral Plan ‘Eco-Construction and Sustainable Buildings’:

As regards the sector of eco-construction, reducing the energy bill and the ecological footprint and the design and organisation of cities must from now on contribute to a greater resilience of the territories to the impact of climate change. The Sustainable Construction and Buildings Programme (UN Environment), Sustainable Buildings and Climate Initiative (UN Environment – SBCI) and Global Initiative for Resource Efficient Cities (GI-REC) already are contributing to putting a CBD policy in place. For Morocco, four short-term objectives have been identified:

- (i) Offer a common platform for dialogue and collective action to stakeholders in the construction sector;
- (ii) Develop tools and strategies for promotion and adoption of practices of sustainable construction across the world;
- (iii) Adopt lines of reference that are globally recognised and based on an approach which takes the life cycle into account, concentrating first on energy efficiency and greenhouse gas emissions, and then extending to other aspects such as the use made of construction materials and water; and



Photo credit: @Water Alternatives

- (iv) Demonstrate via pilot projects the important role of buildings in policies of reducing and adapting to climate change, and to then adapt the policies whether at the local, national and still more at the world level.

Implementation of an action plan aimed at promoting a global approach of eco-design of buildings in Morocco and gradual development of a public and private stock of sustainable buildings. Five strategic vectors for promoting eco-construction and sustainable buildings have been prepared concerning all the actors involved in the construction sector:

- Taking into account effective use of resources in architectural design;
- Designing climate-resistant buildings with low carbon content;
- Improving the internal environment;
- Developing arrangements for support; and
- Strengthening actors' capabilities.

## Achievements and Benefits

The National Framework Plan for Sustainable Consumption and Production and the two sectoral plans are an extension of the measures taken by Morocco in the context of its commitment to build a development model that is more respectful of the environment and of the population's well-being. Developed in the context of the SwitchMed initiative and with the support of the European Union and of the United Nations Environment Programme, it contributes to the dynamics introduced by the National Strategy for Sustainable Development (SNDS) ‘to ensure the transition to a green economy’ in order to consolidate a development model which is able to meet the needs and aspirations of present and future generations.

Sustainable modes of consumption and production fit within the process of operationalisation of issue 2 of the National Strategy for Sustainable Development (SNDS), the vectors of which are as follows:

- Reconcile modernisation of the agricultural sector with the needs of sustainable development;
- Ensure the conservation and rational management of fishing resources;
- Promote forests to ensure they get sustainable management;
- Position industrial acceleration in the trajectory of the green economy;
- Accelerate the implementation of energy transition;
- Have a sustainable mining sector;
- Promote sustainable mobility;
- Reconcile tourist development, sustainable handicrafts and protection of the environment;
- Promote integrated management of waste so as to implement a circular economy; and
- Align urban planning with the principles of sustainable development.

# Promoting responsible alternatives to guarantee the success of the ban on single-use plastic bags

Concerned by the insane consumption of single-use plastic bags and following international commitments, the Moroccan government adopted a law to phase them out. After since, the administration has deployed intense efforts in controlling the internal production and imports, as well as providing support for adapting concerned industries. However, an important pillar to achieve success may have been overlooked: the promotion of alternatives.

Single-use plastic bags rank among the most frequent litter items found across the Mediterranean sea and shoreline. The negative impacts go beyond the ecological ones and affect the reputation of the country, thus damaging important economic sectors such as tourism. Plastic bags have become an icon of plastic pollution and the fight against it, and thus around 60 countries have introduced policies to tackle them. At the regional level, the Barcelona Convention, through the Regional Plan on Marine Litter Management in the Mediterranean, specifically considers this marine litter item. Morocco opted for a strict ban on production, import, sale and distribution of single-use plastic bags through the law 77-15, effective since July 2016. Although the number of these plastic bags may have been dramatically reduced, there is an overlaying informal market of bags that threatens achievements made so far.

**Despite the law enforcement, the survey reports that 49% of respondents believe that the consumption of plastic bags has remained the same or increased.**

In order to find out and respond to the reasons behind this situation, SwitchMed funded the association Zero Zbel to conduct an awareness campaign in Moroccan markets, addressing both consumers and shopkeepers. The campaign, named “Kofa Mon Amour” (“My Beloved Basket”), included a large survey to find out about shopping habits and constraints to phase out plastic bags. Equipped with explanatory fact-sheets, t-shirts and alternatives to single-use plastic bags, Zero Zbel members covered 8 markets in the cities of Casablanca, Agadir and Tetouan and interviewed 235 people who received a reusable bag as reward.

Despite the law enforcement, the survey reports that 49% of respondents believe that the

consumption of plastic bags has remained the same or increased. 60% of merchants say that 80% of their customers demand plastic bags. Another worrying fact is that 65% of customers say they use between 5 and 15 plastic bags each time they shop. “Some people refuse to bring reusable bags because it is not practical, and unless they find them on the spot at a reasonable price, they use plastic bags” says Jamal Kamali from Zero Zbel.

The survey also points to the price of plastic bags. For example, 88% of merchants consider that the price of plastic bags has increased since the law came into force. “Shopkeepers are directly impacted by the misapplication of the law, because plastic bags are more expensive to buy and are still distributed to customers for free” says Zero Zbel.

Thus, as long as plastic bags continue to be sold and distributed illegally, it will be very difficult for consumers to change their habits. Traders are caught between the plastic bags ban and consumers who know that plastic bags are still available and continue to demand them.

The release of Zero Zbel's survey was followed by a communication by the Ministry of Industry, in charge of this bill. “The demand for alternative products has increased considerably and the supply by businesses has kept pace,” said the department of Moulay Hafid Elalamy in a statement released July 1<sup>st</sup>. The same source claims that the production of non-woven bags increased from 1.8 to 3.2 billion bags and that of bags woven from 1 to 1.2 billion bags during the second year of the law implementation. However, it seems reasonable that the solution is not only to replace conventional plastic bags by non-woven bags, which are still made out of plastic. One of the respondents stated that “plastic bags have not been banned, they have simply been beautified”. And the problem gets worse when these bags are being produced thinner over time to save production costs, which jeopardizes reusability. For this reason, the Ministry is working on a legal text to define minimum requirements of these bags.

Moreover, in order to address the issues raised by Zero Zbel, the Ministry of Industry plans to revise the law. “We are working on a revision of the law so that the process of banning plastic bags can be smoother and harder. It's coming soon”.

“A national education effort is needed to promote the many available alternatives, and to allow cultural change to get rid of the disposable bag culture”, says Mamoun Ghallab from Zero Zbel. There is also a particular need to promote alternatives to buy products in bulk such



Photo credit: @InfinityGivingCircle

as meat and spices, which are considered a real problem by consumers and traders. To this aim, and as a result of this experience, SwitchMed has released an engaging catalogue on alternatives to single-use plastic bag.

As the adage goes, the proof of the pudding is in the eating! For this reason SwitchMed funded the Docteur Fatiha association (ADF) to design and produce responsible alternatives to single-use plastic bags to be used for daily shopping. The association is led by Faiza Hajji, a Moroccan entrepreneur woman committed with sustainability and particularly in fighting against marine litter. In fact she became well known while eradicating plastic bags from a neighborhood in Berkane (North-East Morocco) thanks to an initiative involving women cooperative. They reused this plastic - more than 54,000 plastic bags since 2006! - to elaborate beautiful fashion accessories and decoration items. This way, the Ifassen brand was born.

With the support of SwitchMed, the initiative has gone one step further. As shown in the survey, the lack of convenient alternatives jeopardizes proper eradication of plastic bags. ADF used human centred design technique to come up with a robust alternative: reusable and reused shopping bags. The basic material is flour sacks (made out of polypropylene), which is folded inwards on its half-length, and it's completed with two different size strings to carry it conveniently on your shoulder or in your hand. It has a considerable capacity and it's easily

folded using a rubber band, so you can even keep it in your pocket.

To make this possible, two trainings were organised benefitting 25 women and aimed at reaching a high-quality finish and proper confection rapidity. 1,000 units have been produced, out of which 200 were sold to Zero Zbel for markets surveys, and 400 were distributed in Berkane.

Despite a general positive feedback on the product, there is a key aspect to make it a true success story: access to the market. For this, the association ran a survey to know shops and customers views on the product, including a willingness to pay analysis. Furthermore, 5 shops participated in a one-month test in which they distributed for free these bags to customers, who would get a discount on their shopping when coming back with it. Another action line is the sought of sponsors so the price could be reduced. The idea is to sell these bags for 10 dirham, which is about 0.9 euros.

Furthermore, these creative women are producing embroidery accessory bags. With SwitchMed support, design is being enhanced. A pre-sale campaign will serve to raise funds to continuously improve the products. Customers will also receive a reusable-reused bag as a present.

These experiences supported by SwitchMed show that Moroccan ban on plastic bags could be turned into an economic opportunity for entrepreneurs who are willing and ready to put convenient and affordable alternatives in the market.

## Main achievements in promoting alternatives to single-use plastic bags

**900** Plastic bags/person/year was the average consumption before the ban

**8** Markets where surveys and awareness were conducted

**235** People interviewed and sensitized in Moroccan Markets

**49%** Of respondents believe that the consumption of plastic bags has remained the same or increased, despite the ban

**15,500** People reached in social media

**88%** Of merchants consider that the price of plastic bags has increased since the law came into force

**25** Women trained in the production of reusable bags

**1,000** Reusable bags produces and distributed

**10** Dirham (~0.9 euro) is the market price of responsible and reusable bags

**“Shopkeepers are directly impacted by the misapplication of the law, because plastic bags are more expensive to buy and are still distributed to customers for free.”**  
Zero Zbel

# Enhancing the collection of beverage containers and living conditions of informal collectors: an environmental and social priority

Morocco is not immune to the inexorable growth in the amount of waste produced, currently estimated in 5,3 million tons of household waste in urban areas per year, and forecasted to attain 6,2 million tons by 2020. The development of collection-recycling systems, including packaging, is undeniably one of the pillars of sustainable waste management and remains the solution to limit the extent of controlled landfills, as well as to improve the living conditions of informal operators. SwitchMed has deployed efforts to test a “reward” system in supermarkets to improve environmental, economic and social performance of beverage packaging waste collection and recycling.

Waste mismanagement in Morocco is worth 0,4% GDP, meaning around 13 USD per inhabitant and year. Morocco is addressing the waste loopholes through the National Plan on Household Waste with an investment of 40 billion dirham. Among other targets, the plan foresees pilot projects to attain a recycling rate of 20% and other waste valorization processes of 30% by 2020. Currently the plastic recycling rate in Morocco is estimated in 7%.

In this context, the start-up SUNOV Engineering has benefited of SwitchMed funding to conduct a feasibility study to implement a pilot project on a reward system for beverage containers, that is, plastic (PET) bottles and aluminum cans, using reverse vending machines in supermarkets. Such a project is inspired in international experiences by which the collection of containers has been highly increased when providing incentives to consumers. The tested system is not exactly the “deposit-refund” scheme, successfully applied in countries like Denmark or Norway, it is rather a softer system where the consumer does not pay a deposit but receives a reward when returning the empty bottles or cans. The reason to choose this option is that a deposit-refund scheme requires a more complex legal and financial arrangement, while in this case the objective was to demonstrate the performance of economic incentives in a simpler way. Hence, this initiative is aligned with the priority on “promoting the circular and low-carbon economy” of the National Framework Plan on Sustainable Consumption and Production, and also complements the National Programme on Waste Valorization.

For this, a first step was to find out about collection and recycling systems in Morocco, not an easy task since most of it occurs informally. Individual collectors patrol not only cities but also landfills to pick up waste. A number of them were interviewed, as well as intermediates, waste cooperatives and recycling industries to find out who is involved in the system and material and economic flow. The results show a complexity of stakeholders, from informal collectors (also called scavengers) to recycling industries. There flow through intermediates increases the price of the collected material, in a way that the initial collector receives little money, an average of 0,81 dirham/Kg. for PET and 4,19 dirham/kg. for the cans, which makes around 300 dirham per week (27 euro). However, for example in the case of PET, once the material has been processed into new granulates, it is sold to a much higher price, resulting in the collector at the base receiving less than 10% of that value. Although there are not official available figures on the amounts collected and recycled, one must note the intensity of collection.

Photo credit: @Doğukan Şeker on UnSplash



Simultaneously, a consumer’s survey was completed to know about beverage containers consumption, habits and the potential acceptance of a reward system for the return of beverage containers. As for the consumption, the study found out a consumption of 8,11 containers/person/week, which would mean a national consumption of 2,13 billion of containers per year. As for the acceptance of a reward system in supermarkets, 80% of consumers would preferably buy in a supermarket where this system exists. More than 50% would favour as reward a purchase discount at the supermarket. This should make the system attractive for supermarkets since they would win the loyalty of clients.

The start-up worked out several scenarios to present the system to supermarkets, particularly on forecasting the number of containers that could receive per week and the income they would have to sell them. This income would serve to finance the purchase discounts delivered by the reverse vending machines. In such a way, both consumers and supermarkets benefit from the system.

But they are not the only ones, there is a third variable in the equation, the collectors. The proposal was that a collectors’ cooperative would be in charge of collecting those containers. Selling the material to a recycling facility would provide them with income, higher than usual since the quality would be much better (no mix with other waste fractions). Yassine Mazout, from the cooperative At-Tawafouk in Rabat says “Waste is a source of money for 151 families. The role of the cooperative in the preservation of the environment is evident through the recovery of waste, of which 70% is plastic”.

Considering the availability of collectors’ cooperatives and recycling facilities, Rabat was the area selected for a potential pilot. Main Moroccan supermarkets brands were approached and meetings were held to explain the system. The feedback was generally positive. However there is certain reluctance in terms of advancing the money for the discounts and managing the reverse vending machines. The project team is considering organizing a mission to a region where the deposit-refund scheme exists to show how it works in real, without specific burden for supermarkets.

Despite the potential of such a system in Morocco, it was also found that the installation of reverse vending machines may be too sophisticated at this stage. There might be other low technology means to reach similar objectives. For this reason, a follow up initiative may consist in working with a Moroccan university to maximize the separate collection of beverage containers using bins and cages and with the participation of collectors’ cooperatives, as well as providing high quality tap water through public fountains and distribution of reusable bottles.

All this with the ultimate goal of reducing the amount of bottles and cans ending up as marine litter in Moroccan sea water and coastal areas.

## Main achievements in promoting better collection and recycling of beverage packaging

- 58 Stakeholders involved in the collection and recycling of beverages containers interviewed
- 20% Potential increase of revenues for waste collectors with the reward system
- 80% Of consumers would favour a supermarket with such a system than other without
- 8.11 Containers per week, estimated consumption per household and week
- 4 Big Moroccan retailers approached to test the system

# A pioneering solution in Morocco is helping farmers recycle their organic waste, transforming it into biogas and fertilisers

In Morocco, farmers pay a lot to irrigate their land. They use gas or gas oil to run the generators that pump irrigation water and for other everyday equipment. This practice is polluting, expensive and can present challenges in terms of transporting the fuel to rural areas. One young Moroccan chemical technology process engineer, Fatima Zahra Beraich, who also holds a PhD in Industrial Processes and Environment from the Hassan-I University in Settat, has spent years working to provide a solution to this problem for farmers. In 2013, Fatima founded her company, Biodôme du Maroc, to transform organic waste into methane and compost, which is then offered to farmers to cover their energy and soil fertiliser requirements, all produced from biodegraded waste.

“Moroccan farmers spend large sums of money buying gas to supply their farms so they will clearly benefit from Biodôme,” explains Beraich. The company offers a solution for small-scale livestock farmers through the construction of a collective methane and fertiliser production facility while providing support with regard to implementation and farming technology. This project has led to the young entrepreneur becoming involved in a traditionally male-dominated sector, something that is highly unusual for a woman in the Moroccan society, especially in rural areas where women are rarely seen taking the reins of their businesses. For this Moroccan entrepreneur, environmental and social innovations are intrinsically linked and her project offers an eco-innovative solution adapted to the reality of the country.

Biodôme uses a process called micro-methanisation to produce methane gas as an energy source. A tank is built at a farm into which typical organic waste is deposited, including farm animal waste, organic waste and wastewater. All the waste is simply placed in a dome before going on to be fermented in a second underground chamber using a patented biological accelerator. In the absence of oxygen, organic matter placed in the ‘digester’ tank undergoes a natural process of degradation, allowing microorganisms to break down the organic material and convert it into biogas. Thus, after a period of two to three weeks, the first gas bubbles start to appear on the surface of the water. Within five weeks, the Biodôme also generates organic compost, which can be used by farmers to fertilise the soil on their plantations, thereby considerably speeding up the natural processes and eliminating any issue associated with unpleasant odours thanks to the dome’s in-built deodorisation system. “I have developed an optimised biogas production system by enhancing the technology of fermentation to improve its efficiency and reliability,” says Zahra. This optimisation was achieved by addressing three main aspects: selection of a bacterial mix dedicated to fermentation, development of an electronic control system, and improvement of the gas production process.

