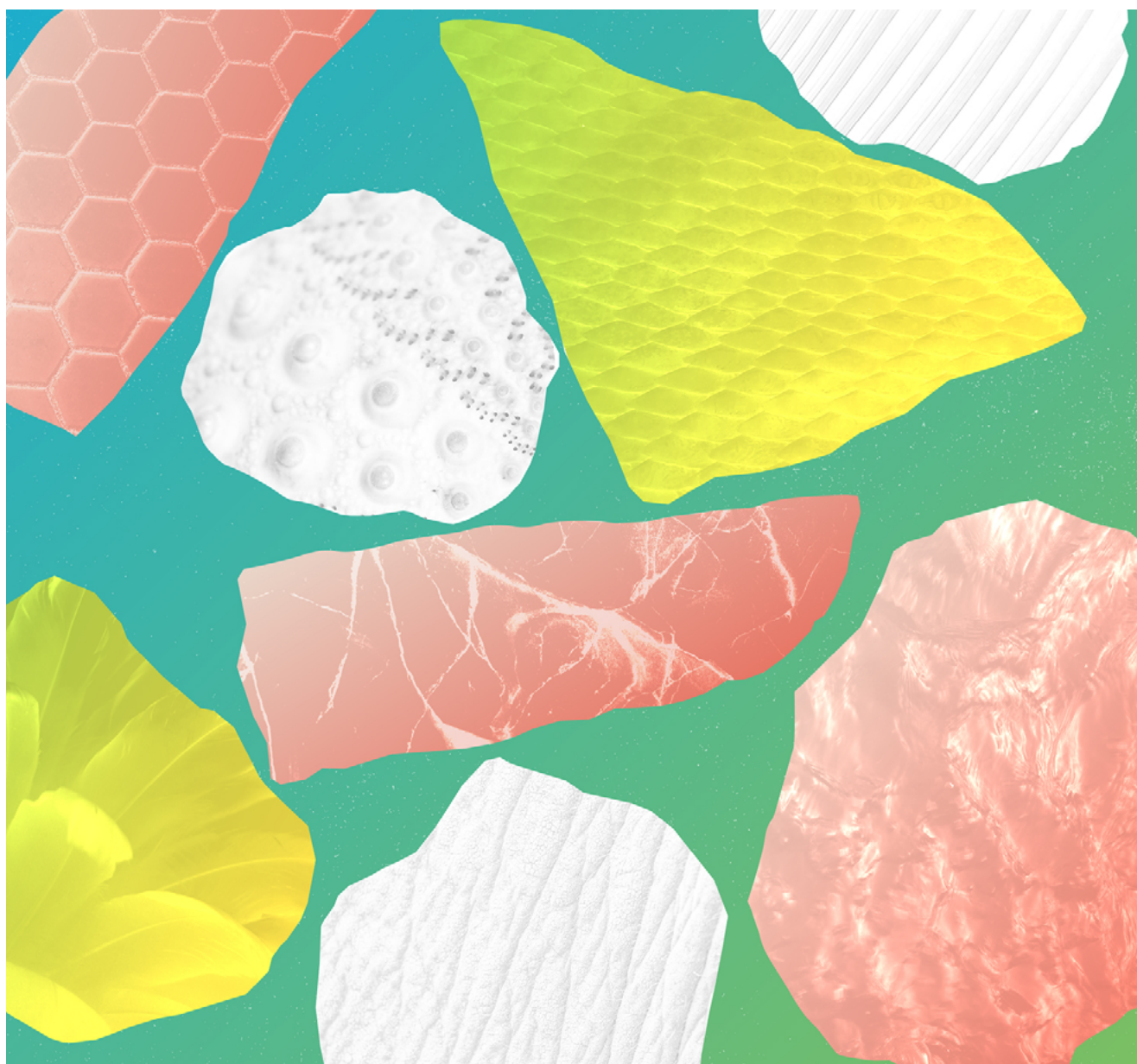


MED 2050

THE MEDITERRANEAN

BY 2050

A foresight by Plan Bleu - Summary



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I. MED 2050: WHY? HOW?

Plan Bleu was created in 1977 as one of the key components of the Mediterranean Action Plan (MAP) under the United Nations Environment Programme (UNEP).

Its tasks include producing studies for decision-makers and civil society in all Mediterranean countries, particularly analyses of long-term trends for the Mediterranean sea and basin. This forward-looking dimension has therefore always been one of its key areas of work. MED 2050 is the third foresight exercise carried out by Plan Bleu, following exercises in 1989 and 2005.

