Assessment of Pollution Reduction Programmes in the Mediterranean Region

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An institutional cooperation framework to deal with common problems of environmental pollution, the Mediterranean Action Plan (MAP) is celebrating its 40th anniversary this year. This provides the ideal opportunity to assess Mediterranean pollution reduction programmes and calls for a historic perspective. After reviewing the establishment of the MAP system, we can move on to the birthday of the Horizon 2020 initiative, aiming to reduce pollution in the Mediterranean 10 years on, and take stock of the programmes implemented as of 2005.

The Mediterranean: a Sea under Great Pressure

The Mediterranean Sea represents well over 1% of the surface area of the seas on the planet. The cradle of humanity, it has experienced accelerated degradation in the 20th century due to uncontrolled urban development associated with unsustainable development of coastal activities. The population of Mediterranean countries has experienced constant growth over the past 50 years (see Chart 16); it has doubled, going from 240 million in 1960 to 480 million in 2010.

During this same period, the urban population in the region experienced significant growth: in 1960, it represented 48% of the total population of Mediterranean countries, whereas in 2010 approximately 67% of the total population was living in urban areas. The majority of this urbanisation took place along the coast (Map 1). The growth of coastal cities of southern countries was very high in this period. For instance, Shubra el-Kheima (Egypt) saw its population multiplied by 28 to reach a million inhabitants, the populations of Amman, Rabat and Istanbul grew 10 to 15 times their size, those of Damascus, Beirut, Ankara, Casablanca, Tel Aviv and Algiers five to 10 times, and those of Cairo, Tunis and Alexandria three to five times.

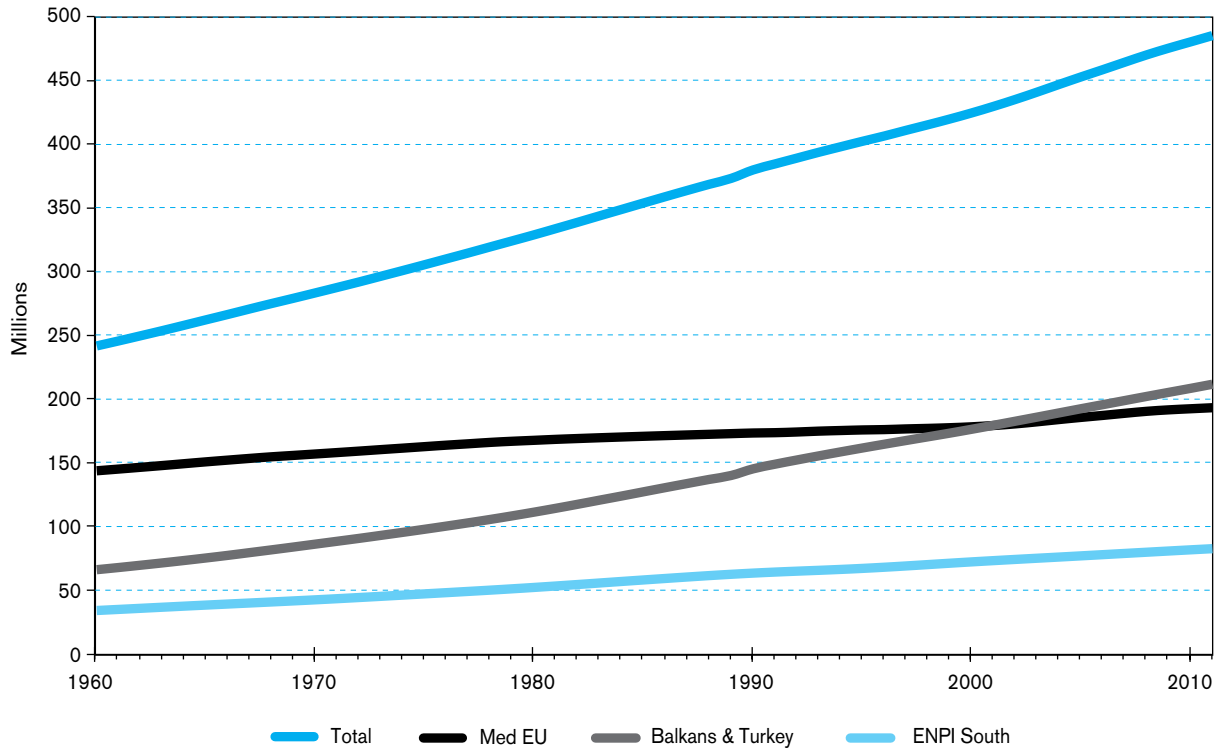
The increase in maritime traffic and generalised overfishing have raised the pressure on natural resources and the environment. The modification of the consumption model has entailed a spectacular increase in the quantity of waste produced as well as the volume of water used then discharged. This depredation in general, and pollution in particular, seriously jeopardise the economic development of countries in the region and the quality of life of the people living along the seaboard.