Fatima Zahra was one of the four beneficiaries selected by the SwitchMed programme to implement a pilot project that fits into the ‘eco-construction, sustainable buildings and sustainable agriculture’ sectoral plan of the developed Moroccan Sustainable Consumption and Production (SCP) National Action Plan

under the SwitchMed framework. With this support, the collective unit was built by Biodôme on land belonging to one of the members of the beneficiary association, Ouled Abdoun, a farmer’s cooperative located at Khouribga, 120 km from Casablanca. The cooperative has become the owner of the biogas plant, while Fatima Zahra manages it. “In that way, the plant will allow members of the cooperative to develop a new circular economy model, as well as to generate revenue through the sale of compost,” explains Zahra, adding that, “All the legal documents have been completed to authorise the construction of the biogas plant on the cooperative’s land for the use of the farmers in Khouribga for the next 10 years.” In the future, she is planning to train the members of this association to enable them to manage the biogas unit themselves and share the profits generated through compost sales. Members will receive training on fermentation and composting techniques and the use of the anaerobic digestion unit. They will also receive instruction about the reasoned application of fertilisers, as well as information on the development of a sustainable agriculture model and alternatives to chemical fertilisers.

Beraich also plans to collaborate with another technology start-up, Easycontrol, to enable users to control the plant remotely via a smartphone application. With such a scalable initiative, this company is providing a solution which facilitates the implementation of circular economy in agricultural areas, not only on a local, but also a global scale.

Biodôme has many advantages. Not only does it offer farmers an independent power

supply with a permanent production of biogas and alternative fertilisers that will limit the use of pesticides, but it also helps to reduce greenhouse gas emissions from dumped organic waste. According to Beraich, “This region is practically abandoned, particularly in terms of waste collection and treatment. People often have waste in their home and they don’t know what to do with it.” This system could also help reduce household waste which, by weight, accounts for in excess of 70% of an average garbage bin. It could also reduce storage costs, transport and waste destruction activities for companies, municipality and cooperatives. “A 20m<sup>3</sup> unit costs 120,000 Moroccan dirhams (11,100 euros) and its lifespan is more than 40 years. It saves around three bottles of gas, 12 kg per month and produces a minimum of 100 Kg of fertiliser per day that can be sold for 3 to 6 Moroccan dirhams (0.28 - 0.56 euros) per kg, depending on the quality of the compost,” concludes Zahra.

“The initial response from many of our current customers was driven by curiosity. They wanted to see how the system worked. That’s why we also want to create an association in parallel to the project to raise awareness about renewable energies, as well as to help farmers who cannot afford to pay for our services,” explains Fatima. “Biodôme it’s an ecological dream that will be distributed worldwide.” The owner of Biodôme is also looking at schools and hotels to change their waste management system. For that, she is also preparing a social programme to boost rural employment, which will include income-generating activities related to waste collection and compost sales for unemployed women and young people. “I am now also approaching Casablanca’s restaurants to collect their organic waste that can later be composted. This process reduces the amount of waste that ends up in landfills and represents a disposal problem for municipalities,” she explains.

Biodôme is already receiving both national and international recognition, as the result of winning a number of high profile awards. For example, in 2016 Fatima Zahra was selected as the Female Entrepreneur of the Year at COP22, during the Global Clean Technology Innovation Programme (GCIP) in Morocco, also winning the 2017 Tamayuz Moroccan Female Entrepreneur Award and the prize for the Most Innovative Moroccan Project, awarded during the Futur.E.S in Africa Exhibition in 2018. In December 2018, she was also invited to present her work at COP24 in Poland.

We certainly need more innovative ideas like Biodôme, which could help the whole planet by providing more progressive development, generating economic and employment opportunities and building a bio-based, healthy and sustainable society. The potential to break away from the ‘take-make-dispose’ economy and create a new circular economy in the Mediterranean region is now a reality.

## Main achievements benefitting Biodôme in 2018

1 Collective biogas plant built by Biodôme, the main beneficiary and owner of which is the Ouled Abdoun association, a farmer’s cooperative located at Khouribga, 120 km from Casablanca

1 New circular economy model focused on the production of biogas and organic fertiliser from local farm waste, to be replicated at national level

1 New income source generated through the sale of the compost produced in the biogas plant

Reduction of pesticide by substituting it for organic fertiliser

Local production and use of compost, reducing pesticide use by farmers from the cooperative

Local production and use of biogas, reducing energy consumption by farmers from the cooperative

Construction of a biogas plant which can be controlled remotely

Improved skills base of targeted youth and farmers with regard to the maintenance of the biogas plant and compost making/use

Improved skills base of targeted unemployed youth (farmers’ family members) with regard to sustainable agriculture and circular economy

Public-private synergies: Final National Workshop with all relevant stakeholders

Photo credit: @Biodôme du Maroc



# First steps to substitute harmful chemicals in medical devices

Several international actions have been initiated to gain a better understanding of the environmental and human hazards linked to the use of chemical substances. Some of them cause allergies and hypersensitivity, damage to the nervous system, reproductive disorders, and disruption of the immune system as well as substances that can cause cancer. Medical devices are not the exception. At least 40% of all plastic-based medical devices used in hospitals contain harmful chemical substances classified as carcinogenic, mutagenic, and reprotoxic.

In this context, polyvinyl chloride (PVC) is the most widely used plastic in a range of blood bags and infusion tubing, nutrition feeding bags, nasogastric tubes, dialysis bags, and tubing. The Diethylhexyl phthalate, usually referred to as DEHP is used as a plasticiser to impart flexibility to PVC, and has proven carcinogenic effects in animals, and potential adverse health effects in humans, particularly to the reproductive system. However, not all medical appliances represent the same risk for patients and certain patients are more sensitive than others. Therefore, it is important not only to identify the medical devices which pose the highest risk but also their use and impact on those groups of the population that are most exposed. There are a range of existing alternatives to DEHP which have non-toxic properties and achieve the same performance in PVC. Hence, it is of upmost importance to raise awareness about the alternative products in order to phase out harmful materials used in health institutions. In Southern Mediterranean countries, the healthcare sector is not fully aware of the effects of these type of plastic additives that are toxic for human health and the environment such as Persistent Organic Pollutants (POPs) and Endocrine Disrupting Chemicals (EDCs). Additionally, current regulations do not restrict the use of DEHP, for example, in medical equipment and there is little knowledge on the alternatives to this substance. In the South Mediterranean countries no substitution activity of medical devices containing PVC/DEHP have been conducted up to now. Also no regulations have been developed for restricting DEHP in medical devices.

In Morocco, SwitchMed implemented a pilot project to encourage the substitution of toxic chemicals in healthcare institutions, specifically during the procurement of medical devices when safe alternatives are available. “The work carried out in Morocco will serve as a baseline study to increase knowledge about the health sector in this country and to design future activities adapted to the context and identified needs”, explains Kimberley de Miguel, toxic chemicals expert at the Regional Activity Centre for Sustainable Consumption and Production (SCRAC). Experts from two institutions were key to the development of the SwitchMed project: Health Care Without Harm (HCWH), which has extensive experience in the prevention of harmful chemicals in the health sector, both in developing countries and at European level and the Centre Hospitalier Universitaire

Mohammed VI (CHU) based in Marrakesh.

A three months survey on the procurement practices was carried out by CHU, as the first step towards a phase-out strategy at a national level which was complemented with thorough research on the matter. Ahmed Idhammad, Head of Sustainable Development at CHU lead the survey with the main objective being to collect information around the level of knowledge, and the attitudes and behaviours of professionals using medical devices containing PVC plasticised with DEHP”. In total, 305 healthcare Moroccan institutions and also 35 semi-structured phone interviews to cover more aspects and adjust for less represented industries were carried out. Kimberley de Miguel summarises that “the outcome of the survey provides a basis for the assessment of theoretical knowledge, attitudes, behaviours and professional practices regarding medical device purchasing practices”.

The survey was carried out at random amongst a heterogeneous group, which had a good gender balance, as 57% of respondents were men and the other 43% women. More than 9 out of 10 respondents had worked at their institution for over 4 years. According to the survey, 100% of the responders confirmed that “medical devices containing PVC are used in their organisation, and more than 50% of them are aware of the toxicity of the phthalates used in those medical devices. Respondents listed up to 40 medical devices containing PVC in their institution that can contain DEHP. Amongst these medical devices gloves, syringes, containers, medical consumables, catheters, tubes, blood bags, tracheotomy tubes, tubings, perfusion pumps and dialysis catheters were identified.

The level of knowledge of the labelling and symbol for phthalates was also assessed amongst the respondents. For example, the safety datasheet is a valuable source of information as it clearly indicates the health and environmental hazards of a certain product. “Reading and understanding the health hazard information is very important, as it could prevent exposure to the risks linked to the use of medical devices” explains the expert. The study found that although the majority (more than 80%) of the respondents know where to find this information, almost 60% admitted to not have checked it. In addition, knowledge on the pictograms indicating the presence or absence of phthalates or DEHP, which inform about the type of hazard that the medical device can pose is very limited as an alarming 82.4% of the respondents are not familiar with them.

The survey also highlights that 94% of the respondents do not know if there is currently a regulation restricting the use of certain phthalates in medical devices. Additionally, 95% claims not having heard of the European regulation REACH, which provides a framework to the registration, assessment, and authorisation of chemical substances, as well as the applicable restrictions for these substances. “This result shows that training and awareness raising campaigns tailored specifically for personnel involved in the procurement and use of medical

devices must be encouraged in order to bridge the knowledge gap and avoid unnecessary exposure such toxic substances. The report concludes that they can reduce the risks of exposure, and help the adoption of new products and techniques. It is worth noting that more than 9 out of 10 responders wishes to receive more information and practical advice about medical devices containing PVC plasticised with DEHP.

When asking about the awareness of alternative products, the survey revealed that more than 94% of the respondents have no knowledge of alternative products that do not contain hazardous chemical substances, notably DEHP. About 35% of the responders admit that their institution hasn’t integrated any alternative products in their procurement policy. Furthermore, 64.7% are not aware of a substitution policy within their institution.

In fact, more than 95% of respondents do not know which medical device suppliers initiated a substitution approach to PVC plasticised with DEHP. About 70% of the responders do not know if their medical device suppliers are involved in a procurement approach for substituting with non-toxic alternative products, but 23.5% of them were sure that suppliers are not involved in this substitution approach. The reluctance of suppliers to change can constitute the first and biggest obstacle to substitution. Many believe that substitution requires substantial efforts to ensure the availability of alternative products and that it leads to increased costs. The success of substitution demands close collaboration between healthcare institutions and suppliers in terms of possible substitutes and risk assessment of alternative products.

Most importantly, the survey allowed to identify the main obstacles to the implementation of a procurement policy for alternative medical devices. “All respondents identify a number of extremely important obstacles, which refrained their institutions from implementing procurement practices in favour of alternative products. The nine barriers identified were voted as follows: 53% of the responders think that the lack of knowledge about the environment and the way to develop environmental criteria is a extremely important difficulty, while 18% claim that it is very important. Lack of training of the staff in charge of procurement is classified as extremely important by 41% of the responders and 30% express that is very important. Lack of political support is another great barrier to overcome that clearly should be addressed. This underlines how difficult it is to implement an institutional strategy of substitution in the absence of political or management support concludes the report. “Developing a procurement policy that meets the needs of the institution, while favouring the purchase of medical devices without phthalates is an important recommendation we have drafted after the survey, explain the authors of the report”. Currently, the existing regulatory base encourages substitution however, in reality, substitution faces many obstacles such as low adherence to regulation and legal gaps weakening

existing frameworks. Also, there is a need for accompanying measures to adhere to existing regulations and to fill the legal gaps and loopholes in regulation. The adoption of a stricter legislation should restrict the use of medical devices containing PVC plasticised with DEHP.

A total of 77.5 % of the respondents reckoned another important obstacle is the lack of practical tools and information and the impression that more ecological products would not be easily available is also considered very important to 58.8%, and extremely important for 23.5%. In addition, there was also a view that safer products would be more expensive. This issue was raised several times during phone interviews and meetings with healthcare professionals, remarked the authors.

Another recommendation given was to publish a best practice guide for the procurement of medical devices, including recognised practices, decision-making support and a clear and easy-to-use presentation of the current knowledge. This guide would be particularly useful for suppliers and healthcare institutions, allowing professionals to share the main steps that need to be taken in terms of substitution that are specific to the health sector. Also, numerous initiatives to substitute these chemical substances already exist around the world, and some of them could be replicated in the Mediterranean region. In fact, the report includes a reviewed of European success stories written by Health Care Without Harm. These include case studies on PVC-free neonatal intensive care units in the Vienna Hospital Association and the progressive phase-out of PVC-containing products in the Stockholm County Council. These examples of success stories could be helpful to learn about current methodologies on how to better substitute PVC material containing toxic chemicals and the challenges that other regions such as the Mediterranean, have also faced and what solutions are implementing.

## Main achievements in promoting the substitution of harmful chemicals in medical devices

- 1 Survey that lasted for three month to assess the procurement practices and available information on medical devices toxicity in Moroccan health institutions
- 305 Healthcare institutions in Morocco interviewed
- 9 Obstacles identified to a procurement policy for alternative products
- 1 Report developed with conclusions and recommendations to advocate and build capacity and knowledge on professionals

Next steps for substitution policy implementation identified

2

# Demonstrating the business case of a resource efficient and cleaner production (RECP) in Morocco's food 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 m<sup>3</sup> of water, 707 GWh of energy, reducing the solid waste generation with 19,602 tons and CO<sub>2</sub> 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, Investment, Commerce and the Digital Economy and the Ministry of Energy, Mines and Sustainable Development, the MED TEST II project in Morocco was set up for implementation by a consortium of two service providers, Fraquemar and MSI Conseil. The MED TEST II project brought together influential organisations and institutions that will continue to influence the uptake of RECP in Moroccan industries.

Local service providers delivered training and on-site technical assistance, with the support of international sector experts. The idea behind this approach was to demonstrate the business case for RECP in some of the most important industry sectors of Morocco, and establish reference cases for national service providers willing to offer the TEST concept to interested industries throughout Morocco.



## FRAQUEMAR

It offers advisory services and solutions in the fields of energy optimisation, renewable energy, water and waste management and environmental protection, as well as engineering, project management, training and partner technologies.

FRAQUEMAR has been the lead technical implementing partner for the MED TEST II project in Morocco throughout the life of the SwitchMed programme.



## MSI Conseil

It is a consulting group that provides businesses and organisations with services related to the implementation of management systems, environmental impact studies, energy audits, change progress assessments, development plans and training programmes. During the MED TEST II project in Morocco, MSI Conseil was selected as a supporting implementing partner for the demonstration of the TEST methodology in Morocco. This developed and improved the group's skills in the area of RECP and provided consultants with practical experience of applying the TEST methodology to industries in Morocco.

# Resource efficiency – a major opportunity for Morocco’s industries

In recent years, a gradual growth of Morocco’s industrial sector has been observed. Characterized by frequent and volatile production changes, national policies have been put in place to diversify the industrial production and develop an infrastructure, in the hope that it will strengthen growth and make it more resilient. However, the main constraints faced by Moroccan industries in terms of energy and water availability, remain. With almost all energy consumed being imported, and water scarcity having a tangible effect on industrial production, this situation threatens the growth and competitiveness of Moroccan industries. In order to unlock the full economic potential of the Moroccan industry, constraints related to resource consumption should be overcome. In this respect, efficient and resource-efficient production is one of the most effective options available for Moroccan companies seeking to increase their profitability, competitiveness and position in national and international markets.

In Morocco, 22 companies from the food and beverage, chemical, mechanical, and textile sectors joined in the RECP demonstration phase of the MED TEST II project. The companies that took part in the project ranged from SME’s with 50 full-time employees to large companies with 400 employees, and are located in Casablanca, El Jadida, Tangiers and the Rabat regions.

An important feature of the MED TEST II project in Morocco was the significant potential for renewable energy, which was identified during the execution of projects. Nearly all companies included the installation of photovoltaic panels in their action plans with a cumulative investment value of 7 million euros, corresponding to an installation capacity of approximately 10 MW of renewable energy, out of which 60% are under implementation. The combined annual savings from the investments in renewables, and other identified energy efficiency measures, will reduce CO<sub>2</sub> emissions with approximately 40,000 tonnes per year and almost 100 GWh of energy per year. Almost all the demonstration companies have approved measures to install monitoring systems for energy and environmental aspects, according to ISO 14000 and 50001 standards. A total investment of 770,000 euros is planned for the implementation of these measures in the 22 companies, which would result in annual savings of 445,000 euros in energy and water costs. Finally, most companies plan to integrate the MFCA tool into their accounting system in order to effectively monitor material flows.