This exercise was launched in December 2019 at the request of the countries of the Barcelona Convention, in a context of a sharp acceleration of threats to the Mediterranean. It looks forward to 2050, with three objectives:

- Anticipate changes in the Mediterranean ecosystems, particularly marine ones, over the next three decades, and determine the conditions for its long-term resilience ;
- Shed light on the region's transition towards sustainable development, which is essential to the protection of these ecosystems;
- Identify major risks of crisis or disruption and prevent those that could have a negative and decisive impact on the two previous objectives.

The development of the sea is therefore at the heart of this exercise, but it is anticipated in all its interdependencies: with the watersheds, the coastline and maritime activities, but also with the development of the region and the global changes that will increasingly affect it¹.

MED 2050 is characterised by three key methodological features:

- It is not just a projection of what will happen in 2050, but a foresight study in the full sense of the term, incorporating potential disruptions, stakeholders' visions of the future of the Mediterranean, contrasting scenarios of possible developments, and the beginnings of transition pathways towards scenarios that seem desirable. The diagram below shows the five main steps in taking into account all these approaches.

- All dimensions of the future are considered from a systemic perspective: the direct pressures of human activities, but also the ecological dynamics, geopolitics, the economic context, cultural and societal changes, modes of governance, and new technologies, etc.
- The process was as collaborative as possible, despite a context marked by COVID, with more than one hundred experts² from around twenty countries involved, and the consultation of key figures and young people from the Mediterranean Basin.



¹ Compared with the two previous foresight exercises by Plan Bleu, MED 2050 is therefore unique in that it takes into account three levels of interdependence: the scope of the Barcelona Convention, sustainable development of the region and global changes at world level.

² These included the 25 members of the Foresight Group, who played a major role.

MAIN PROJECT PHASES

5 - PHASE FORESIGHT

Preparatory work
Resources mobilisation
Development of the MED 2050 network

Phase 1

Development of foresight base: trends, disruptions, weak signals and major challenges. Drafting of factsheets for around thirty system components

Phase 2

Gathering of contrasting visions on the future of the Mediterranean up to 2050, with a focus on the perspectives of young people and around fifty key figures from the region

Phase 3

Development of contrasting scenarios based on the work done in phase 1&2

Phase 4

Co-development of transition pathways to achieve desirable scenarios. Draft recommendations for decision-makers

Phase 5

Promotion of results and communication to different audiences

Raising awareness — Mobilising — Promoting dialogue
for a sustainable and resilient Mediterranean in 2050

II. VERY STRUCTURING MAJOR TRENDS

The transformations that will affect the Mediterranean as a sea and a region between now and 2050 will take place within an environment that is already exceptionally vulnerable. After the Arctic, the Mediterranean is the fastest-warming region in the world (20% more than elsewhere). It is also one of the regions with the greatest ecological deficit (difference between ecological footprint and biocapacity), and is home to 60% of the world's water-poor population. It is also the most polluted sea by plastics, and the most overexploited from fishing (with three quarters of fish stocks fished unsustainably and a 30% decline in catches between 1994 and 2017). It also constitutes one of the world's top ten biodiversity hotspots.

MED 2050 presents many trends, but it is those relating to climate, demographics and the location of activities that will have the greatest consequences on the sea, the environment and sustainable development of the region:

- Temperatures in the Mediterranean are expected to exceed 2°C by 2040, reaching 2.3°C by 2050. What was predicted twenty years ago for the end of the century will occur in the middle of the century, with consequences on droughts, floods, heatwaves on land and at sea, etc., and a sea level rise (of the order of 40 cm) that will lead to problems for the protection of coasts and populations in the coming decades;
- Although the demographic transition is complete in two-thirds of Mediterranean countries, the regional population will continue to grow by 20-30%, reaching between 630 and 690 million inhabitants in 2050, compared to 520 million today. This increase will come from the East and the South, where population growth could reach up to 50%. On the other hand, the North is expected to stagnate, accounting for only 25-30% of the regional population in 2050, with very sharp declines in some countries. Most increases will take place in major cities in the South and East, with the region's urban population rising by almost half and the urbanisation rate exceeding 70% almost everywhere. More than ever before, this raises the question of the capacity of these urban areas to accommodate these very large new populations (in addition to tourists), while also having to adapt to climate change;
- By the middle of the century, at least half of the region's population and activities will be concentrated on the coastline (compared with 30-40% today)³. This situation will raise a major problem for regional planning and the environment, both for these seaside areas and for the development and sometimes survival of agricultural and rural areas inland;
- While the mass use of aquaculture should make it possible to stabilise fishing catches (especially for the most popular species), and marine biodiversity is not necessarily going to be reduced overall, the entire marine ecosystem will nevertheless be radically transformed and "tropicalised", with global warming leading to major reorganisations in the distribution of biota, species and marine productivity. Although the rise in sea temperature will be less than on land (+1.2°C), its impact will be manifold, especially as it will be accompanied by periodic "marine heatwaves" with devastating effects: decline of cold-water species replaced by non-native species, disruption of plankton ecology, proliferation of jellyfish, destruction of corals, etc. The Mediterranean Sea of 2050 will therefore be nothing like it is today.

