Circular Economy: Rethinking the Way in which We Produce and Consume Is an Opportunity for a Smart Development in the Mediterranean

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The Shift to a Circular Economy: Rethinking Our Economic Model

There is a growing understanding among us of the urgency of addressing climate change and the abatement of the planet's finite natural resources, processes that are having a profound effect on our welfare, our children and our grandchildren. As regards climate change, the agreement recently reached in the 20th Conference on Climate Change in Paris was supposed to represent a turning point in the commitment of policy makers and big corporations to pave the way towards a socio-economic model that addresses this global environmental challenge. However, depending on who you ask or what you read, you may reach quite contradictory conclusions. While many governments and stakeholders that joined the event described the agreement as an historical milestone in the fight against global warming, some renowned scientists, such as James Hansen,[1] see the Paris Agreement as a big fraud.

As a matter of fact, according to the Paris agreement, countries shall strive to establish the measures to ensure global warming stays "well below" 2 degrees Celsius and to "pursue efforts" to limit the temperature rise to 1.5 degrees Celsius (according to the scientific community a rise of the global temperature by more than 2 degrees Celsius would lead to global warming with catastrophic consequences for our civilization). Many have claimed, however, that the agreement failed to establish a clear roadmap to reducing greenhouse emissions and avoided referring to targets for shifting to a low carbon economy that replaces fossil fuel energies (oil and carbon) with alternative and renewable energies.

But global warming is neither the only nor even the most pressing environmental challenge threatening our immediate present and future: air pollution causes more than three million premature deaths each year, nearly a million more than AIDS and malaria; and, thanks to the 270,000 tonnes of plastic floating on the surface of the ocean, 700 marine species are in danger of extinction. Another inconvenient truth is the existence of toxic substances in consumer goods. The so-called endocrine disrupting chemicals (EDCs) are related to altered reproductive function in males and females, increased incidence of breast cancer, abnormal growth patterns and neurodevelopmental delays in children, as well as changes in immune functions. According to the World Health Organization, EDCs are found in various food and personal care products because of production processes that rely heavily on pesticides, metals and additives that are toxic or contaminant.

Faced with the scale of these global challenges, an increasing number of renowned international organizations, including the World Economic Forum, EU, OECD, etc., are seeing the shift from linear to circular economies as the solution to definitively decoupling economic development and welfare from the continuous degradation of the planet's environment

[1] James Hansen is a NASA scientist and was one of the first people to warn the world of the risks of Climate Change three decades ago.

and its consequences to human health and our survival. And their arguments would seem to hold water. A new study from the Club of Rome has concluded that by moving to a circular economy, carbon emissions could be cut by almost 70% by 2030.

The Ellen MacArthur Foundation is currently one of the most active organizations advocating for a circular economy and brings together more than 100 members from across the economy, including big corporations, SMEs, governments, cities and academic institutions. According to the Foundation a circular economy is: "one that produces no waste and pollution, by design or intention, and in which material flows are of two types, biological nutrients, designed to reenter the biosphere safely, and technical nutrients, which are designed to circulate at high quality in the production system without entering the biosphere as well as being restorative and regenerative by design." This vision of the economy opposes today's predominantly linear one, based on "Take, Make, Dispose" consumption and production processes and the lifestyles that feed on them, which deplete finite resources to create products that end up in landfills or incinerators.

Moving to a circular economy involves redesigning goods and services so that they are produced and consumed in a way that industrial and socio-economic development is non-pollutant, no-waste, low-carbon, resource efficient and socially inclusive.

Entrepreneurs are the Main Drivers in the Transition to Circular Economy Models in the Mediterranean

In 2012, Yair Teller and Oshik Efrati founded HomeBiogas, an Israeli startup producing innovative biodigesters for domestic production of free and clean energy, by transforming organic waste into biogas and fertilizer. Every day, the digester can treat about six litres of food waste or 15 litres of organic material of animal origin. It can produce about 600 litres of clean gas per day (equivalent to three hours of cooking) and six litres of high quality liquid fertilizer. Likewise, according to its creators, HomeBiogas enables each user to reduce up to six tonnes of CO_2 emissions per year. This system also offers an innovative solution for remote areas that have no access to electricity. In 2015, the company installed 40 digesters in the Palestinian village of Al Awja as part of a project funded by the European Union.

Chennouf Farm is a farm that grows pears and olives in the area of Manouba, north of Tunisia. In 2015, the company built an agroforestry waste recycling unit. By using biomass waste found in wood, bark, straw, etc. it manufactures high-performance fuel briquettes, an ecological and cheap alternative to the use of firewood, a major contributor to deforestation. This initiative has allowed the Chennouf Farm to diversify its sources of income in an agricultural sector subject to many difficulties. In addition, it ensures the continuity of activity outside the harvesting periods. Thus, the company has been able to hire ten new employees since the inception of its recycling plant and plans to double this number to meet growing demand.