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 Morocco as part of the MED TEST initiative, which was co-funded by the GEF and the Italian government. Building on the experiences from the MED TEST I project, the MED TEST II project could confirm

and widen the application of the TEST methodology in the Moroccan industry as an efficient tool that can adapt industries in becoming more efficient, less polluting, and to operate with a better environmental and economic performance.

The MED TEST II project, implemented in Morocco from 2015 to 2018, enabled 22 Moroccan industries, from the food, textile, chemical, and mechanical sectors, to identify 475 RECP measures that will reduce annual water consumption by 131,519 m<sup>3</sup>, the annual energy consumption by 97.6 GWh, and 5,153 t of raw materials per year. The investments for the identified RECP solutions will require 21.5 million euros from the businesses, with an average payback period of two years and accumulate savings worth 10.4 million euros on an annual basis.

During the MED TEST II project, UNIDO established a partnership with the MorSEFF programme of the EBRD, which became instrumental to channel some RECP high investment projects to existing financial incentives schemes in Morocco. To date, almost 5 million euros have been approved by MorSEFF for Clean and Resource-Efficient Production (PPER) projects for investment solutions in companies identified during the MED TEST II demonstration phase. These funds have been used to leverage new production technologies with increased efficiency, enabling higher productivity while requiring significantly reduced energy, water and resource quantities compared to current processes. If other businesses decide to take on the approach of a resource efficient production in the industry of Morocco, the RECP concept could become a core element of 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 would also be an important building block for 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.

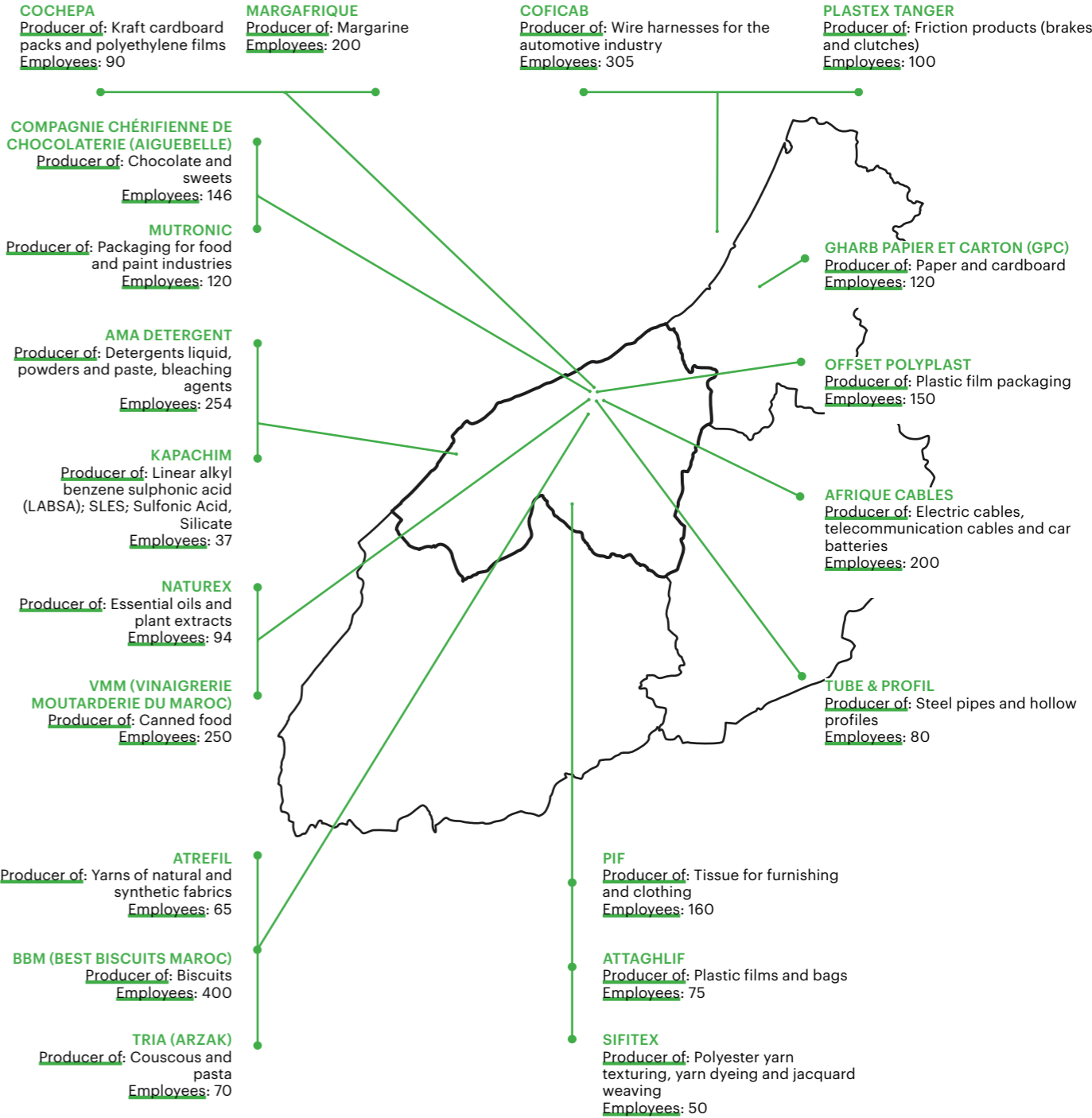
If Morocco’s industry is about to change and tap into the full extent of its potential, it is fundamental that other businesses and sectors pick up and follow the business case of RECP - as demonstrated in the MED TEST II project. UNIDO, together with stakeholders from the civil society, government and the industry have developed a scaling-up roadmap on how to expand the RECP concept in Morocco. 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 Morocco.

To download the individual case studies from the MED TEST II project in Morocco, follow [the link](#) or scan the QR code here:



# Partners for a green growth

In Morocco 22 industries from the food sector joined MED TEST II:



# Case studies from Morocco

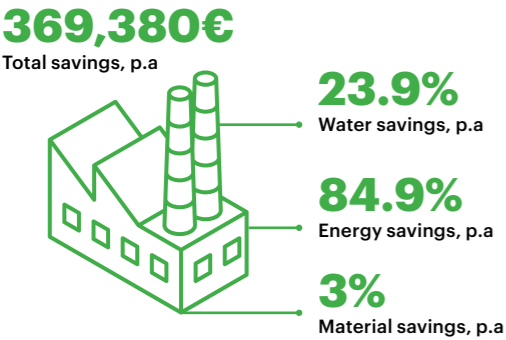
Tube et Profile, a Moroccan mechanical company producing pipes and profiles, realized 85% energy savings, 24% water savings and 3% material savings by implementing RECP measures through the MED TEST II project. By training the operators and introducing new management practices, significant savings could be realized by reducing the “out-of-spec” in the production by 50%. This action alone will cut the annual raw material consumption with 450 tons and reduce the generation of solid waste by 134 tons.

BBM (Best Biscuits Maroc), specializes in the production of bakery products (biscuits, sandwich biscuits), wafers and cupcakes and is one of the major producers in Morocco. Through the MED TEST II project, the company could identify improvements in their production that would annually save 639,000 in production costs. For instance, by taking steps that will improve the technology used in the production, optimization synergies could be achieved that will annually save 5,080 m³ of water; 2,398 MWh of energy; and 160 t raw materials. The company has so far decided to implement 95% of the identified measures and is continuing to use the TEST tool as an integral part of their management.

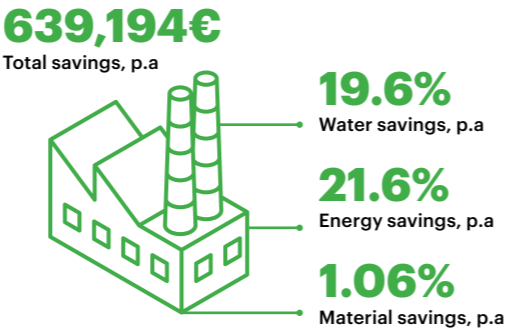
NATUREX is a company specialized in the production and marketing of aromatic and essential oils exporting to the food and cosmetic sector. In order to ensure quality production and to comply with customer demands, NATUREX joined the MED TEST II project to assess the performance of the production in regard to resource consumption and environmental performance. The findings from the MED TEST II project in NATUREX were impressive as they revealed an annual saving potential of 814,000 euros. For instance, the recasting of industrial water circuits will save solvents (247,000 liters) and wastewater (1,095 m³), which is a huge improvement for the production and the charge rate in wastewater. Of the recommended measures, 68% were accepted by the management and are in the process of being implemented, the others 32% requiring further study, and no measures have been rejected.

## Total savings by the selected companies

### Tube et Profile



### BBM



### Naturex

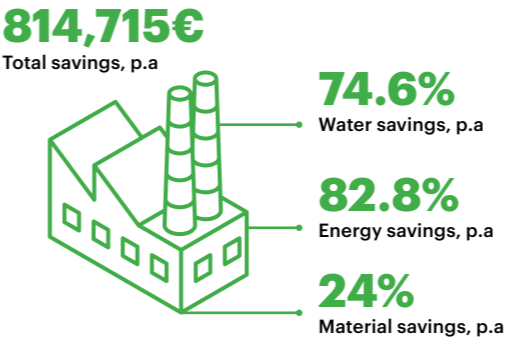


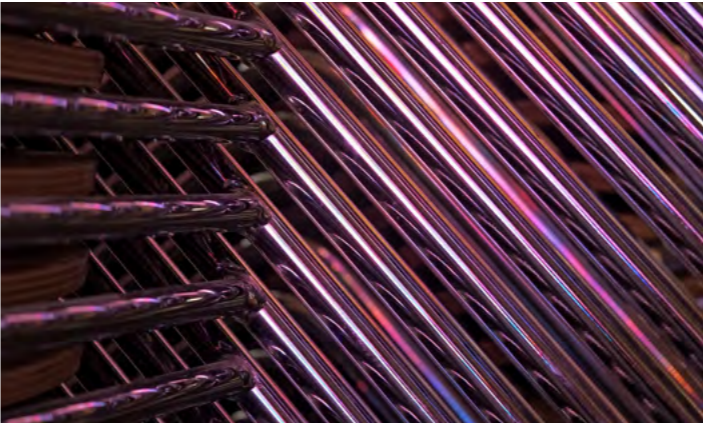
Photo credit: CCO



Photo credit: CCO



Photo credit: @UNIDO



# Annual environmental impact savings identified in the 22 Moroccan food industries

**90**  
professionals  
from academia, business associations,  
government institutions and industries  
received training on the TEST tools during the  
demonstration phase of MED TEST II in Morocco.

**39,488** = **8,384**  
tonnes of annual CO<sub>2</sub> savings  
passenger vehicles  
driven for one year

**131,519** = **393**  
m<sup>3</sup> per year of annual water savings  
Moroccan households annual water consumption

**3,162** = **1,140**  
tonnes per year of solid waste avoided  
years' worth of solid waste produced by a person in Morocco

**97.6** = **108,324**  
GWh per year of annual energy consumption savings  
Moroccan households annual energy consumption

**22** = **10.4 million**  
companies  
euros saved annually by a total of 457 RECP measures

# Scaling up a resource efficient and cleaner production throughout Morocco's industry



Photo credit: @Sergey Pesterev

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, Morocco is committed to include the dimension of sustainable development in all of its public policies. At the regional level, the SwitchMed program is, therefore, designed and implemented to facilitate the transition to Sustainable Consumption and Production (SCP) patterns in the Southern Mediterranean region.

At the national level, Morocco has adopted the principle of sustainable development and its implementation through promotion of sustainable production and consumption patterns. In the opinion of the industry federations, there is a need to expand and sustain the MED TEST I and MED TEST II pilot trials, particularly by informing companies of the success stories on the implementation of RECP in Morocco. At the institutional level, there are currently favorable conditions for the generalization of the RECP. These are not only institutional arrangements implemented to apply the framework environmental law, but also existing opportunities to benefit from the expansion of the RECP approach of the support of Maroc PME and from that of the Regional Councils. Maroc PME has tools and support mechanisms for companies that integrate the RECP approach. For their part, the Regional Councils, through their regional development programmes, have decided to support the upgrading of industrial areas and their integration by supporting the process of production and own consumption.

Consequently, making the transition from demonstration activities to a sector wide mainstreamed adoption of RECP in Morocco's industry, would be pivotal in helping businesses adopt a production that adhere to the goals of a Sustainable Consumption and Production. 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 Morocco and what actions are required to achieve a more wide-scaled adoption of RECP. 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 Morocco, is to eventually create a system change around the topic of RECP for industries in Morocco that will encourage an adoption and change towards RECP.

A detailed activity plan with responsibilities is available in the final scaling-up roadmap, which is online accessible in English, French and Arabic. [Click here](#) to download the final ScalingUp Roadmap for RECP in Morocco.

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

Photo credit: @SwitchMed



# 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 training workshops, and follow-up and evaluation.



### Young Entrepreneur Foundation (FJE)

It is active Morocco-wide, offering diverse programmes to help young people and young job-seekers learn confidence, teamwork and other skills that will make them successful in life. The foundation promotes youth entrepreneurship to encourage self-employment, particularly in rural areas.



### Moroccan Network of Social and Solidarity Economy (REMESS)

Created in 2006 to bring together associations, cooperatives, mutual societies, foundations and professional unions to support micro-entrepreneurship, particularly in rural areas; develop fair trade; promote solidarity finance; and raise awareness of the values and principles of the social and solidarity economy, among other socio-economic practices based on values of cooperation and solidarity.

### ROYAUME DU MAROC



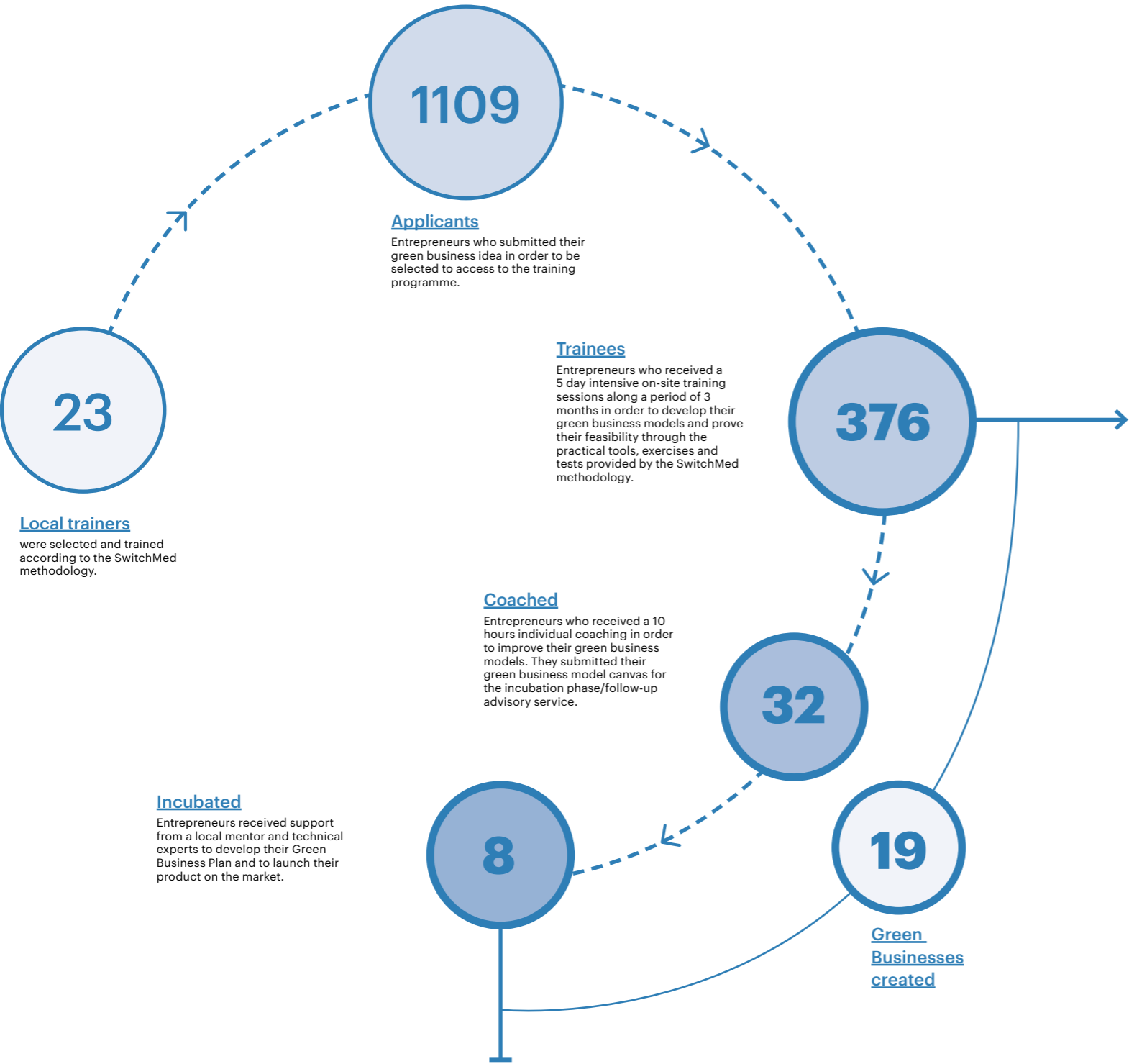
Secrétariat d'Etat auprès du Ministre de l'Energie,  
des Mines et du Développement Durable,  
Chargé du Développement Durable

### ROYAUME DU MAROC

Responsible for monitoring, developing and implementing government policy in the field of environment and sustainable development. It proposes the legislation related to environmental protection and introduces the issue into educational programmes and scientific research. The state department represents the government in bilateral and multilateral negotiations in the field of environmental protection and sustainable development, incorporating the competencies of the relevant ministerial departments.