In short, the region will have to contend simultaneously with the effects of a much more major climate upheaval than elsewhere, and a significant increase in its population in the South, concentrated massively in major cities and on the coast. Turning to aquaculture and desalination, which will not be without ecological impact, will involve facing increasingly strong pressures to over-exploit marine and land resources, a structural transformation of the marine ecosystem and a critical drought situation spreading to all countries. All the region's vital activities and territories will be impacted, from agriculture to energy, maritime transport and tourism; in both cities and the countryside, from the coast to inland areas, with food, economic and political dependency increasing everywhere.

³ These figures should be considered with caution, as they are based on data collected from countries bordering the Mediterranean, and not just their Mediterranean part.

III. AN UNSTABLE WORLD OF UNCERTAINTIES AND DISRUPTIONS

In addition to these major trends, there are still significant long-term uncertainties in important fields, such as geopolitics, cultural and societal changes and the economy. For the economy, questions are raised concerning the overall outlook for growth and the capacity of Mediterranean countries to find their place in the ongoing digital and industrial revolution, alongside the future of key sectors such as the blue economy, tourism, transport and energy. For example, what will happen if the move away from fossil fuels is accelerated, or if much greater constraints are imposed on certain modes of transport or on mass tourism?

There is also considerable controversy surrounding political developments, and changes to societies and value systems: a more or less peaceful situation in the Middle East, the future role of Europe in the Mediterranean, advances in international law, prospects for intra- or extra-Mediterranean cooperation (e.g. with China or Africa) and whether or not there will be a continuation of the process of fragmentation within countries and regional fractures. These uncertainties justify the many scenarios proposed in Part 4 of the report. However, one thing is certain: all countries and territories in the region, with their diverse and unequal situations, are very vulnerable to changes in a context over which they have little control, and will therefore need to prepare for a particularly unstable “VUCA” world, by simultaneously implementing proactive anticipation and resilience strategies.

In reality, more disruptions are envisaged than trends. Aside from those related to the global technological, economic or geopolitical context (wars, economic crises, etc.), these disruptions can be grouped into four categories:

- Firstly, the possibility of an ecological upheaval that goes far beyond what has already been predicted due to the occurrence of multiple “tipping points” that would radically accelerate the speed of climate change. This risk is significant enough to have partially justified one of the scenarios. This could be combined with the opening of a North-East corridor along the Siberian coast for maritime transport;
- This is followed by a series of possible but unlikely assumptions associated with major geopolitical changes: lasting peace in the Middle East; a radical overturn of multilateralism; strong deglobalisation, with the world partitioned into continental sub-regions and a vertical axis of integration between Europe, the Mediterranean and Africa; a Euro-Mediterranean common market; a Union of Maghreb or Arab countries; a horizontal

axis between China, the Middle East and SEMCs; an elected consultative Mediterranean Assembly with a symbolic president; or the Mediterranean Sea as a “global commons” or a Mediterranean Solar Union;

- Thirdly, slightly more likely disruptions linked to possible political decisions on current issues, such as: a ban on deep-sea mining; a regional extension of the European ban on the sale of new internal combustion engine vehicle from 2035; a “Marshall Plan” for adaptation and water for southern countries, financed by taxes, such as on financial transactions; a sharp increase in mobility costs or constraints (carbon tax, air travel peak, etc.); a rapid reduction in fossil fuel subsidies; or major plastics bans;
- Slow transitions are more likely for social issues and lifestyles. However, there are three possible counter-examples of disruptions: a faster-than-expected change in values and behaviours linked to concerns about climate change and new generations coming to power; a sharp acceleration in women’s access to work, particularly in the South; and the large-scale relocation of workplaces and life thanks to digital technology.