Implementation of the Mediterranean Action Plan and its Components

To meet these challenges, the Mediterranean countries and the European Community established the Mediterranean Action Plan (MAP) in 1975, the first regional sea conservation programme placed under the auspices of the brand new United Nations Envi-

[1] The opinions expressed in this article pertain to its author and do not necessarily reflect UNEP/MAP's or Plan Bleu's points of view.

CHART 16 **Evolution of the Population in Mediterranean Countries (1960-2011), in Millions of Inhabitants**



Sources: Plan Bleu, United Nations and national sources, 2013.

ronment Programme (UNEP). A year later, the Convention for the Protection of the Mediterranean Sea Against Pollution, known as the Barcelona Convention, was adopted, its two first protocols pertaining to pollution prevention. Other protocols would follow, from 1976 to 2002 (i.e. the Dumping, Pollution from Land-Based Sources, Offshore, Hazardous Wastes, and Prevention and Emergency Protocols), some of which were subsequently revised. Two more protocols – Specially Protected Marine Areas and Integrated Coastal Zone Management – were adopted in 1999 and 2008, respectively.

To implement its pollution reduction programme, the MAP first set up a network of resources (Programmes and Regional Activity Centres) and stakeholders through national focal points in order to foster technical cooperation between the Parties to the Barcelona Convention. The Programme for the Assessment and Control of Marine Pollution in the Mediterranean, i.e. MED POL, was established as MAP's first operational programme. Its mission has been progressively expanded so as to help Mediterranean countries formulate and implement programmes to monitor and control pollution and devise action plans designed to reduce pollution from land-based sources.

In order to prevent pollution generation at its source and ensure efficient use of resources, a Regional Activity Centre for Cleaner Production (now known as the Regional Activity Centre for Sustainable Consumption and Production – SCP/RAC) was created in Barcelona in 1996 to assist the Parties in applying the best technology and sustainable environmental practices available.

Action Programmes for Reducing Pollution in the Mediterranean

It is important to return to 1997, year in which the Contracting Parties to the Barcelona Convention adopted a Strategic Action Programme that is still in effect, the SAP MED. It comprises regional and national activities to combat pollution from land-based sources. A MED POL initiative, the SAP MED has identified priority target categories of polluting substances and activities that Mediterranean countries should eliminate or control according to a timetable

with a 2025 horizon. With its pollution hot spots, the SAP MED essentially targets urban and industrial activities responsible for releasing persistent, bioaccumulative, toxic substances (PBTs) into the marine environment, more specifically, persistent organic pollutants (POPs).