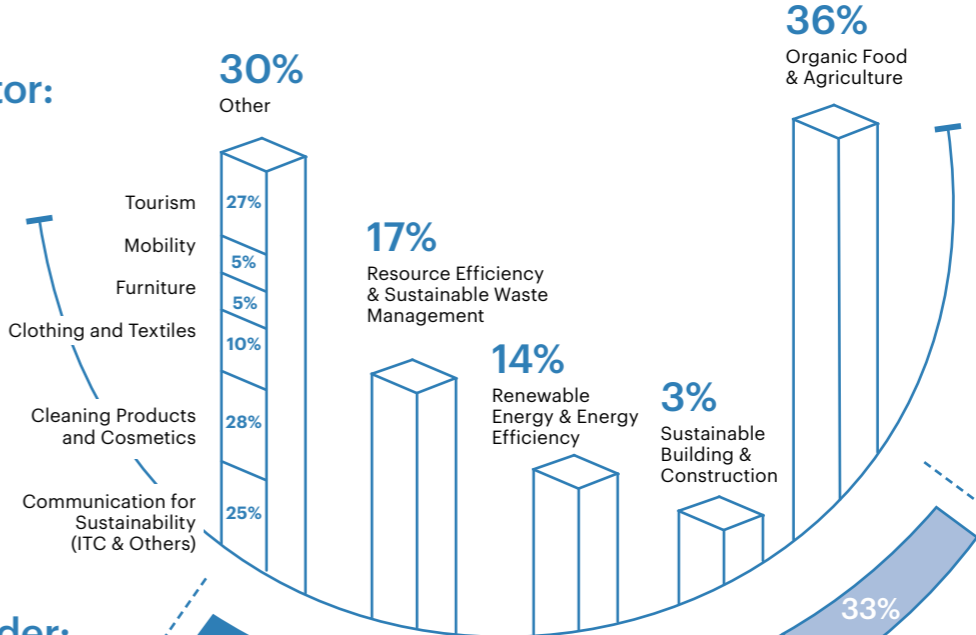
Our local mentors, carefully selected by the SCP/RAC, have drawn up a solid framework of cooperation for carrying out the activities associated with the Incubation programme. As trusted counsellors and guides, the local mentors' main tasks are to help and advise green entrepreneurs selected by the International High Level Jury to participate in the Incubation programme. Over an 8-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). 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?

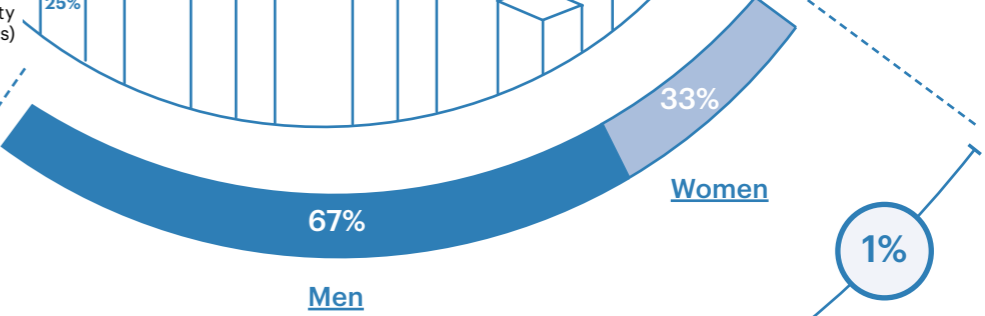


## Analysing our Moroccan 376 trainees

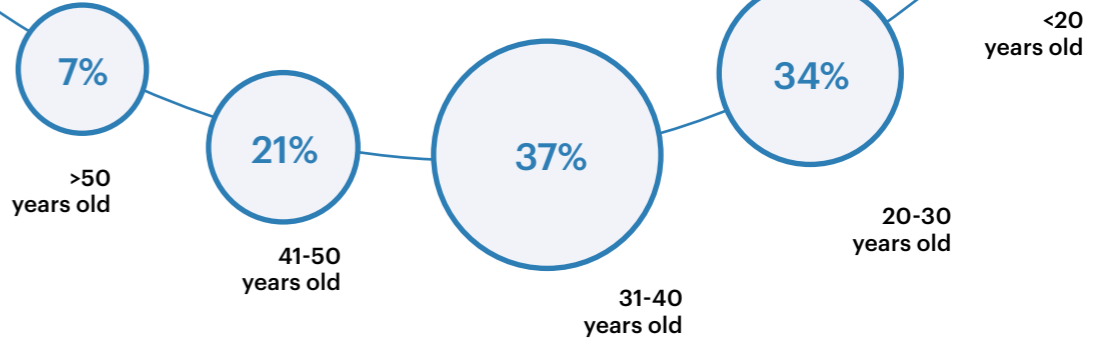
By sector:



By gender:



By age:



# Meet our Moroccan incubated green entrepreneurs



Photo credit: @Bernat Mestres (White Horse)



Photo credit: @Bernat Mestres (White Horse)

## ENRD<sup>2</sup>-Engrais Bio

### Turning organic waste into energy and compost

ENRD2-Engrais Bio, a project developed by Khaoula Remmal, aims to give new life to organic waste. By transforming this waste into renewable energy used for electricity, heating and fertiliser, Khaoula seeks to pursue a more sustainable and inclusive economy.

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

I realised early on that I wanted to do something to impact positively on the environment. Perhaps that is why I enrolled in engineering school and continued my studies in France for five years to specialise in energy management and sustainable development. While working as an energy expert for Moroccan cattle farms I decided to start a business after observing how much organic waste was lost. In Fez-Meknes, I targeted small to medium sized farms and set up an infrastructure to collect organic waste for transformation into biogas. We then developed a biogas plant that can produce electricity and heat from organic waste through an energy cogeneration system, while ensuring some energy independency for cattle farms. We also produce a stabilised digestate, which anaerobically digests organic matter and produces compost. The business also helps raise healthier cattle, as the animals' living conditions are better and they get fewer infections. I am very eager to enhance the connection between the rural and the industrial sectors by acting as a bridge between the two.

#### What is the environmental and social impact of your project?

It is a sustainable idea that has a strong impact on the environment, as it reduces waste while creating a cleaner source of electricity and heat. Our goal is to positively impact the environment by using innovative technology and implementing resource efficiency measures.

Assisting and advising cattle farms to install biogas plants contributes to the reduction of CO<sub>2</sub> emissions. As one example, ENRD2-Engrais Bio currently collects 32 tonnes of organic waste per cow per month, which means 3,400 tonnes per year saved. By 2020, we will have avoided 38 million tonnes of CO<sub>2</sub> while also boosting the development of the renewable energy sector. And these are only the results from one single farm.

By creating a cleaner source of electricity and heating, the farm is also saving money. Additionally, we contribute to reducing organic waste by around 40% in terms of sludge to be treated. We also reduce pollution, bad odours and the health risk for local inhabitants living close to waste decomposing in nature. Moreover, the organic fertiliser produced contributes to reducing the amount of chemicals used in nearby fields.

The enterprise also has a social impact through the creation of 24 full-time jobs over ten years. Indeed, for every connected power station, five people will be recruited locally on a full-time basis for its maintenance. My project aims to give everyone – from farmers to industrial workers to regular consumers – better access to sustainable energy options. It will mean that 155 tonnes of compost will be re-used per year, producing an average of 400 m<sup>3</sup> of biogas and thermal energy, covering the total energy needs of a cattle farm and part of the dairy production unit. For example, for a 4,500-head cattle farm, the electricity produced thanks to our installation is estimated to be 4,773.60 MWh per year. Besides, the thermal energy which can be generated at the production site is estimated to be 4,672.51 MWh for an installed 250-kW cogeneration engine.

We have partnered with all royal domain farms with more than 1,000 heads of cattle, thus contributing to this positive change.

#### How have you benefited from the SwitchMed programme?

SwitchMed was critical in providing me with expert training in investment, communication and manufacturing processes. Specifically, I acquired comprehensive knowledge on how to manufacture biogas and the functioning of the most energy-efficient technologies in the field. On another note, I clearly needed to develop a communication strategy, including tools such as a website, to communicate the brand to a wider audience and to connect my business with donors and new clients.

It has been a very fruitful cooperation as I felt supported and guided in the entire development of my business idea. What I liked most was the bonds that were created. As part of the SwitchMed family, I had the chance to participate effectively in networking events that greatly increased the visibility of my project, both at the national and international levels, for instance, at the 22<sup>nd</sup> Session of the Conference of the Parties (COP 22) and two editions of SwitchMed Connect.



Photo credit: @Camping farm – Riad Green House



Photo credit: @Camping farm – Riad Green House

## Camping farm – Riad Green House

### An eco-friendly holiday at an organic paradise

Organic farming is great, but combining it with holiday accommodation is even better! In Morocco's El Jadida region, one man has decided to bring tourists, locals and farmers together for a common cause: to learn to respect the environment and seek a healthier relationship with nature.

Hamid Ben M'Barek Riad is the owner of the Riad Green House camping farm in Oulja Chtouka near Casablanca. It is a small organic paradise that aims to promote organic farming and raise awareness about the environment, agroecology and sustainable tourism. Nestled at the edge of a magnificent forest and surrounded by green spaces, the camping farm includes wooden bungalows, a bioclimatic chalet and large greenhouses. Tourists are invited there to "holiday responsibly" and learn more about ecology.

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

I am an engineer specialising in energy and sustainable development, and chair of the Association for Renewable Energy for Sustainable Development and Protection of the Environment and Organic Farming, an association dedicated to the promotion of culture and environmental education. Land-use change, including deforestation, intensification of agricultural activity and the impacts of climate change on natural and human systems are all widespread in Morocco. I began this project to reverse these effects, raise awareness of sustainable living and encourage local farmers to take up ecotourism by offering sustainable accommodation and better leverage their natural resources toward organic farming.

Using the European Ecolabel approach to green construction, I used timber and other natural materials to build the camping farm, taking energy consumption into account and using renewable energy whenever possible. I also plan to build a number of bioclimatic greenhouses and some seed plantations. Our target market are travel consumers eager to learn about nature and passionate about the principles of ecotourism. Our doors will be opening soon.

#### What is the environmental and social impact of your project?

I believe that by raising awareness of ecology, we will be able to help mainstream the sustainable tourism model and push back against the rural exodus toward urban areas and the sale of land to large property developers. Through my project I hope to promote organic farming and raise awareness of the environment, agroecology and sustainable tourism.

The campsite has been built according to strict sustainable construction practices. Water, energy and waste management are comprehensively addressed in order to reduce CO<sub>2</sub> emissions as far as possible. Our swimming pool, for example, does not use chlorine. I would like the camping farm to be an example of responsible tourism in Morocco for others to follow.

By cultivating seed plantations on the campsite and organising training programmes, the project is already raising awareness about the organic farming process and environmental sustainability among visitors to the camp. The more travel consumers make eco-friendly travel choices, the better. I am also helping the local economy by linking artisans and tourists. In the future, we will be hosting a small daily artisan's market.

#### How have you benefited from the SwitchMed programme?

SwitchMed has helped me bring my ideas and interests to life and turn my dream into a sustainable business model. Their team helped me put together a green business plan, analysing the market data and developing strategies. Specifically, I am very satisfied with the expert support I received in dealing with the hotel and catering industry, developing a marketing plan, competitor analysis, and managing the accounting, financial and administrative processes. I also benefited from great expertise in bioclimatic architecture to help us move toward a more energy-efficient structure and savings in heating and lighting. Thanks to SwitchMed's support, I have been able to come up with a clear blueprint and minimise the risk of debt on the project.

## VDMpneu – Recycling of used tyres

### A breath of fresh air for used tyres

Tyres form an integral part of our daily lives, helping us get from A to B. But what happens at the end of the road when they are no longer in use? How are they disposed of and what are the associated environmental impacts? In Morocco, a green entrepreneur saw a business opportunity in finding a way to sustainably reuse discarded car tyres. Elomari Naoual launched VDMpneu to reverse an alarming trend she noticed in her country, with more than 40,000 tonnes of scrap tyres being discarded in the natural environment or burned every year.



Photo credit: @ Goh Rhy Yan on UnSplash

Tell us about yourself and how the idea for your business was born  
My interest in developing reusable tyre products came after years of witnessing how they are disposed of in Morocco. Growing up, I frequently saw tyres being burned at the side of the road, discharging toxic substances into the air. The sight of black smoke rising into the sky, accompanied by the overpowering stench of burnt rubber troubled me. I simply could not understand why we would incinerate tyres when we know how much damage it causes – soil contamination, air pollution and landscape degradation-, so I decided to seek out a better solution. I have always been an active member of a local association involved in collecting, sorting and treating waste plastic, so I decided to move from voluntary work to an entrepreneurial venture focused on the reuse of used tyres. The ‘PUNR – Recycling of used tyres,’ venture aims to recycle tyres and transform them into rubber shreds, granulate or powder, which is then used in the manufacture of a variety of sports facilities, roads, sound-proof walls and synthetic turf, providing a second life to used tyres, which is exactly what the circular economy is all about. With my project I created a system where the value of tyre materials and resources is retained within the economy for as long as possible.

What is the environmental and social impact of your project?  
More than 40,000 tonnes of tyres are discarded or burned in Morocco each year, resulting in severe environmental degradation. Through a careful study of the local markets, I determined that recycled tyres could serve as an input material for many of the country’s public works and civil engineering projects. The environmental benefits of VDMpneu are clear: air quality is preserved by preventing the incineration of tyres and discarded tyres are removed from nature, where they contaminate soils and pollute the landscape. In fact, by recycling around 2,800 tyres per year, we can reduce power consumption levels by an amount equivalent to that needed to run 114,800 refrigerators per day, cutting CO<sub>2</sub> emissions by an amount that equates to a car travelling a distance of 33,300 km, and reducing water consumption by that needed to complete 11,200 washing machine cycles.

In addition, my green business also presents an opportunity for local job creation, which is another important benefit, as I believe social responsibility is just as important as environmental responsibility. With that in mind, we plan to create 20 direct jobs in the city of Oued Zem, in addition to other indirect jobs, such as independent collectors, which will improve the livelihood of around 60 households.

How have you benefited from the SwitchMed programme?  
I successfully participated in SwitchMed’s green entrepreneurship training programme in Morocco for a period of three months. I also benefited from 10 hours of face-to-face support to improve my green business model and, as part of the incubation phase, I was allocated a local mentor for eight months and had access to assistance from a number of different external technical experts in order to develop my green business plan. For example, I was able to consult a legal expert to help me decide on the best legal structure to adopt for my company in line with my project, as a result of which I opted to set VDMpneu up as a cooperative regime. Another expert advised me on the procedures and regulatory laws associated with the tyre recycling sector in my country so I could effectively develop the entire production chain in accordance with Moroccan regulations. A graphic designer and web programmer also worked together to build a brand and a website to attract clients and present the projects.

After all this support, I submitted my project to the local authorities and managed to get a one-hectare site on which I could start implementing my project.



Photo credit: @Pxhere

## Plastic4Life

### Reducing pollution by activating the plastic recycling chain in Morocco

At the forefront of the fight against plastic pollution, Moroccan green entrepreneur Oussama Boutrigui has chosen to take action against agricultural plastic waste. His groundbreaking project aims to recover discarded greenhouse plastic film and recycle it into new products.