The situation of ecological and social disruption already forecast for 2050 trends justifies the consideration of solutions that are themselves disruptive, beyond mere strategies for resilience and the anticipation of new risks. This explains some of the proposed scenarios.

IV) VISIONS AND ISSUES CONCERNING THE FUTURE MEDITERRANEAN, AS EXPRESSED BY ITS STAKEHOLDERS

One of the original features of MED 2050 is that, alongside anticipation work, it has included consultations with Mediterranean young people and a wide range of people on their visions of the future of the region and their perception of the priority issues.

Analysis of the interviews with these key figures in the Mediterranean revealed the same general observation: Mediterranean societies are facing multiple crises, with converging views on environmental degradation, the risk of economic marginalisation, social and political tensions, and growing inequalities (in particular between the northern and southern shores of the Mediterranean); and concerning the insufficiency of governance and chronic deficit in law enforcement. They present predominantly pessimistic views of the future, based primarily on the prospect of major ecological upheavals and the geopolitical context. While the notion of crisis is omnipresent, some see it as synonymous with hope and as a source of opportunities for the future. The Mediterranean is not only perceived as a region with an accumulation of difficulties, but as a laboratory of solutions, and a space for the deployment of new innovative development models, even capable of inspiring other world regions.

While it is not possible to give a detailed summary of the wide range of observations and proposals made in these interviews, it is worth mentioning that there are two attitudes when faced with the scale of the challenges ahead. For some, their complexity means that we need to “refocus on a few clear objectives, communicating about them better and, above all, setting out a strategy and resources to obtain and especially monitor the results, such as water and climate risk management, plastics and marine protected areas, etc.”. Meanwhile, for others, one of whom evokes the image of the Titanic, “correcting the system at the fringes would be pointless. We need to change the whole system: from economic and ecological models to methods and scales of action”. Between these two extreme positions, consultation revealed eight major priority issues:

- Give immediate priority to adaptation and the prevention of major risks;
- Try to avoid irreversible changes for the sea and the soil;
- Anticipate demographic and territorial changes, in particular through active regional planning policies;
- Successfully manage the “Water - Agriculture / Food - Energy - Environment” nexus⁴;
- Better promote the value of the shared Mediterranean area, inside and outside the region;
- Adapt regional and national governance, starting with law enforcement, active subsidiarity⁵, and openness to civil society;
- Drive forward the fair transition of sector-specific economic models by promoting specific local or Mediterranean advantages;
- And finally, drive the Mediterranean into a digital and “knowledge society” that integrates the environment and the sea (and their culture).



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⁴ The “Water - Agriculture / Food - Energy - Environment” nexus approach provides a comprehensive framework for analysing the interactions between these elements, identifying synergies and trade-offs, and understanding the co-benefits.

⁵ Active subsidiarity: granting a certain degree of independence to a subordinate authority with regard to a higher-level authority (in particular a local authority with regard to central government), but with the possibility of derogating from this delegated system in exceptional situations.

EIGHT MAJOR ACTION ISSUES IN THE MEDITERRANEAN BETWEEN NOW AND 2050

**THE MAJOR CHALLENGES
FOR THE MEDITERRANEAN
BY 2050**

Prioritise
Adaptation

Successfully manage the «water/
agriculture -Food/Energy
/Environment» Nexus

Avoid irreversible consequences
particularly for the sea

Anticipate demographic
and local changes

Promote the shared
Mediterranean area

Promote alternative Mediterranean
governance at national
and regional level

Change business models to take
into account specific regional
and national features

Move towards a Mediterranean
knowledge-based society integrating
the sea and the environment

V) SIX SCENARIOS FOR THE FUTURE OF THE MEDITERRANEAN

The scale of uncertainties and the diversity of visions of the future by the region's players justify the use of contrasting scenarios for the future, even more so than in previous exercises. MED 2050 therefore places a great deal of emphasis on them. These are not imaginary narratives, but a reasoned combination of assumptions

about the major system variables, with the aim of identifying obstacles or room for manoeuvre for action in the short, medium and long term. As summarised in the table below, six scenarios have been developed, describing in detail many possible trajectories for 2050. This report will be limited to a general overview.