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VEA™ is a Lebanese fashion brand producing high quality bags and fashion accessories. Their products are made of old tires and rubber inner tubes from bicycles, cars and trucks, which VEA collects to convert into elegant creations sketched by local professional designers exclusively for the company. They are then manufactured in an environmentally sustainable manner.

These are just a few examples of an increasing movement of entrepreneurs and businesses that are leading the transition towards circular economies in Mediterranean countries. Governments of the region and organizations promoting cooperation among the countries are becoming aware of this. They are now striving to develop the necessary policy reforms and economic instruments required to provide the appropriate incentives and signals, which in turn will accelerate the shift to

models of consumption and production that are sustainable and congruent with a circular economy approach.

One good example of the cooperation between EU countries and their Mediterranean partners from the southern and eastern basin is SwitchMed. This five-year programme founded by the EU promotes a package of measures to provide technical support for policy makers, businesses, entrepreneurs and civil society organizations in developing measures to boost eco-efficiency and eco-innovation. The *TheSwitchers.eu* platform, developed under the programme showcases successful case histories of entrepreneurs and SMEs from Mediterranean countries and the main economic sectors (food, tourism, housing, waste). It provides a space for inspiring and connecting those who want to join the increasing number of Mediterranean champions of circular and eco-innovative economies.

The Mediterranean Region Desperately Needs a Major Paradigm Shift

The Mediterranean region desperately needs a major paradigm shift in the way in which goods and services are consumed and produced to decouple development from environmental degradation and resources depletion. The environmental challenges deriving from our current model of development are especially critical in the Mediterranean region. The figures speak for themselves. The region has been identified as one of the two most responsive regions to climate change globally. The recent IPCC Fifth Assessment Report considers the region as "highly vulnerable to climate change," and an area that "will suffer multiple stresses and systemic failures due to climate change." Mediterranean countries generate 20 million tonnes of hazardous waste and the coastal regions alone generate another 20 million tonnes of municipal solid waste (representing at least 41% of the amount generated at national level). The seabed of the northwest area of the Mediterranean Sea plays host to the highest quantities of plastic debris in the world (1,935 items/km^2).

Despite existing differences between northern Mediterranean countries and southern and eastern Mediterranean countries, as far as their contribution to environmental degradation is concerned (272 kg of municipal solid waste were generated per person In MENA countries in 2010, while 503 kg were generated per person in 2011 in the EU27), statistics show a rapid growth in MENA countries, both in terms of resource consumption trends (e.g. electricity consumption in MENA countries may triple by 2025) and in pollution generation (e.g. waste generation could triple in MENA countries while doubling in those in the northern region).

An increasing movement of entrepreneurs and businesses are leading the transition towards circular economies in Mediterranean countries

Likewise, pollution risks are expected to increase greatly especially in MENA countries, given the strong industrial growth projected for those countries to meet increasing demands due to population growth and rising living standards (e.g. steel production could reach 50 million tonnes by 2025 and cement production increase by more than 150%).

In the Transition to a Circular Economy, the Determined Commitment and Involvement from All of Society's Stakeholders is a Must

Aware of these challenges to the region's prosperity and development, Mediterranean governments are striving, both at the regional and national level, to initiate policy reforms that can accelerate the adoption of techniques and strategies and thus enable the shift to new circular economy consumption and production models. At the national level, many of them are doing this either through new sectorial regulations addressing strategic sectors (waste, tourism, industry, food, education, etc.) or specific national plans or strategies on green economies or sustainable consumption and production.

At the regional level, progress to establish clear common measures and objectives for a transition to a circular economy are also starting to be made. At the European level, the recently adopted EU Circular

Economy Package is an example of how Europe is moving in that direction. Likewise, the circular economy is becoming a priority for the two main policy frameworks for cooperation among the Mediterranean neighbourhood countries, namely the Barcelona Convention and the Union for the Mediterranean (UfM). Both initiatives have identified the change to sustainable patterns of consumption and production as a priority for the development and prosperity of the region.

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During the last Conference of the Contracting Parties to the Barcelona Convention[2] held in February 2016 in Athens, the 21 Mediterranean countries represented by their Ministries of Environment adopted a Mediterranean Action Plan on Sustainable Consumption and Production. The document constitutes a forward-looking framework for moving towards a circular economy in the region. Previously the UfM Ministerial Meeting on Environment and Climate Change, held in 2014 also in Athens, had identified sustainable consumption and production as a priority axis for action for cooperation among the 43 member countries of the UfM.

Nevertheless building and mobilizing political commitments is only the first step. Actually moving to circular economies will only be achieved through a combined effort from all society's stakeholders, including policy makers, businesses, retailers, financial agents, academia, civil society, citizens and so on.

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EU SwitchMed Programme: www.theswitchers.eu; www.switchmed.eu

www.onegreenplanet.org/environment/marine-species-extinction-and-plastic-pollution/

www.who.int/ceh/risks/cehemerging2/en/

www.ellenmacarthurfoundation.org

[2] Barcelona Convention is the abbreviation for the International Treaty *Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean.*