Photo credit: @Mauro Tandoi

Tell us about yourself and how the idea for your business was born  
I am from Morocco’s Souss-Massa region, south of the snow-capped High Atlas peaks. In this agricultural region, known as “Morocco’s vegetable garden,” miles and miles of greenhouses have cropped up as the agricultural sector expanded. Today, an area of 3,000 hectares in this region alone is covered by greenhouses. While their construction has resulted in significant social and economic development, the greenhouses have created a new problem: plastic waste. The greenhouses are made of plastic, nets and other non-biodegradable materials that are frequently replaced and simply discarded once they reach the end of their useful life. As an agricultural engineer and director of the IngenusTech research office, I decided to launch a project to deal with this plastic waste. My goal is to recycle as much as possible of the annual agricultural plastic waste produced in Morocco—approximately 23,000 tonnes—and transform it so that it is recycled into the economy as products for the automobile, aeronautics and plastics industries.



Photo credit: @Daniel Fazio

What is the environmental and social impact of your project?  
Plastic4Life will positively impact on both the environment and the local economy. According to my research, recycling 1 tonne of plastic waste reduces CO<sub>2</sub> emissions by up to 1.5 tonnes. My goal of recycling 2,300 tonnes of plastic waste a year will reduce CO<sub>2</sub> emissions by 3,530 tonnes a year. Of course, the project itself is not without its own environmental consequences, so I aim to plant 60 trees a year to compensate for the CO<sub>2</sub> emissions produced by my business. My business will also provide jobs: I foresee the creation of eight direct jobs and approximately 20 indirect jobs.

How have you benefited from the SwitchMed programme?  
SwitchMed has played a key role in my business trajectory, providing me with advice and coaching, putting me in contact with stakeholders and helping me develop my green business plan. In particular, SwitchMed’s experts helped me develop the business tools necessary to run a successful company, such as implementing certification and quality control procedures and setting out a global action plan. Thanks to SwitchMed, I have developed cross-disciplinary skills in mastering my production process while integrating a quality management system that is essential to guaranteeing an excellent product and, in turn, the loyalty of my customers. During the incubation period, I developed a communication strategy and a corporate website to enhance the visibility of my company, provide useful information for customers and attract potential investors. Attending SwitchMed’s synergy workshop was also enriching, as it allowed to me to connect with like-minded people looking to contribute to greening the global economy.

## Green Services & Terroirs

A great eco lodge that promotes agroecology while boosting the local economy

**For Salaheddine El Azouzi, agroecologist and permaculture consultant, it is everyone's duty to contribute to improving the underrated image of the soil of the Moroccan Rif region and preserve traditional and sustainable techniques. The Rif is a mostly mountainous region in Northern Morocco with a few coastal valleys suitable for agriculture and urban settlement.**

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

I grew up surrounded by nature and that probably shaped my interests. I learned to adore and respect nature when I was a young boy. My studies were totally aligned with that. My background is in agroecology, agroforestry and sustainable management of mountainous agricultural lands and I hold a master's degree in Tourism and Sustainable Development.

In 2012, I opened a small eco lodge called Green Services & Terroirs in the Ouezzane province, which is located 50 km south of Chefchaouen. The idea for this small green business was born out of my wanting to develop ecotourism in this region and promote largely sustainable agriculture. There is a growing demand for responsible tourism focused on the authenticity associated with enjoying and learning about local culture, local food, etc.

Accommodation is one of the services we offer. We also own a restaurant, serving food prepared with the produce we grow in our own organic vegetable garden, which we also sell to other restaurants. For tourists, we organise hiking tours, traditional cooking lessons and other activities related to agroecology and discovery of the natural environment. Education is also an important aspect of the project. Training programmes and internships in agroecology and permaculture are at the heart of Green Services & Terroirs.

I want the company to become a well-known destination across the farmlands and rural settings of North Africa. But most of all, my goal is to foster a deeper understanding of farming processes through education and hands-on experience.

What is the environmental and social impact of your project?

I believe one of the main contributions of my project is its promotion of the use of greener practices and activities in Moroccan guest houses. In Green Services & Terroirs, our commitment is to support producers, artisans and cooperatives to develop ecotourism and ecological agriculture. We try to integrate women and young people as much as possible in our activities, and we also support the creation of farmers' markets as well as local family-run farms.

We have a traditional mobile catering service we use to distribute our organic production and promote the use of agrifood products from local producers, other cooperatives and farmers to a network of restaurants. In this way, we support small-scale producers and artisans and develop the local economy.

We currently receive between 300 and 400 eco-responsible visitors per year, and having increased our accommodation capacity and production area, we plan to triple that number by 2020, which will also increase the organic production of our vegetable garden by up to 15 tonnes of produce per year. This expansion will create eight permanent jobs and other temporary positions depending on seasonal activities. In addition, we are following green construction sustainability principles on our farm. For instance, we are now saving 6000 m<sup>3</sup> of water per year, saving 600 tonnes of wood a year and recovering 60 or more tonnes of soil per year while protecting the forest.

How have you benefited from the SwitchMed programme?

I did not have the know-how or the appropriate support to realise my dream. SwitchMed has become my source of inspiration and action. I am very happy and motivated by the support of this great programme, which has helped me develop green activities for my project.

Through SwitchMed I received technical support for three months by experts in green entrepreneurship. My project was fortunate enough to be selected to receive ten hours of face-to-face support to improve my green business model, which subsequently allowed me to benefit from the incubation programme as well. For eight months, supported by a local mentor, I worked in depth on the technical and financial setup of my project. Now my green business plan is fully developed, and I have a better idea of how to proceed in order to diversify activities and services. The technical expert in ecological architecture was a great help because I purchased a piece of land next to the current eco lodge to build five new eco suites, and I needed comprehensive input on the design of the plans. SwitchMed allowed me to increase the visibility of my project, connect with other green entrepreneurs and meet investors. I also received the necessary funding to continue my adventure. This experience has changed my life and made me feel able to change the lives of others around me.



Photo credit: @Bernat Mestres (White Horse)



Photo credit: @Bernat Mestres (White Horse)

## ZOLIMO- Fella Pro

Morocco is reviving agricultural practices with floating solar panels

Zolimo Fella PRO provides innovative irrigation solutions to farmers in the form of floating solar-panel water pumps. Using floating solar panels means that unused stretches of water can sustainably and ecologically be used to capture the radiative energy of the sun. With floating solar panels, pump water flows can reach 200 cubic metres per day. This sustainable approach to the problems of land use, according to Ismail Bouhamidi, allows land in conflict to be earmarked for other functions, such as agriculture, mining, tourism or town planning. A floating solar-panel water pump is affordable and highly efficient and can be customised according to the needs of the farmer. Zolimo Fella PRO also provides an end-to-end supply and installation service. The fact that solar panels operate in total autonomy means that farmers have access to water without the constraint of needing an oil or gas supply. Zolimo Fella PRO offers very affordable pricing through its 'fee-for-service' model for installing and maintaining its solar panel systems. This shift of focus from a capital-expenditure model to an operating-expense setup suits small farmers. The company has also developed a remote monitoring and control system that helps farmers control water pumps using a mobile app. Zolimo Fella PRO was supported by a local mentor to develop its green business plan using SwitchMed technology.



Photo credit: @Fella Pro

## TECHNOSOLARS

Moroccan leadership in the manufacture of solar technology for use in Africa

TechnoSolars is an innovative green start-up that manufactures solar thermal collectors, solar water heaters, solar tunnel and chimney dryers, solar reflectors and solar ovens. Its technology, which has a better environmental performance profile than conventional gas appliances, minimises CO<sub>2</sub> emissions and therefore reduces dependence on fossil and organic fuels and contributes to preventing environmental degradation. Achouyab El Hassan explains that although similar solar products are already available in Morocco, they are imported, whereas TechnoSolars' products, which are more competitively priced and have better quality technology, are manufactured locally. TechnoSolars' goal is to create jobs and generate wealth locally. This green entrepreneur applied SwitchMed methodology to the development of his green business model.



Photo credit: @Antonio Garcia

## BIOCHAR MAROC

One Moroccan entrepreneur is changing the way farmers view organic waste

BioChar Maroc is a start-up specialising in the collection and processing of horticultural organic waste. To transform this waste into something usable, Hassan El Hemer invented a mechanical shredder for greenhouse waste. "It's quick, and the job is done in one day", he explains, also mentioning that the cost to farmers is less than the cost of clearing greenhouses and burning the waste. Once shredded, the waste is taken to a site near his family home where it is heated and transformed into biochar, a carbonised charcoal dust that is a natural fertiliser for soil. Due to the high pH composition of Moroccan soil, fertilisers need to have a low pH level. Good quality biochar adapted to Moroccan soil can be obtained by controlling temperature during the pyrolysis process (when the waste is being burned). This is an optimal situation for biochar products, as, according to El Hemer, "we cannot import a product like this". El Hemer participated in the SwitchMed incubation programme and was supported by a local mentor in developing his green business model.



Photo credit: @BioChar Maroc

Photo credit: @Bernat Mestres (White Horse)



**“Our organic waste recycling project has also a positive social impact as 24 permanent jobs will be created for a period of 10 years.”**

Khaola Remmal, ENRD<sup>2</sup> Engrais Bio

**“By recycling around 2,800 tires per year, I contribute to reduce the level of energy consumption equivalent to 114,800 refrigerators per day, the CO<sub>2</sub> emissions equal to a car traveling for 33,300 km, and the amount of water consumed by 11,200 washing machine cycles.”**

Elomari Naoual, VDMpneu

**“Currently we receive between 300-400 visitors per year but through the increase of accommodation capacity and the food production area, I expect to triple the number of eco-responsible visitors and double the organic production up to 15 tons by 2020.”**

Salaheddine El Azzouzi, Sté Green Services et Terroirs

**“Plastic4Life will positively impact both the environment and the local economy. My objective is recycling 2300 tonnes of plastic waste yearly, will reduce CO<sub>2</sub> emissions by up to 3530 tonnes a year.”**

Oussama Boutrigui, Plastic4Life

**“The campsite has been built according to strict sustainable construction practices. Water, energy and waste management are comprehensively addressed in order to reduce CO<sub>2</sub> emissions as far as possible. Our swimming pool, for example, does not use chlorine. I would like the camping farm to be an example of responsible tourism in Morocco for others to follow.”**

Hamid Ben M'Barek Riad, Riad Green House

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

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 Morocco, there are 50 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](http://www.theswitchers.eu)

Photo credit: @Go Energyless Solutions



# Meet our Switchers in Morocco

**IDYR**

Weaving their way through, this initiative is reviving a dying technique while employing female artisans

IDYR designs and manufactures beautiful products, such as handbags, rugs, ottomans, and pillows using fabric scraps and other unwanted clean materials obtained from clothing and textile factories. Fadwa Moussaif and Amal Kenzari see textile recycling as crucial for the protection of the environment due to the negative impacts caused by the toxic chemicals contained in them.

IDYR is a word in Berber that means ‘living’. The company aims to tackle the textile waste problem produced by the 80 billion new pieces of clothing that are manufactured every year. IDYR also helps empower women who would not otherwise have a way of generating an income by hiring experienced weavers and improving the social conditions of Moroccan female artisans. The company currently employs three women and plans to hire a further 20 as the company expands.

**Shems for Lighting**  
These bright sparks are on a mission to light up Morocco’s poorest villages

Shems for Lighting is an environmentally friendly company that specialises in manufacturing and marketing solar energy solutions. It mainly targets poor communities without any access to electricity, where LED bulbs or a renewable source of energy would be of great importance. Youssef Chakroun and Zakaria Rai want to tackle the lack of affordable sources of electricity in rural areas and beyond.

Shems for Lighting upcycles and recycles materials, such as laptop batteries, to manufacture LED bulbs and lanterns. The company has two production lines. QENDIL is a lamp made up of a solar panel, an accumulation system, a battery, and an LED, which is particularly useful for fishermen using traditional boats. LUXE couples Moroccan traditions with technology, targeting people who have access to electricity but would also benefit from being able to use eco-friendly products. In addition to the collaborative partnerships it is involved in with various NGOs, Shems for Lighting has also generated numerous direct job opportunities. Moreover, it has participated in national and international sustainable development programmes, winning the 2017 award for The Best Renewable Energy Project in Morocco.

**Barqu’ade**

A front row seat to enjoy the ecology and history of Morocco’s Bouregreg Valley

Barqu’ade organises environmentally-friendly boat tours in English, French and Arabic on board small traditional wooden rowing boats called floukas. Oumel Ghit Guelzim sees these boat tours as a good way to promote the heritage of Morocco, while also creating job opportunities for boat drivers.

Barqu’ade’s mission is to revive boat trip activities and turn the Bouregreg Valley into a tourist hub. Despite boat trips being a common attraction in cities around the world, it is a relatively unexploited area of activity in Morocco and across the MENA region. The company currently engages the services of 72 boat drivers. When there are no customers, the drivers are free to work independently and continue their daily crossings between Rabat and Salé. Barqu’ade has enabled them to launch a large number of services and has attracted a great deal of new tourist customers. Four years in and the demand for boat trips is growing. Barqu’ade has attracted 500 customers on an annual basis over recent years and Ghit Guelzim plans to up that to 1,000 visitors by the end of 2018.

**Green Watech**

This multi-soil layer system treats water to be used for irrigation purposes

Green Watech is a multi-soil layering system that works by filtering water through a combination of low-cost materials such as gravel, sawdust, sand and charcoal. Dr Lahbib Latrach developed this system to collect wastewater from households, treat it and then use it for the irrigation of plants, such as olives and alfalfa.

Green Watech removes pollutants and chemicals, such as nitrogen, phosphorus, toxins and bacteria from wastewater. Much of the wastewater produced in developing countries is not treated, but rather discharged straight back into the environment, where it is likely to cause diseases and other issues such as diarrhoea, cholera and dysentery. The resulting clear, filtered water is a far cry from the polluted, brown-tinged wastewater generally seen in the villages and increases food security while reducing the amount of freshwater used for irrigation. Green Watech also helps to improve the local quality of life by employing people from rural villages.

**Plastic 4 Life**

Turning agricultural plastic waste into useful products

Plastic 4 Life aims to preserve the environment and develop the recycling chain in Morocco by giving the plastic waste generated through agricultural activities a second life. Oussama Boutrigui’s idea is to recover film, pipes, nets and other non-biodegradable materials from the greenhouse farming operations that stretch across many miles of countryside and replace their material and equipment every two to three years.

Following a process of transformation and an injection of colour, Plastic 4 Life facilitates the reintegration of plastic waste into the economy. More than 23,000 tonnes of agricultural waste are discarded after use, presenting a real problem when it comes to disposal. Recycling one tonne of this waste would reduce CO<sub>2</sub> emissions by up to 1.5 tonnes. The goal is to reduce up to 3,530 tonnes by recycling 2,300 tonnes of plastic waste per year. The project aims not only to reduce its impact on the environment but also to reduce the rate of poverty in the region by creating eight direct job opportunities and approximately another 20 within the local area.

**Go Energyless Solutions**

A Moroccan entrepreneur is tackling food waste through this energy-less fridge

Go Energyless Solutions has developed its Fresh’it refrigerator that works without electricity. It keeps food fresh and safe to eat for up to 15 days, even in the desert. Raowia Lamhar’s vision with Fresh’it is to benefit rural communities, not only by enabling them to keep food fresh, but also providing a cooling solution for vital medicines, such as insulin.

The Go Energyless Solutions fridge does not look anything like the traditional electric ones. It is made out of beautifully carved clay in the form of a pot. The outer layer consists of thick red clay which surrounds an inner clay pot where fruits, vegetables, and meat can be stored. The layer of sand that fills the space between the two layers needs to be watered once or twice a day to help lower the temperature inside by 6°C. The pot must be placed in a well-ventilated area and covered with burlap fabric. Fresh’it is being sold for \$22 in rural areas and \$50 in urban centres, a scheme by which environmentally aware consumers are able to help subsidise those with lower incomes. In addition to its three founders, the company also employs two pot makers, three assistants and a delivery driver.

**Eco-dôme**

Aesthetic domes provide eco-friendly housing in Morocco

Eco-dôme designs and builds eco-houses by integrating green construction methods with design and construction. Mustapha Bahraoui and Younes Ouazri’s idea of an eco-friendly and self-sufficient building is pushing the boundaries of sustainable housing construction. Their aim is to combine quality and comfort while keeping environmental impact to a minimum.

Eco-dôme is an affordable, 72 m<sup>2</sup>, four-room house with electricity, running water, sanitation and energy-efficient electrical installations such as photovoltaics. Its eco-design works in harmony with nature and the rounded shape of the building is a self-stabilising mechanism resistant to natural disasters like cyclones, floods and earthquakes. The dome shape also provides both sound and heat insulation, keeping the rooms cool during the hot summer days and warm during winter. Eco-dôme uses local raw materials such as natural clay, wood and bamboo, which are treated with salt water to protect them from being damaged by insects and do away with the need to use pesticides or other harsh chemicals. The resulting building represents a 64% reduction in carbon dioxide emissions across the entire construction process.