THE SIX MED 2050 SCENARIOS

<p>S.1 INERTIA, MARGINALISATION OF THE MEDITERRANEAN, AND PRAGMATISM</p>	<p>S.2 COLLIDING CRISES AND FORCED ADAPTATIONS</p>	<p>S.3 GROWTH AT ALL COSTS IN A FRAGMENTED MEDITERRANEAN</p>
<p>S.4 EURO-MEDITERRANEAN PARTNERSHIP FOR A BLUE-GREEN TRANSITION</p>	<p>S.5 ANOTHER SUSTAINABLE DEVELOPMENT MODEL SPECIFIC TO THE MEDITERRANEAN</p>	<p>S.6 THE MEDITERRANEAN SEA: GLOBAL COMMONS</p>

Scenario 1: Inertia, marginalisation of the Mediterranean, and pragmatism

The first scenario is a continuation of current trends, known as "Business as Usual". It describes a region paralysed by multiple obstacles and by the procrastination of decision-makers, either by choice or due to a lack of awareness of the real issues at stake. This inertia results in the continuing degradation of ecosystems, the fragmentation of societies, conflicts over access to resources and marginalisation of the region on the world stage. Against a backdrop of digital globalisation dominated by the United States and China, and little progress in national and international law, it is characterised by a rise in temperatures of 2.3°C by 2050, weak economic growth in the North and more sustained economic activity in the South (albeit less

than in previous decades), accompanied by the creation of metropolises and coastal development. Mistrust in supranational institutions grows as a result of the priority often given to national isolationism and autonomy. The environment continues to deteriorate, more through carelessness and a lack of control than through a lack of laws and regulations. The geopolitical and economic marginalisation of most countries leads to growing inequalities, high social tensions, rising unemployment and increased migration. This political and institutional inertia persists because redistribution measures help avoid social explosions, with civil societies oscillating between pragmatism, resignation and revolt, but without sufficient structure to enable real political change. The actions of states are increasingly limited by debt, and they adapt to turbulence in the name of political, food and energy sovereignty, which have become unifying symbols. Against this backdrop of widespread obstacles, only a few pragmatic and targeted measures safeguard certain priorities essential, such as water (through desalination) or energy, along with symbolic measures to protect some of the most threatened areas or species and encourage the blue economy.

Scenario 2: Colliding crises and forced adaptations

This scenario involves a succession or accumulation of crises and shocks, forcing countries and societies to constantly and urgently adapt. These crises, and the disasters that follow through domino effects, lead to the destabilisation of societies as a whole, and then to the implementation of adaptation mechanisms that end up weaving networks of resilience at local level. The global context remains very tense, with major risks of economic or financial crisis, increasing geopolitical tensions, and a major trigger of exceeding one or more climate tipping points. The Mediterranean is more vulnerable than other world regions, and is destabilised by the domino effects of these crises, and in particular by the recurrence of environmental disasters (heatwaves, acute water stress, mega-fires, floods, marine heatwaves, etc.). Faced with

these extreme events, the political powers are less and less capable of reacting, leading to the emergence of authoritarian regimes presenting themselves as “saviours”. The economies of the basin move towards isolationism. Infrastructure, including urban infrastructure, is very poorly maintained and most cooperation projects, for example on the sea or renewable energies, must be abandoned. Societies cope as best they can with repeated emergencies, particularly climate, food and health emergencies, due to a lack of forward planning on the part of governments and weak structural policies. However, despite and also because of these chronic crises, societies at local level successfully overcome the general individualism and widespread competition to act in solidarity in the face of successive crises, and get organised. Adaptation and increased resilience become a necessity, which does not rule out nationalist or regionalist isolationism and strong tensions between communities, even including the secession of territories. The trend towards authoritarian and semi-military recentralisation is therefore opposed by the trend towards community isolationism, within families, neighbourhoods or ethnic groups.



Scenario 3: Growth at all costs in a fragmented Mediterranean

The driver behind this third scenario is economic growth and job creation, with a view to defending national interests. In a world structured by global competition for access to resources and markets, regional and international cooperation is limited and comes in various shapes and sizes. The economy is seen as the central development goal and the priority lever in all areas: energy, agriculture and food resources, tourism, transport, water, environmental risks, and even sea management. Liberalism, the planned economy and protectionism are all part of rationales aimed at strengthening the power of countries and exploiting their comparative advantages or natural resources (rentier economy). These state or private economic power rationales are based on alliances and cooperation outside the Mediterranean, which is a source of competition and even conflict. The volatility of partnerships leads to structural instability and exacerbates the risks of fragmentation in the