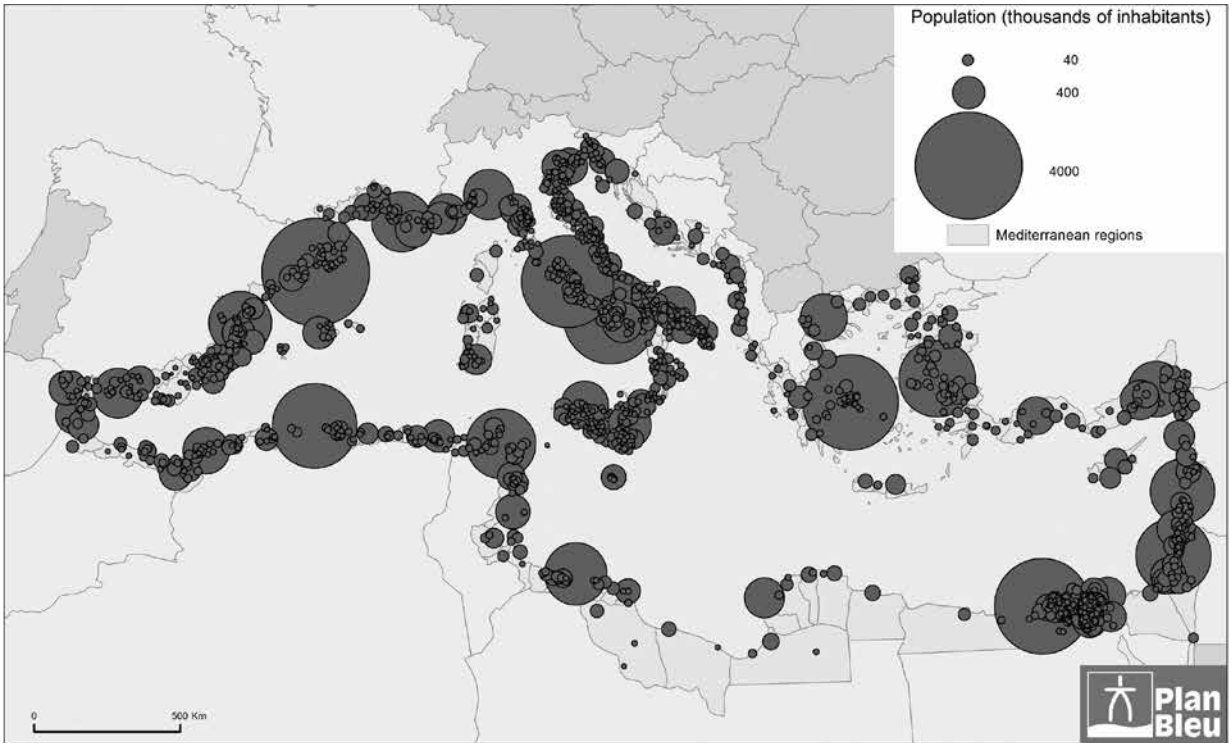
With the support of the Global Environment Facility (GEF), the SAP MED succeeded in 2005 in having countries commit to establishing a National Baseline Budget of Coastal Emissions and Releases and devising a National Action Plan (NAP) to combat marine pollution from land-based sources through concrete projects. The NAPs presented an investment portfolio structured according to the spheres of the main pollution sources.

Also in 2005, the Euro-Mediterranean Partners and major financial institutions committed to the Horizon 2020 Initiative, also known as H2020, designed to reduce pollution in the Mediterranean Sea by the 2020 horizon by struggling against land-based sources of pollution, which are responsible for 80% of the general pollution in the Mediterranean Sea: urban wastewater, municipal waste and industrial pollution. H2020 has been integrated into the work done by the Union for the Mediterranean (UfM). Activities are organised into three subgroups: Pollution Reduction Investment, coordinated by the European Investment Bank (EIB); Capacity Building, coordinated by a federation of Mediterranean NGOs (MIO-ECSDE); and Review, Monitoring and Research, coordinated by the European Environment Agency (EEA).

In 2008, the Contracting Parties used the MAP to implement the ecosystem approach (EcAp) for managing human activities having an impact on marine and coastal ecosystems in the Mediterranean In order to achieve their "good environmental status." The MAP ecosystem approach has seven stages: 1) establishing a vision for the Mediterranean; 2) drawing up strategic objectives to attain that vision; 3) assessing priority issues; 4) establishing ecological objectives; 5) determining the associated operational objectives, indicators and targets; 6) developing a monitoring strategy; and 7) devising measures designed to attain the strategic objectives.

EcAp represented both a profound change vis-à-vis previous sectoral approaches, and synergy with the Marine Strategy Framework Directive (MSFD) apply-

MAP 1 **Population of Coastal Mediterranean Cities (latest available year)**



Sources: UNEP/MAP/Plan Bleu, based on different sources, 2013.

ing to EU countries. In 2015, stages one to five of the EcAp were completed while stages six and seven are under preparation.

External Financing Indispensable for the Implementation of the National Action Plans

In 2008, under the aegis of the MAP, the MedPartnership project was launched to ensure the financial viability of the National Action Plans (NAPs) through financing via the Global Environment Facility (GEF), the MAP's Mediterranean Trust Fund (MTF) and such financial institutions as the EIB and the World Bank, as well as a number of regional and international organisations. The NAPs project portfolios were extensively used by Horizon 2020 to guide priority de-pollution investment choices.
The Mediterranean Hot Spot Investment Programme (MeHSIP) was created in 2009 by the EIB to provide support for the investment component of the H2020 Initiative. It has contributed to the creation and implementation of infrastructure projects, particularly for the reduction of the hot spots identified in the NAPs.

Taking Stock

Recent evaluations, namely the evaluation of the first phase of H2020 and that of SAP MED and NAPs implementation, have allowed an assessment of Mediterranean de-pollution programmes since 2005.