**Terres d’Amanar**

A unique eco-tourism experience in Morocco’s Atlas Mountains

Terres d’Amanar offers a tourism concept that combines the pleasures of travelling and respect for the local environment. Jean-Martin Herbecq and Mohammed El Anbassi welcome domestic and foreign tourists in an ecolodge located in the natural surroundings of Tahanaout, a town near Morocco’s Atlas Mountains.

Terres d’Amanar showcases traditional Berber culture in the architecture, food and activities offered to guests. Travellers are invited to admire the beautiful environment while enjoying a range of adventure activities, including horse riding, mountain biking and hiking. Terres d’Amanar maintains a rigorous policy for the protection of the environment, including reducing waste, energy efficient heating, recycling and the promotion of local products to reduce resource consumption, CO<sub>2</sub> emissions and pollution in general. The project was developed in close collaboration with the local community, aiming to benefit both the ecolodge owners and the local population.

**Pomm’it**

Overripe apples get a second chance in Morocco

Pomm’it produces cider vinegar, food and cosmetics from semi-deteriorated apples. Walid Ijassi has not only managed to produce a shift in the attitudes of a community towards a more sustainable use of resources, but also offers incentives to encourage people to proactively pursue such practices.

Pomm’it uses overripe apples to make cider vinegar as a solution to apple production losses which may account for 60% of the total harvest. The project consists of processing partially affected apples and removing the deteriorated parts. The usable parts are then used to make vinegar following a traditional recipe dating back to 1964. Pomm’it also promotes the consumption of apple by-products by highlighting their medicinal virtues which range from fighting diabetes to weight loss and system detoxification. Pomm’it also attempts to encourage recycling by offering discounts to consumers who recover glass containers.

Photo credit: @Eco-Dome



Photo credit: @Ecotourisme et Randonnées



Photo credit: @BioChar Maroc



Photo credit: @AYASO

Photo credit: @Marrakesh Organics



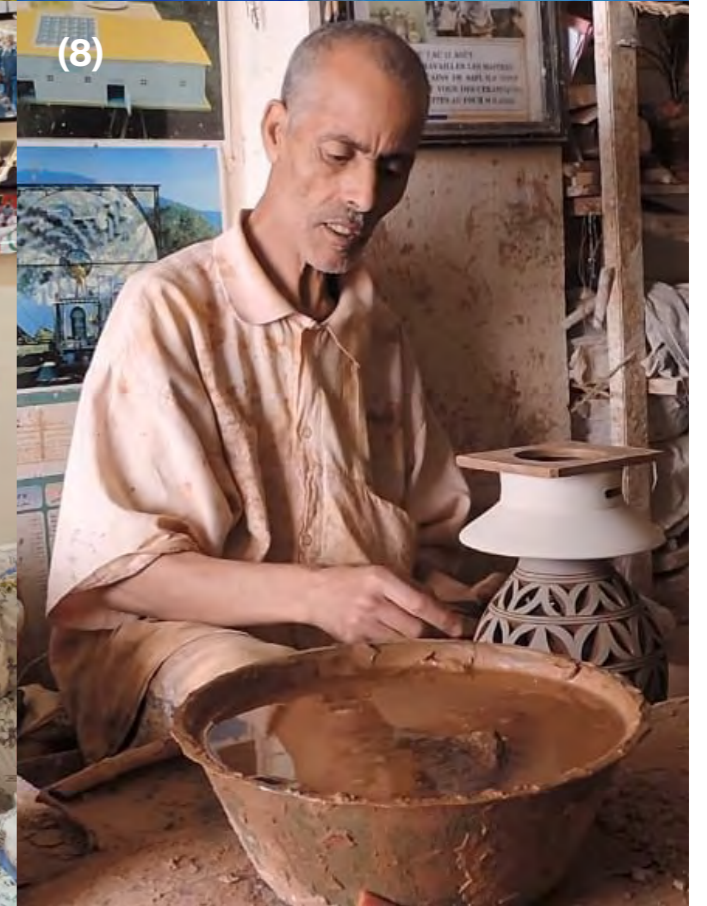
Photo credit: @DEco-Heat



Photo credit: @Green Services et terroir



Photo credit: @SHEMS FOR LIGHTING



(1) **Eco-dome**, housing & construction (2) **BioChar Maroc**, resource efficiency & waste management (3) **Ecotourisme et Randonnées**, tourism (4) **AYASO**, organic food & agriculture

(5) **Marrakesh Organics**, organic food & agriculture (6) **Green Services et Terroir**, organic food & agriculture (7) **Eco-Heat**, renewable energy & energy efficiency (8) **SHEMS FOR LIGHTING**, renewable energy & energy efficiency

Photo credit: @Eco-dome



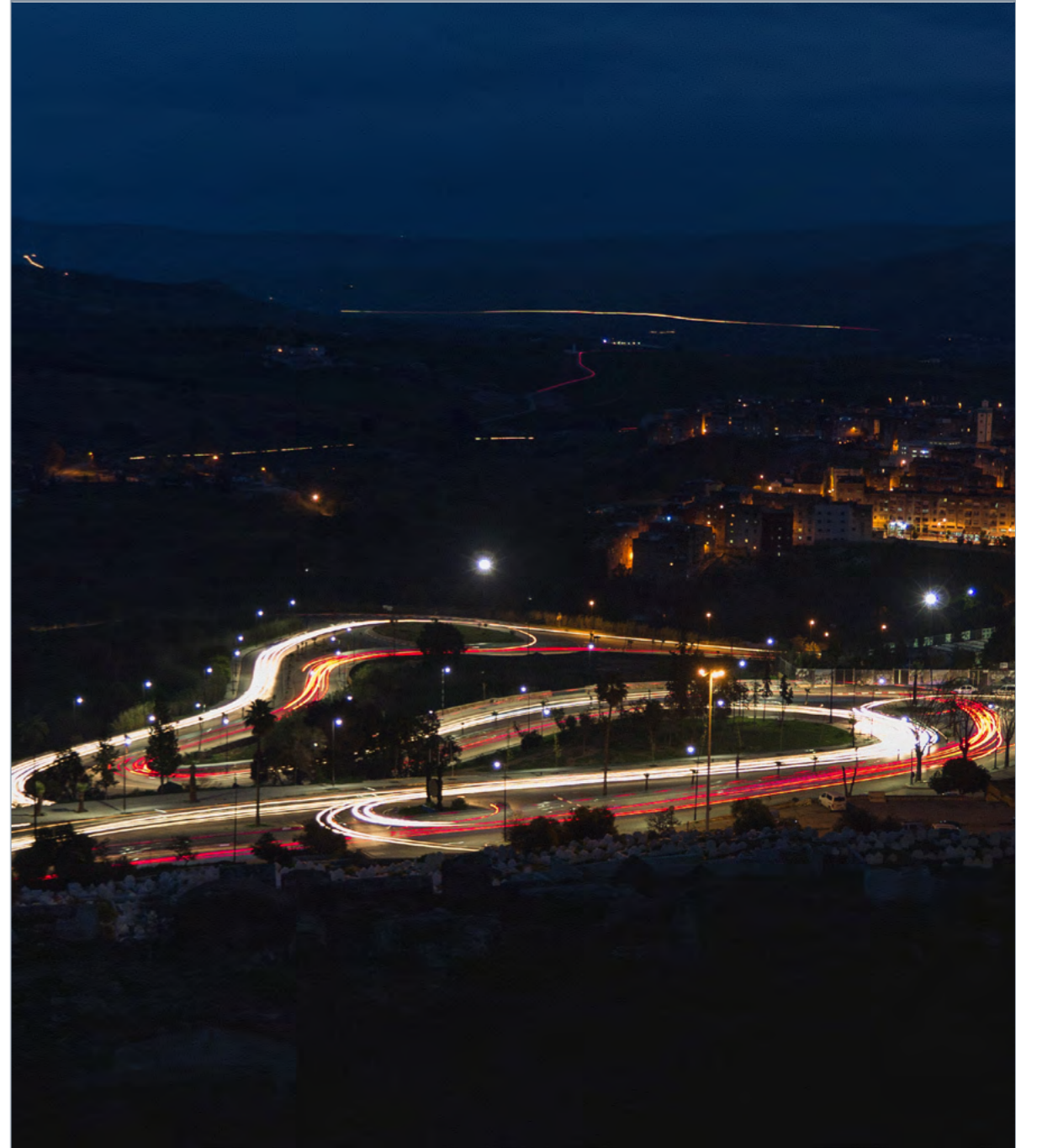
The White Paper on “[Promotion of Green Entrepreneurship and Grassroots Ecological and Social Innovations in Morocco](#)” highlight the strengths and weaknesses of the Moroccan green entrepreneurship ecosystem, in order to reveal the areas and axes where the needs for action are greatest. It summarises 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 25<sup>th</sup> May 2016 in Rabat, which brought together over 100 key actors from nearly 60 different organisations. The document is available only in French for the moment.



4

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

Photo credit: @Arthur Adyrkhanov



# 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 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 includes providing support by disseminating the call through the available channels 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 the 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 6-12 month period.



## The Association of Earth, Life and Sciences Teachers (AELST)

It is a non-profit association created in 1994 and consisting of a network of 35 sections Morocco-wide. The association brings together more than 2,000 active members and 10,000 volunteers, and heads a network of 18 environmental education centres (CEE). Through its various national and local programs and projects, AELST MAROC aims to promote scientific culture in environmental education, health and sustainable development.

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.

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



**Applicants**  
Grassroots initiatives’ representatives submitted an application to receive further coaching and technical support to develop and implement the proposed initiatives.

**Trainees**  
Grassroots initiatives received training at a national workshop. Some of the topics included how to develop an idea for social eco-innovation, obtaining strategy advice, finding out what the grassroots initiatives entail, how to overcome challenges, using the ideas of other participants to identify innovative solutions, identifying solutions for improving governance of the organisation, and exchanging views with other pioneers in social eco-innovation in highly participative discussion sessions.

**Initiatives**  
Represented by these trainees.

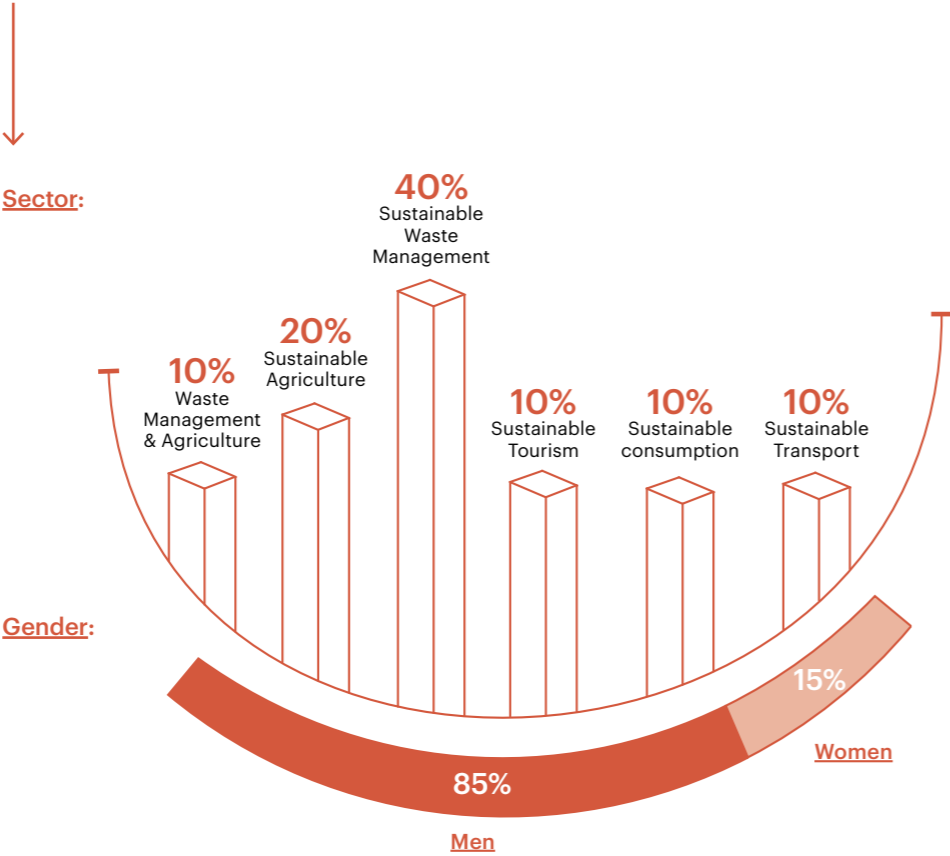


**Selected**  
The grassroots initiatives selected were enrolled in a supporting phase. They received 50 hours of personalised coaching, external technical support tailored to their needs and support to develop a crowdfunding campaign.



**(1) The social taxi: Douirt-Sbaa Association**  
**Sustainable transport**  
The mission is to involve the rural inhabitants of Figuig in activities beneficial to the whole community and its environment.  
The project aims to provide rural inhabitants of the Figuig community with a cheap and sustainable means of transport for their journeys into town, reducing costs, travel time and pollution impact. The car would also be available to locals in case of emergency.

**(2) Carrefour des Initiatives et Pratiques Agroécologiques (CIPA)**  
**Sustainable education**  
The mission is to link different initiatives working in the agroecology, agriculture, and environment.  
The project aims to provide a space for training and spreading agroecological technics among Moroccan farmers, project developers and researchers in arid and semi-arid climates.



**Transferring agroecological practices: Earth and Humanity Morocco association**  
**Sustainable agriculture**  
The mission is to promote social inclusion and develop the green economy in Morocco by transferring agroecological practices to farmers.  
The project aims to organise agroecology training programmes and workshops for farmers and schools on a pilot farm close to Marrakech. It also aims to create a network of people skilled in green agricultural practices.

**Household waste management: Oued Zem association**  
**Sustainable waste management**  
The mission is to promote recycling practices for household waste.  
The project aims to develop a waste valorisation unit for the recycling of household waste in Oued Zem and improve working conditions for municipal waste sorters.

**Sustainable tourism in Taza: Adrar association**  
**Sustainable tourism**  
The mission is to promote social inclusion among young people and highlight the potential and natural, human and cultural wealth of the Taza region.  
The project aims to create sustainable tourism job opportunities for young people.

**Ouezzane fights plastic waste: Green Economy association**  
**Sustainable consumption**  
The mission is to raise awareness in the community of the social and environmental impact of our plastic consumption and instil a sense of responsibility and commitment to a low-consumption lifestyle.  
The project aims to encourage citizens of Ouezzane to use textile bags in Ouezzane through waste management campaigns.

**Organic farming in Sefrou: Amaawen cooperative**  
**Sustainable agriculture**  
The mission is to contribute to reducing unemployment by promoting organic farming and sustainable sheep farming in Sefrou.  
The project aims to raise awareness about organic sheep farming and efficient use of resources in agriculture while creating jobs and opportunities for local people.

**Job creation in waste management: Aghbalau N'Kerdous association**  
**Sustainable waste management**  
The mission is to develop income-generating activities related to improved household waste management.  
The project aims to provide training on household waste sorting and raise awareness about environmental issues.

**Organic waste becomes a resource: Ennour association**  
**Waste management and social inclusion**  
The mission is to empower and support the disabled in the implementation of income-generating revenue schemes based on waste recycling and reuse.  
The project aims to help the disabled turn coffee grounds into organic fertiliser for mushroom cultivation.

**Cleaning the Kenitra nature reserve: Social development space**  
**Sustainable waste management**  
The mission is to promote the vocational integration of young people and raise awareness about the richness of the Sidi Boughaba reserve in Kenitra.  
The project aims to support the creation of job opportunities for young people in waste management and preservation of the Sidi Boughaba lake's natural resources.

**Re-evaluation of Saghro natural resources: The Ecologe**  
**Waste management and sustainable agriculture**  
The mission is to build awareness about natural and cultural resources.  
The project aims to harness the natural and cultural potential of the Saghro region with sustainable projects that create jobs and help to reduce poverty.

# Meet our Moroccan civil society organisations supported

## An experimental and educational centre for agroecology in rural areas

Local residents in small towns and rural communities, such as Sidi Boubker in the Rehamna province, located approximately 30 km north of Marrakech, are facing serious environmental and social challenges in an area where tracts of previously agricultural land have now become vast arid expanses. The region is struggling with issues such as soil degradation, primarily due to climate change, unsustainable farming, and overgrazing, coupled with the few opportunities open to young people in terms of education and income-generating activities, making these rural areas particularly susceptible to illegal immigration, ending up in low-skilled and high-risk occupations.