Mediterranean. Some countries open up to Africa in order to conquer new markets linked to its strong demographic growth. Others strengthen ties with Asia. In the North, the European Union seeks to overcome its weaknesses in global competition by investing in new technologies, including for energy, while relying on a neighbourhood policy with the South limited to bilateral economic cooperation. Employment is the number one priority everywhere, but this goes hand-in-hand with the replacement of human labour by robots and AI, and the dualisation of both labour markets and territories. The priority given to economic efficiency and the search for short-term returns on capital lead to a preference for the intensive exploitation of land and marine resources. Sustainability efforts are therefore relegated to secondary importance in most fields, resulting in the continued degradation of land and marine biodiversity, and the loss of multiple ecosystems and their services. The only things that escape this marginalisation of the environment are investments in urban services (water, waste treatment, etc.), minimum compliance with some export standards, and the protection of nature for tourism purposes. However, this is not enough to avoid a head-on collision with planetary or local capacities well before the end of the period.



Scenario 4: Euro-Mediterranean partnership for a blue-green transition

The backdrop of this scenario is successful multilateral cooperation between the European Union and other Mediterranean countries, enabling the region to achieve carbon neutrality in most countries by 2050, and a successful integration into globalisation. This choice follows a period of severe environmental degradation, followed by social pressure for a regional political awakening. While the early years are laborious, the situation is changed thanks to lessons learned from the failure of unilateral or bilateral responses to past health, political or environmental crises, and the prospect of European funding for common interest projects, such as for climate and energy. The initial strategy chosen is the implementation of a blue-green transition at regional level, based on technology and economic incentives. The aim is to extend the European Union's original Green

Deal to southern Mediterranean countries, based on a concept of sustainable development that combines the economy and ecology. To achieve this, there is significant investment in digital technologies, the blue economy and the energy transition. In a later phase, the success of this cooperation leads to the creation of a Euro-Mediterranean common market. Economic instruments (lower fossil fuel subsidies, support for eco-activities, etc.) and innovation are the two main drivers of this scenario. Accelerated transfer systems are established between research and innovations by economic players, especially in the key fields of the green and blue transition, such as mineral, energy and food resources (bio-engineering, sensor-assisted agriculture, renewable marine and land energy, electric vehicles, hydrogen, etc.). In addition, sustained efforts are made for training and the integration of digital technologies in all fields, including for measuring the sustainability of production systems. This virtuous circle between innovation, the economy and ecology attracts substantial capital, mainly from Europe. However, these policies based on techno-solutionism and market opportunities only partially respond to the ecological challenge and raise problems associated with the unequal distribution of their costs and benefits, and access to innovation, which limit their scope.