Pollution Reduction

Progress in the sphere of wastewater treatment is uneven in the Mediterranean area. There is improved access to sewage systems, but the functioning of treatment plants remains poorly known and the elimination of sludge by-products from these plants is not yet satisfactory.
Industrial pollution remains high and is even increasing in certain sectors: energy production, refinery and chemical industries, the agrifood industry, cement production and metalworking. Excess nutrients have detrimental effects (eutrophication) in certain areas with a significant inflow (Gulf of Lion, Nile Delta) or in relatively landlocked waters (lagoons, northern Adriatic).

The quantity of municipal solid waste produced is continually on the rise due to the increase in populations and standards of living. Changes in consumption patterns make waste less biodegradable, with a growing proportion of plastic. The collection, particularly in rural areas, and treatment of municipal solid waste is still insufficient in the southern Mediterranean. Significant efforts have been made to close uncontrolled dump sites and open controlled landfills. However, landfills are often open air in southern countries. The proportion of recycled or composted material is still low, hardly surpassing 10% of the volume collected. Part of this waste enters the sea and accumulates on the surface, on the seafloor and on beaches via marine currents. A Regional Plan for Marine Litter Management was adopted in 2013 through MED POL.
In sum, assessments show that progress has been made in wastewater treatment and, to a lesser degree, also in solid waste treatment, but a great deal remains to be done to reduce industrial pollution. In certain cases, the pressure from population growth and industrialisation combined with the emerging effects of climate change is growing more quickly than the effects of the measures taken.

Monitoring the State of the Environment

Based on regular monitoring undertaken within the MAP framework, the project for a Shared Environmental Information System (SEIS) implemented by the EEA and supported by the European Neighbourhood and Partnership Instrument (ENPI) has helped establish the first elements of a joint mechanism for information production. Establishing a sustainable, lasting and pertinent system will require even more efforts on the regional and country levels, namely to handle implementation of the Ecosystem Approach (EcAp).

Investment Efficiency

Concerning investment, recent assessments have shown MED POL pollution hot spot identification to be an effective targeting tool. The review underway of the NAPs and hot spots by MED POL should furnish a new basis for identifying future priority projects. In terms of methodology, assessments have confirmed the importance of ensuring constant sup-

port at all stages of project development, fostering investment and ensuring the financial sustainability of the economic sectors concerned.

Capacity Building

The legislative framework required to meet the commitments of the Barcelona Convention and its Land-Based Protocol has been widely established in the countries concerned, but its implementation remains a challenge. The Capacity-Building Programme, supported by H2020, was appreciated for the broad spectrum of training it offered. The European programme to prepare Eastern European countries for accession has helped them integrate H2020 goals.

Stakeholder Involvement

H2020 has enhanced the cooperation dynamics between regional structures and programmes, between the Barcelona Convention and the MAP, and other more recent ones such as the UfM Secretariat. Nonetheless, coordination and cooperation must be stepped up among H2020 subgroups, financial institutions and funding agencies, as well as on the national level among the different agencies involved. One point of concern is the growing number of national focal points chosen for the different initiatives, which could be a factor of dispersion. And finally, civil society and private sector participation needs to be reaffirmed and boosted.

A Race between Growing Pressure and Implementation of Measures

The complexity of the range of pollution reduction programmes should not obscure the fact that the Contracting Parties to the Barcelona Convention have maintained the capacity of the MAP to federate efforts and focalise significant resources on pollution reduction in the Mediterranean over time. These resources are primarily supplied by the European Union, especially through H2020, but third countries are effectively associated and contribute to the collective effort. Numerous results can be highlighted, such as: the significance of investment made to reduce pollution at hot spots, the significant increase in the number of coastal cities equipped with wastewater treatment facilities and the implementation of both the EcAp initiative and the Regional Plan for Marine Litter Management. Several avenues for progress have been identified in the H2020 2015-2020 work programme, in particular: strengthening national environmental legislation and its application; updating priority investment projects to secure their funding and ensure their implementation; the need to collect data in application of SEIS principles, namely to implement the EcAp and gain a precise overview of the state of the Mediterranean Sea; and the need to improve the interface between science and policies with regard to environmental issues, particularly in order to identify new priorities. In any case, it was acknowledged at the May 2014 UfM Ministerial Meeting on Environment and Climate Change in Athens that "unless the efforts to de-pollute the Mediterranean Sea by 2020 are considerably intensified, the [H2020] goal will not be fully met."

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