In order to reverse that situation, an initiative called ‘Crossroads of Agroecological Initiatives and Practices’ (CIPA) was introduced in 2015, and an experimental and educational farm was founded that aims to demonstrate the relevance of agroecology for desertification. One of the project leaders, Gueghlan Boujemâa, explains, “Our goal is to transform the arid rural landscape of Douar Skoura in Rhamna into a productive environment with plenty of local resources for its inhabitants. Agroecology proposes practices aimed at the rehabilitation, preservation and revalorisation of land. It contributes to the resilience of rural economies based on the valorisation of local resources,” stresses Boujemâa. He and his team, all members of ‘Terre et Humanisme-Maroc’, have been working hard since then to create a multidisciplinary agricultural space, which respects the environment and includes beekeeping, gardening and livestock breeding activities.

The centre is also a research area focussed on experimentation, education and training to test and disseminate ecological and social alternatives linked to sustainable agriculture and responsible lifestyles. “The initiative has been a game changer and is now creating a second chance for this land and its young people,” notes Boujemâa. In fact, despite the initial scepticism of local inhabitants, the initiative has fostered a great deal of interest in agroecology and sustainable farming. “Moreover, we have created a range of income-generating activities. We have proved that it is possible to make this land green again and that sustainable farming represents a cost-effective solution,” claims Boujemâa, proudly showing us the green plains that surround the farm.

**“Our ambition is to be a 'second chance school' for young people who love the land and wish to live off of it.”**  
Gueghlan Boujemâa



Photo credit @Pixino

The project has morphed into a multidisciplinary venture, thanks, amongst other factors, to the training and support provided by the local SwitchMed mentor, who has been instrumental in empowering the team to manage and diversify its activities. CIPA founders highlighted the different opportunities that could be developed according to their resources and that produced positive changes in terms of management. This prompted the development of several lines of support, including the production of a communication plan, a training programme and a manual, along with other activities centred around the equipment and facilities to complete the buildings. As a result of the training provided, the project now boasts an orchard, a pastoral area, a nursery and an educational beekeeping area. The success of CIPA has attracted local people, particularly the younger generation, who have benefited from agroecology workshops, which, in turn, has sparked a desire to connect and contribute to local development. “To date, hundreds of locals have benefited from these agroecology workshops,” says Boujemâa. Numerous information, awareness-raising and environmental education campaigns on agroecology have also been carried out in different regions of Morocco for schoolchildren, students, women, and farmers. “The educational farm has already proved that agroecology is a healthy alternative that enables farmers and their families to improve their situation, while reversing the effects of desertification,” stresses Boujemâa.

For Gueghlan Boujemâa and his team, there is still plenty more to be done at the centre. The potential is massive. For instance, the neighbouring college has contacted members of the initiative to help create an educational garden. With the experience of its members, the initiative is planning to introduce a training programme aimed at unskilled youngsters from Douar Skoura. In this context, SwitchMed is supporting CIPA in its application processes for accessing participatory funds to train these young people from rural areas affected by the agricultural crisis. Beyond its theoretical and practical scope, the initiative is trying to inspire a passion for the land and aims to connect local inhabitants with their region. “Our ambition is to serve as a ‘second chance school’ for young people who love the land and would like to earn a living from it,” says Boujemâa. This is the case for those who have already benefited from the 10-day agroecology training programme that includes both a theoretical classroom-based and practical, hands-on component, working to create a green oasis in this arid zone and changing the environment and life for the better.

Further information:  
<http://terre-humanisme.org/maroc-formation-agroecologique>

## Taxi Social: Mobility has changed life for the better for nearly 50 families

Taxi Social has enhanced the quality of life of the inhabitants of Douiret-Sbaa, an isolated community in eastern Morocco, by meeting a crucial need: mobility within, to and from the region. The nearest small town, Beni Tadjite, is 34 km away, a distance the inhabitants of the douar must cover for anything from groceries to medical services, more often than not in very harsh weather conditions. The Douiret-Sbaa Local Development Association, which, as its name suggests, aims to boost local development, has created genuinely dynamic community bonds.

For the 50 families living in Douiret-Sbaa, “getting weekly supplies from the market or simply going to school or the doctor is inconvenient,” explains Abdelkrim Boughoud, Douiret-Sbaa Local Development Association’s founder. Another big challenge is the precarious economic conditions. Indeed, without public transportation, and lacking the means to afford private cars, the ageing local population has no opportunity for self-development.

This challenge sparked Abdelkrim’s desire to take action to improve living conditions in his community. Taxi Social took shape over the course of several meetings of the Douiret-Sbaa Local Development Association. The idea was, with the help of SwitchMed, to provide a collective vehicle for the community to be able to make regular trips to and from the nearest town. Because collecting enough money to buy a van was not feasible, Taxi Social hires an adapted 17-seater vehicle for people to make the journey once every fortnight. It is also available to the inhabitants for emergencies such as childbirth, medical visits and family crises.



Photo credit @Taxi Social

In addition to providing collective transportation, “there is now more social interaction, especially amongst the young,” as “we are raising awareness of the importance of reducing CO<sub>2</sub> emissions by travelling together and changing to more sustainable transport habits,” explains Abdelkrim. “Thanks to this initiative we have reduced travel time by 20% and the number of visitors to the village has increased by 50%,” he adds.

The SwitchMed training programme helped Abdelkrim to acquire deep knowledge of the transversal issues of consumption and sustainable production. “It has allowed me to take, not only the Taxi Social initiative, but also other projects that I am managing at the Douiret-Sbaa Local Development Association to the next level,” explains Abdelkrim. With 45% of the Moroccan population living in rural areas, projects like Taxi Social are crucial for the local economy, as such projects improve quality of life for local inhabitants and create incentives for them to implement projects of their own, he notes.

**“This is how they can get supplies from the weekly market, sell agricultural produce, go to school, visit the doctor, obtain medicines, engage in administration tasks, participate in leisure activities and visit their families, among other activities.”**  
Abdelkrim Boughoud, founder of the Douiret-Sbaa Local Development Association

5

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



Photo credit: @Eco-Heat

# 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 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, green entrepreneurs have the opportunity to pitch and showcase their innovative solutions in front of 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.

مركز المقاولات الصغرى التضامنية  
Centre des Très Petites Entreprises Solidaires

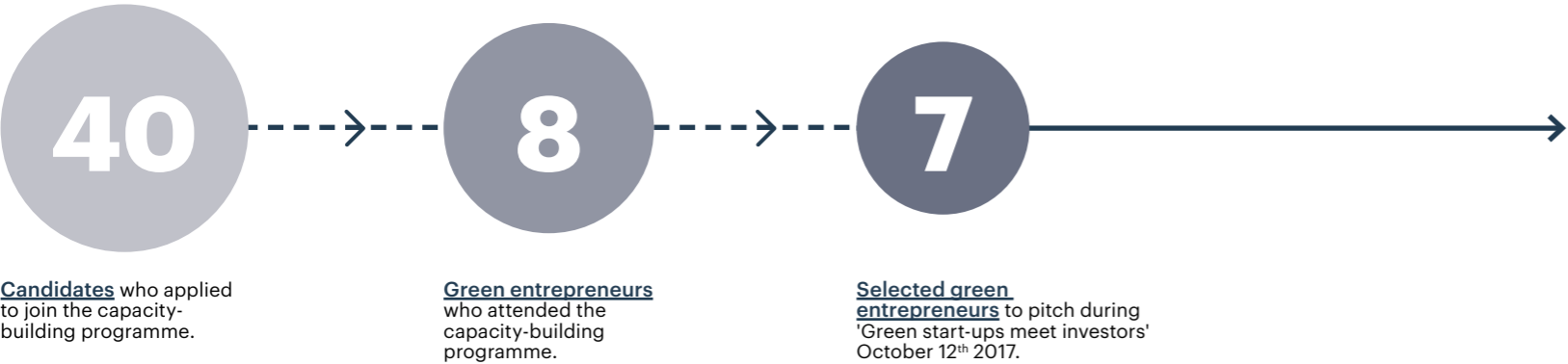


## Solidarity's Small Social Enterprises Centre

Solidarity's Small Social Enterprises Centre identifies the best green initiatives, encourages them and provides them with the support they need to grow and achieve their goals.

Thanks to its wide national network and experience in access to finance, the Small Social Enterprises Centre is able 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 Morocco.

# Access to finance capacity building programme for green entrepreneurs



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

30h

Capacity-building for green entrepreneurs, who are guided through the stages of the investment process, to prepare their businesses for evaluation by financial players and improve their communications skills for more effective promotion of their business idea.

74

11

Financial actors identified in Morocco.

Finanacial actors present at the event, namely players in the Bank sector such as 'Le Crédit Agricole', 'Attijari Wafabank' and by the head of the Business Angels network 'Maroc Numérique Fund' as well as Private Equity 'Attijari' Invest.

Name of the company	Business stage			
FELLAH PRO			●	
VillePropre			●	
AGRI FLY	●			
STEPMOBILE		●		
SOLVATRONIC		●		
VALENCI		●		
Green Services et Terroirs			●	
	Ideation	Early stage	Growth	Scale

# Morocco on the move to invest in green enterprises

Morocco offers a limited ecosystem for the development and financial support of start-ups. The lack of available financing, especially for green entrepreneurs is reinforced by the fact that banks remain very risk-averse, although there is indeed an interest in new products. It is a country in which the concept of green entrepreneurship and its associated economic opportunities need to be explained and promoted in order to attract financiers. SwitchMed plays an active role in this area of activity but it is an issue that also needs to become a policy priority for the Moroccan government and a vector of innovation for Moroccan entrepreneurs and civil society.

In May 2016, SwitchMed led a mission to Morocco to assess the level of interest among financial institutions with regard to investing in eco-innovative businesses and green entrepreneurship initiatives. “Over the course of a week, we met with a number of key actors, including financing institutions, business support organisations, governmental organisations and green entrepreneurs”, explained SwitchMed impact investment expert, Claudia Pani, going on to say, “we successfully gained valuable insights which helped us gauge the situation in the country”. One of those institutions was the National Federation of Microcredit Associations (FNAM), an umbrella organisation for 13 microcredit institutions with one million beneficiaries, of which 55% are women, which works to reduce poverty and achieve human development goals in the country, as well as establish ethical rules for microcredit activity. “The Moroccan Network of Social and Solidarity Economy (REMESS), a network of 525 organisations working in the area of social economy that supports and trains entrepreneurs and cooperatives, mostly women, was another key actor we met with”, Pani explained, not to mention the Moroccan Institute of Supporting Micro-Enterprises (INMAA) and the Attijariwafa Bank SA. Seloua Amaziane, who heads up the partnership division at the Environmental Affairs Agency, underlined that “the role played by consumers is key for investment in green entrepreneurship and job creation”. Picking up on the same point, General Director of FNAM, El Mazouri, added that “based on our experience, it is important that the demand for green products and services come from the demand side, a case in point being green tourism, a phenomenon that evolved naturally by itself”.

Many of the stakeholders that were interviewed concluded that, given the persistence and scale of unemployment in Morocco, small and medium green enterprises represent a source of job opportunities, and therefore investing in those start-ups could create employment, making this a win-win strategy for the country. In fact, according to Trading Economics, the youth unemployment rate in Morocco averaged 19.15%

between 1999 and 2018, reaching an all-time high of 29.30% in the third quarter of 2017 and a record low of 13.10% in the second quarter of 2006. So what has been done so far to reverse that situation?

As of today, various tools and products have been designed by public institutions to create synergies between SMEs and banks. In addition, crowdfunding looks poised to emerge in different ways to address this problem, at least partially. Morocco will focus on self-employment, particularly through the new legal framework introduced recently. The two major banks in Morocco, Attijari and the Moroccan Bank of Exterior Commerce (BMCE), seem to have started focusing on self-employed entrepreneurs and redefining their approach to be able to serve this segment of the market. The Moroccan government has taken steps to encourage banks to support small companies; entrepreneurs can therefore expect to receive better treatment from them in the future. In fact, these banks are currently reviewing their approaches towards micro-enterprises and start-ups without collateral.

Taking this into account, the banking sector's role in financing a green economy needs to be strengthened and there needs to be greater awareness about the importance of developing financial products focused on the promotion of a green economy. Eco-innovative SMEs are the real engines of green economy and, for that reason, they are expected to benefit from new green financing tools and the relevant accompanying measures. The existing range of options is still rather limited and will exclude many new green entrepreneurs, particularly small initiatives which may require more funding than a microloan, but are unable to meet the growth expectations of the limited number of venture capital funds, and which are also neglected by banks. Initiatives with high growth potential can use incubators and coaching programmes to increase their investment readiness and make them more bankable.

Smaller initiatives will be able to capitalise on the microloans offered by Moroccan microfinance institutions, which are well developed and probably easier and faster to access. Generally speaking, the Moroccan situation still exhibits a lack of availability of ad-hoc instruments aimed at green entrepreneurs, particularly for the smallest green

**“The role played by consumers is key for investment in green entrepreneurship and job creation.”**

Seloua Amaziane, head of the partnership division, Environmental Affairs Agency

Photo credit: @Mlamber's portfolio



companies or those yet to launch. As such, it is common to see young entrepreneurs applying for microloans, which seem to be the most readily available finance option. Moreover, as long as entrepreneurs are able to develop their ideas and ensure growth, they are able to explore a number of other finance options.

Those who meet the expectations of investors, particularly highly innovative SMEs, may qualify for early stage venture capital investment, even though the range of options is currently very limited. And for those companies already established, our so-called Switchers, with some measure of track record, there is the possibility of applying for banking loans and using existing guarantee schemes aimed at SMEs. Small and green businesses, in particular, face huge challenges when it comes to accessing finance. The green market currently seems to present an expensive solution, hence the interactions between banks and green businesses need to consider the constraints under which each party is operating. The capacity to provide support to companies according to their real stage of development is vital. A specific finance mechanism able to support ideation, start-up and growth phases should be developed in order to help companies survive during the early years until they can gain access to finance and economic stability, and to address the real needs of small businesses at different moments in their corporate life.

According to Rida Lamrini, president of INMAA, “Morocco is not yet ready for a green revolution, as financing institutions are more worried about their loans being covered by a guarantee rather than the existence of a green entrepreneurship ecosystem”. What is key though is that potential green entrepreneurs should be aware and have a comprehensive knowledge of the financing options available to them. “Knowing the differences and advantages of each tool is of paramount importance. Investors and banks look for different features and also represent

**“Based on our experience, it is important that the demand for green products and services come from the demand side, a case in point being green tourism, a phenomenon that evolved naturally by itself.”** El Mazouri

different opportunities in terms of growth, ownership, risk and future obligations”, Pani stressed.

Following the visit, Pani noted, “we can say that, even if the public sector doesn't support green economy to a sufficient degree and there is no strategy in place to market green business as a win-win sector, the country does represent opportunities. For example, there is potential to build the infrastructure necessary for fostering green entrepreneurship. If done correctly and if the process is set on the right track, its development could be accelerated”. It is clear that the Moroccan government has a comprehensive grasp of transitioning to a green economy and understands that this would provide benefits for both the ecological balance and the opening up of new opportunities for wealth creation and sustainable jobs. Environmental challenges like water scarcity, land degradation, high reliance on fossil fuels, climate change and pollution, together with the limited social development policies in place in terms of employment and reduction of social inequalities, presents a case for rethinking the current economy and promoting a move towards a green and inclusive one. El Mazouri believes that “it is important to start off on the right foot, that is, to find the right people to train”.

Another important point is the support offered to green entrepreneurs in terms of capacity building. SwitchMed has a decisive role to play in this regard, by generating a supply of entrepreneur-ready investors. Amaziane, from the Environmental Affairs Agency, added that “our main goal is to facilitate the creation of a self-sustaining ecosystem of green entrepreneurs. It will not only create synergies between like-minded projects, but could also boost economic growth in the country through job creation”.

# Wastewater treatment solution wins the Elevator Pitch in Morocco

## Zouhair Chakir's profile:

Zouhair Chakir CEO and founder of Stepmobile is Engineer in Process engineering and Environment. He is currently doing a PhD at the University of Hassan II. He has realised several internships at Lydec, OCP or MargAfrigue, where he acquired many skills in managing polluted water. In December 2016, Zouhair participated in the Social Entrepreneurship SEED EURO-MED Bootcamp in Algeria and in the WaterCampus Business Challenge in Netherlands, where he had the opportunity to meet and engage with other experts and start-ups in the Water Sector and pitch for StepMobile.

In 2014, Zouhair Chakir came up with the idea of Stepmobile after the new Moroccan laws started to require manufacturers to responsibly dispose of their wastewater. Chakir saw an opportunity to create a mobile wastewater treatment unit aimed at small and medium-sized businesses, with the relevant permanent infrastructure representing

an investment that was out of the reach of all but the largest of companies. And it was this initiative that won him the 2017 SwitchMed Elevator Pitch in Morocco.