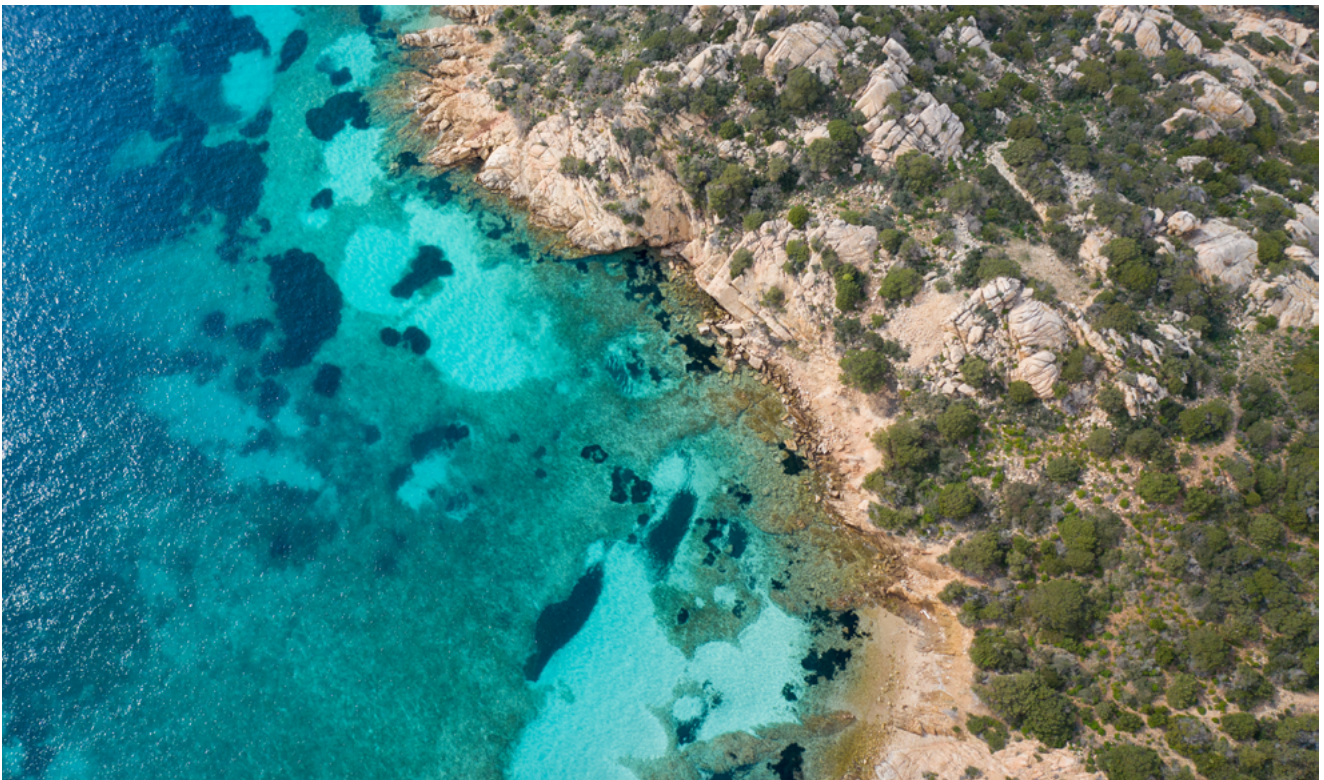


Scenario 5: Another sustainable development model specific to the Mediterranean

Like the previous scenario, this is one of the potential pathways towards sustainable development in the Mediterranean. However in this case, the drivers of change are not so much Europe, integration into globalisation and technology, but instead much stronger international pressures on the environment, more balanced North-South relationships, and strong participation from local authorities and civil society. The aim is to move towards very sustainable⁶ development, through a long-term, reasoned transformation of lifestyles or living conditions, economic models and forms of governance, which respects the diversity of cultures and national or local situations. Mediterranean countries become aware of the impasses linked to ecological inertia and maldevelopment, and work together to make the transition to ecodevelopment, taking into account the region's specific strengths and weaknesses. After an initial phase mobilising civil societies and territories to establish networks for sharing best practices, breakthrough initiatives are implemented

at the institutional and economic levels. In a context of deglobalisation that promotes endogenous regional development, an equitable partnership is created, based on strengthening South-South cooperation and renewed governance. There is the dual objective of reducing regional inequalities and managing certain resources as common-pool resources, ranging from sea and heritage protection to research. At all levels, the focus is on two sets of priorities.

Firstly, climate change adaptation, and reducing vulnerability to risks and external dependencies. Secondly, the move towards new economic models and regional planning in all fields (agriculture, tourism, energy, urban environment, transport, sea and coastal management, etc.). These nature-inspired models meet very sustainable goals by prioritising vital resources, such as water, soil, marine ecosystem conservation, as well as employment, meeting essential needs, and poverty reduction. To support generational change, cultures, religions and civil societies engage in dialogue and participate, through varied contributions and cooperations, in developing new ethics and cultural pluralism as a fair transition. Based on a realistic anticipation of the opportunities and risks associated with the context of the coming decades, the aim is to urgently and collectively invent a new specifically Mediterranean development model based on strong sustainability. This model would combine the dynamism of societies with short, medium and long-term planning. It would serve as an example on a global scale.



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⁶ Without minimising the importance of the social and economic dimensions of sustainable development, the concept of very sustainable emphasises the value and absolute preservation of the services provided by nature for those under irreversible threat. In contrast to a weaker form of sustainability, it is not possible to substitute artificial capital such as infrastructure or technology for natural capital to be passed on to future generations.