Photo credit: @SwitchMed

### What has winning the Elevator Pitch meant for you?

Winning the green elevator pitch has opened up more opportunities for Stepmobile. For me, it was a great experience because it opened my eyes to the importance of doing a good job of publicising a project to attract its first customers as well as attention from investors.

### How did you hear about it?

I was looking for a strong eco-entrepreneurship ecosystem in Morocco, so I took part in the first edition of the SwitchMed programme, promoted by the Young Entrepreneur Foundation (FJE) and the Moroccan Network of Social & Solidarity Economy (REMESS). And I have remained connected ever since.

### Did you find that eco-system?

Yes. I discovered the whole Mediterranean network promoted by SwitchMed, and now I'm glad to be part of the selection of entrepreneurs that have received training and support.

### What kind of things did you learn?

Thanks to the training, I learned how to highlight the strengths of my business model and to dedicate the correct amount of time to each part of the presentation. I learned how to structure and develop my green business plan, how to define the right market and identify competitors, and design a communication strategy.

### And what about the feedback from investors?

After the presentation, I felt that I had successfully explained my project to the jury and emphasised its added value. The main lesson I learned from them, however, was about clarifying the financial aspect of my business plan. I realised that I needed to define that better, specifying the amount being asked for and how it would be spent in order to send a clear message to investors.

### What do you think it was that made your project the elevator pitch winner?

I think that Stepmobile responds to one of the most urgent environmental and social issues in Morocco: pollution and environmental degradation. My project focuses on the handling of untreated industrial water, particularly for small and medium-sized businesses through the use of a mobile wastewater treatment unit.

### How does Stepmobile work?

We visit the businesses of our customers with a mobile treatment plant and collect samples of wastewater in small bottles to analyse them, find out the chemical composition and classify them. Once we have the technical diagnosis, we configure the mobile treatment unit to match the customer's requirements, which could mean recycling or direct emission to the receiving environment. Then we install it and start the treatment. To start the treatment process, we set some operating parameters for the mobile unit by adding the press filter to separate the sludge generated and the treated water.

### What are the environmental impacts addressed by Stepmobile?

Proper wastewater treatment is essential to prevent a number of environmental and health problems caused by contaminated effluents. As Touria Jaouher from the Ministry of Water said in the Workshop on Sanitation, Wastewater Treatment and Reuse (ACT), industrial activity in Morocco is responsible for generating high levels of pollution that has an impact on marine life and wildlife, leading to oxygen depletion, beach closures and fishing restrictions, and, ultimately, effecting the consumption of fish, shellfish and crustaceans.

### And all this affects human health as well...

Yes, of course. There are many restrictions related to the consumption of drinking water. Bacteria, viruses and pathogens pollute the beaches and contaminate different species of shellfish, thus affecting beach access and water consumption.

### Wastewater pollution also generates other impacts that people are perhaps not aware of.

That's true, for instance, large amounts of decaying organic matter and debris can cause eutrophication, which means that the water contains an excess of minerals and nutrients, such as phosphorus and nitrogen, resulting in accelerated plant growth which reduces the amount of available oxygen.

### Is your standard customer aware of these issues?

With the new law, industry in Morocco is becoming more aware of environmental issues and the need to respect the environment, enabling companies to improve their image at the same time as respecting the legislative framework.

### What benefits does Stepmobile offer?

Small and medium-sized businesses lack the space to install treatment plants, the technical personnel needed to operate them and, even, the budget to implement permanent infrastructures. Stepmobile offers an innovative mobile purification service that does away with the need for a fixed treatment plant and reduces running and disposal costs. Other advantages are easy maintenance, reduction of water consumption through recycling, sludge volume reduction from 40% to 60%. It also eliminates the need to use expensive products, such as insolubilisers and flocculants.

### What is the biggest challenge for your business?

I believe it will be the immediate provision of customer service. We need to build consumer confidence by delivering high-quality results. I'm also planning to collaborate with the Moroccan government, but only once Stepmobile has cultivated a strong reputation in the private sector.

### And your specific goals?

I believe that Stepmobile will change industrial water treatment in Morocco and Africa! Within five years, we expect to install and pilot 60 mobile units in Morocco to help reduce industrial pollution by 15%.

### Finally, what are the next steps for your project?

We have a complete management system plan involving water treatment and the management of sludge and waste to generate a biomass energy source. Although, due to a lack of financial resources, we are still in the research and development phase, we expect to recover the investment of the first unit to fund the next phase of the project.

# Thermal fabrics replace fuel in Morocco

The smoke produced by cooking fires billowing from houses is a common sight in rural areas of Morocco. Powerful pollutants such as butane gas, wood and coal are frequently used for everyday activities as an alternative to electricity, due to its high cost. According to the Organisation for Economic Co-operation and Development (OECD) and the International Energy Agency (IEA), families in rural areas use around two tonnes of firewood per year for cooking purposes, causing global deforestation and chronic respiratory diseases. The World Health Organisation estimates that 1.5 million people, mostly women and children, die prematurely every year as a result of exposure to indoor air pollution from the use of solid fuels, which equates to more than 4,000 deaths per day.

Concerned by this problem, and after visiting several rural Moroccan regions as part of their social university work placements, Eco-Heat's three co-founders, Othmane Benhlila, Soumia Hasnaoui, and Imane Mekkaoui, came up with the idea of creating a portable slow-cooker consisting of an isothermal bag using technology based on the thermodynamic principle of heat retention. The stove, which bears the same name as the company, was designed to save time, effort and energy. It is a simple electricity-free bag entirely made of cloth, so not only is it kinder to the environment, it is also washable and reusable. The eco-design process was essential to successfully developing the product, the ellipsoidal shape of which makes it much more effective at retaining heat. The principle behind the eco-bag involves using a small amount of fuel to boil food for 20 minutes, and then, once boiled, the dish can be placed inside the thermal bag to continue cooking for a further 90 minutes to five hours. This slow cooker method represents a saving of up to 75% of the butane gas or 55% of the wood that would typically be used. Although Eco-Heat was initially developed as a solution for cooking in rural communities, the young start-up have realised that it also offers benefits as a time-saving product for urban communities. The team is also planning to market it for travellers and campers. With these other markets in mind, Eco-Heat has developed a tiered pricing scale so that urban sales would subsidise the costs for rural consumers.

In order to achieve balanced growth, Eco-Heat intends to strengthen both its production capacity and its sales force, which this grant will certainly help with. To date, the initiative has successfully changed the lives of ten people who are now working on designing reusable eco-friendly bags and earning a monthly income. The company has a production capacity of 200 bags per month, with 150 units already sold in Morocco and 130 in Senegal. Eco-Heat's three co-founders use their engineering skills and their power of entrepreneurial action to transform lives and shape a more sustainable development model. They believe that comfort, quality and efficiency are the essential ingredients to improving quality of life for everyone.

Eco-Heat's ingenious combination of technology, innovation and ecological design resulted in the project being selected as one of the six winners of the SwitchersFund's first ever OSCE GEMS Awards. Each winner, from one of the programme's six participant countries (Tunisia, Morocco, Jordan, Egypt, Israel and Algeria), was awarded a 15,000-euro grant. The successful finalists were chosen from 240 young entrepreneurs with projects that, like Eco-Heat, are addressing important environmental problems, developing the circular economy and promoting sustainable lifestyles. The selection criteria was based on the innovativeness and scalability of their idea, the environmental and social impacts of the project and the sustainability of their business model. The mission of SwitchersFund is to encourage green and social entrepreneurship in the Mediterranean region, while connecting financiers and investors with innovators. The awards aim to provide an additional injection of funds to the Switchers, the innovative entrepreneurs involved in designing new products and services by applying eco-design principles, who are contributing to making sustainable consumption and production in the Mediterranean area a reality.

# 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.

**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 m<sup>3</sup> 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 labeling 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 PEFs on a specific product that they export or plan to export in the EU. Their motivation to participate in this activity, even though the PEFs 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 PEFs, 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 adaption of greener standards for the national manufacturing businesses in order to compete on equivalent terms in the EU market.

# Textile from Morocco spinning off on eco-innovations from the EU

The SwitchMed B2B events in Morocco presented Italian eco-innovative textile yarn from recycled polyester that could lead to new market opportunities for Moroccan textile producers with eco-friendly products and circular supply chains.



Photos credit: @UNIDO

Plastics are a versatile and popular material that has become an omnipresent resource in our everyday lives. Unfortunately, plastics also increasingly influence the waste streams from our societies, creating an abundant pollution in our oceans and environment. Finding ways to recycle and re-consume plastics would therefore not only be an interesting opportunity to reduce this pollution, but it could also become an interesting resource for textile producers.

An innovation, developed by the SUPERTEX project, is aiming to demonstrate that post-industrial and post-consumer polyester waste can be exploited in the textile industry for the production of high added value multifilament yarns to be applied in the production of technical textiles. An innovation by SUPERTEX involved the transformation of post-industrial and post-consumers polyester wastes into multifilament thread production used for technical uses such as the automobile sector or textile. Recycled polyester threads from SUPERTEX can be treated in the same way as virgin thread, where additional functionalities may be added such as fire retardant characteristics. This eco-innovation demonstrates that the use of recycled plastics as a raw material for the textile industry is a promising approach for the reuse of post-consumer waste.

The SUPERTEX project has been coordinated by Next Technology Tecnotessile and is a private research organisation enrolled among the laboratories recognized by the Italian Ministry of Education, University and Research (MIUR), operating for the improvement of technological innovation and the competitiveness of companies. Participation in R&D and technology transfer projects has allowed it to consolidate a vast network of links and collaborations, with the most important industrial companies, universities, research centres and companies service operating in Italy, Europe and worldwide.

The eco-innovative solution from SUPERTEX was, among others, selected for the B2B event organized by UNIDO within the framework of the SwitchMed initiative in Tunisia and Morocco. The promotion of eco-innovations from the EU that could create new business opportunities for Moroccan businesses and provide them with new innovative solutions in recycling plastics, raised the interest from Moroccan companies and industry stakeholders on the issue of upgrading supply chains for reused plastics.

During the BtoB meetings held on October 26<sup>th</sup> in Morocco, Next Technology Tecnotessile held meetings with the C2TMm a Moroccan cluster for technical textiles, and the company POLYFIL, specialized in yarn production (spinning, texturing, grinding and dyeing PET Polyester yarn).

Created in 1990, POLYFIL is based in Berrechid, south of Casablanca, and lays over 85 000 m<sup>2</sup> and is equipped with automatic production lines with an annual capacity estimated at 5,500 tons of yarn. The company is considered to be the regional leader in the development, production and marketing of continuous polyester yarns. POLYFIL produces dyed, super-bright, semi-dull polyester yarn 100% PET. Besides fabrics for automotive market, the yarn is reserved for furniture and decoration, sportswear, trimming and dressmaking accessory.

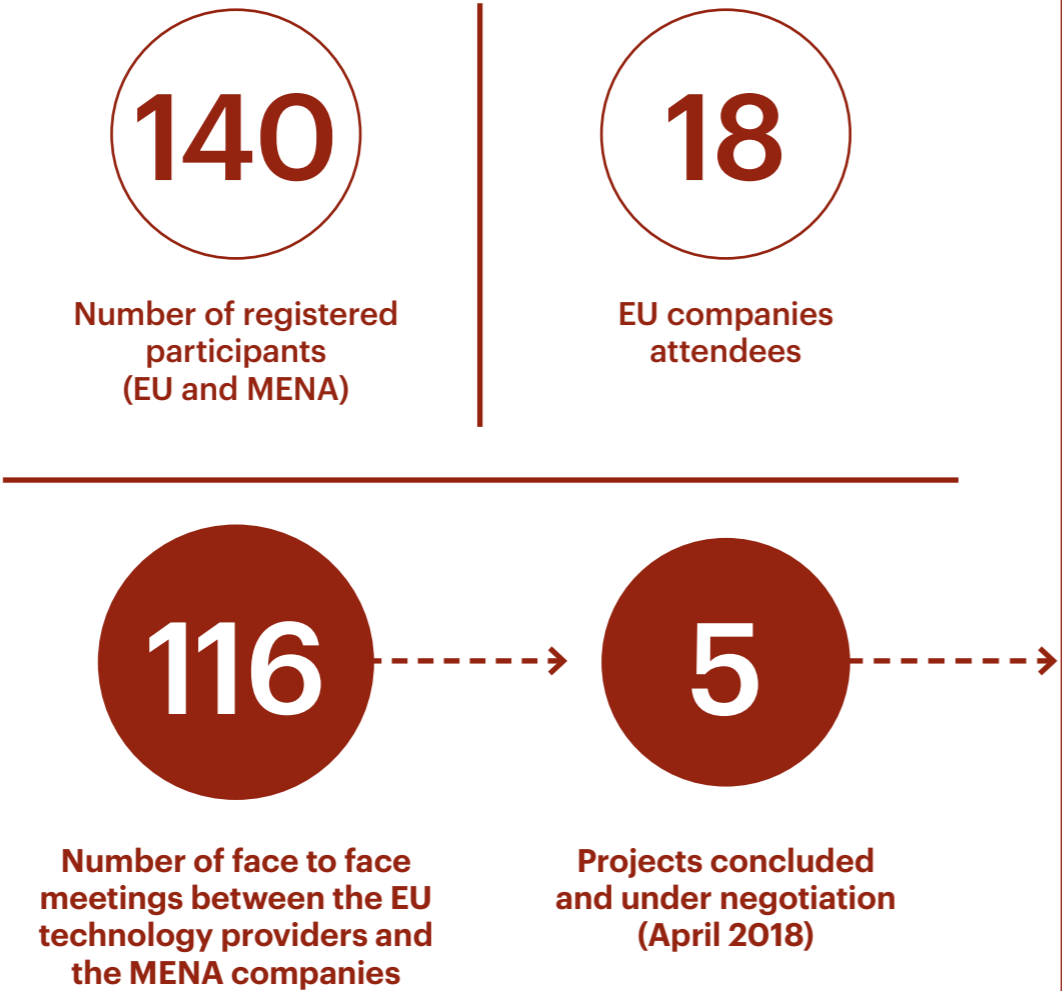
Since 2008, POLYFIL oriented its development strategy towards the internationalisation of its products. The automotive market was the focus of this new policy. Spain and France were the first destinations for its products. Since then, POLYFIL has steadily increased its customer portfolio abroad. Today, she has a wide range of clients in Europe and North Africa, operating in particular in the automotive sector, but also in technical textiles. POLYFIL is REACH, Imanor and Veritas certified.

Ms. Imane Saadane, R&D manager at POLYFIL, states that their production of PET yarns on an industrial scale generates every year about 400 tons of PET scraps (50% of which contain finish oil). Those wastes are generally either dumped or sold at a very low price to informal waste brokers. Discussions were held along with C2TM and Next Technology Tecnotessile about a possible application of this material for different applications such as recycling into technical textile.

POLYFIL is extremely interested in the innovation presented in the SUPERTEX Project and would like to plan a deployment of this technologies at POLYFIL's facilities. At the time of the meetings, POLYFIL was already looking for solutions to recycle and upgrade its wastes.

At this point, through C2TM, POLYFIL has sent an official invitation to Mr Daniele Spinelli from Next Technology Tecnotessile to come for a visit at the factory to give him a detailed idea of the existing situation. Information is being exchanged back and forth: Next Technology Tecnotessile is studying the feasibility of such collaboration providing an offer to POLYFIL for the development and realization of non-woven components from process co-products (PET scraps). The design and production of textile prototypes (yarns), possibly mixed with other fibres (wool, cotton etc.), for the determination of the process solutions to reuse the scraps into textile manufacturing cycles will be considered.

# Promoting eco-innovative solutions from the EU for Moroccan SMEs



CETMA Italy, EU Partner		+ BROSACHEL Partner in Morocco	
Type of license: Technology transfer	Studying phase: 25/45.000€ - investment under evaluation	Sector: Plastics	Environmental savings: 162 tons/year recycled polypropylene

NEXT TECNOTESSILE Italy, EU Partner		+ POLYFIL Partner in Morocco	
Type of license: Technology transfer	Investment: Under evaluation	Sector: Textile and garments	Environmental savings: 400 tons/year of PET scraps

JEANOLOGIA Spain, EU Partner		+ MOROCCAN DENIM CLUSTER Partner in Morocco	
Type of license: Technology transfer	Investment: 143.000€ (New Wash)	Sector: Textile and garments	Environmental savings: 250.000 to 300.000 m³/year water (national forecast)

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

INESCOP Spain, EU Partner		+ MTI Partner in Morocco	
Type of license: Technical assistance	Investment: Under evaluation	Sector: Leather and shoes	Environmental savings: To be defined

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 current strategic partners are:



Credits

Concept  
SwitchMed

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