Scenario 6: The Mediterranean sea: global commons

The starting point in this scenario is degradation of the Mediterranean Sea so rapid as to provoke a strong global reaction from societies, countries and international organisations. From the 2030s, the idea emerges that this sea, as a biodiversity hotspot on a planetary scale, could only be saved if it were considered a global commons. This kind of vision is based on a dual context of mobilisation for the oceans and the recognition of the rights of nature and future generations. The objective of exemplary restoration of the Mediterranean Sea becomes a priority for the international and regional community, which decides to finance an ambitious programme to restore the quality of the sea. This initiative supplements efforts already underway as part of the Mediterranean Action Plan and the Barcelona Convention. As a reduced model of the challenges facing the planet, the Mediterranean

Sea is transformed into a vast laboratory for collective common-pool management, and a shared space for observation and multi-scale action that also becomes a powerful tool for cooperation between civil societies, territories, Mediterranean countries and the rest of the world. This common-pool management, consisting of the creation of a specific institution with both public and private resources, is logically extended to the region's entire water cycle from downstream to upstream. Good environmental status of the sea, which includes biodiversity preservation, long-term management of productivity and a reduction in pollutants, requires sustainability to start from the sea and work its way up the rivers. As a result, human activities with an impact on the sea are highly regulated, starting with maritime activities and coastal areas, which is then extended to all catchment areas. The hydrosphere cycle becomes a vector for good global governance. The Mediterranean Sea is the receptacle of all these efforts, becoming the symbol of Mediterranean renewal, built collectively, together with nature. In short, protection of the Mediterranean, which used to be the responsibility of institutions, is now everyone's responsibility, including at the global level.



VI. CONCLUSION AND NEXT STEPS

- Barring any major changes, by 2050 the Mediterranean will be in a far more alarming situation than it is today, with a major transformation of the entire marine ecosystem and the general degradation of the ecological conditions for the liveability of all its territories;
- In addition to the internal causes of this situation, the region's vulnerability and dependence on external factors over which it has insufficient control also need to be taken into account, such as the climate or the geopolitical and economic context.
- A wait-and-see attitude and a policy of small steps is not a stable solution that can be sustained in the long term: in the face of the disruptions that have already been announced, breakthrough solutions are required;
- Beyond the already worrying major trends, the risks of serious crises and local collapses cannot be ruled out, and it is a priority to prepare for them by rapidly committing to policies for climate change adaptation, resilience and the prevention of major irreversibilities;
- The Mediterranean region will increasingly be unable to rely solely on its own strength to overcome the challenges it faces, hence the importance of the region being actively involved in global international policies;
- All sustainable development scenarios call for new forms of cooperation and partnership, between Europe and its southern and eastern shores, South-South, or between the Mediterranean and neighbouring regions (Africa) or the global community;
- More broadly, innovations in governance (decentralisation and mobilisation of civil societies, law enforcement and extension, economic incentives and transfers, better information) constitute essential solutions for the transitions to be carried out;
- Despite the persistence of blockages or obstacles to action, the scenarios suggest that there is plenty of room for manoeuvre to make progress: firstly, capitalising on the potential assets specific to the Mediterranean (cultural diversity, adaptation capacities, renewable energies, young people in the South, etc.); but also international-level opportunities (ocean law, climate or biodiversity financing, etc.); the untapped possibilities for cooperation and mobilisation of regional collective intelligence; the pressure of risks and social expectations and the desire of a growing number of economic players or territories to adapt development models in response (e.g. mass tourism or the blue economy) and the growing awareness of the many gains and innovations to be expected from more ecological practices (circular economy, nature-based solutions, common-pool water management, agroecology, etc.). What's more, there is a prospect of double dividend by modernising forms of governance and financing, with a whole range of tools needing to be overhauled - in measurement and observation systems, common-pool management, land-use planning, the law, economic incentives, ecological planning, or even a tax system combining social justice, employment and the environment, etc.
- As the report suggests, it is probably now possible to reach an agreement, whatever the scenario, on a minimum number of "no-regrets measures"⁷. However, this will be insufficient in the face of upcoming ecological and social upheavals. There are few other alternative but to be proactive and define transition pathways. This would allow to rapidly mobilise the room for manoeuvre outlined above in a way that is fair, while safeguarding the essentials and adapting to each territory. Following on from this report, Plan Bleu will prioritise work on transitions, by organising more concrete reflection on these medium- and long-term trajectories, at a sub-regional level. It is worth remembering that the challenge is not just to avoid or manage future disasters, but to make the Mediterranean a real laboratory for innovative solutions for sea protection or the ecocodevelopment of large regions. Such a project could serve as an example on a global scale. The Plan Bleu will organize a more concrete reflection by sub-regions of the Mediterranean Basin of these medium and long-term trajectories.

⁷ For which an initial list is provided at the end of the report.

SOME STATISTICAL TRENDS FOR 2050⁸

Variables	2020	2050
Climate	Second fastest warming region in the world after the Arctic. In 2020, +1.5°C compared with the pre-industrial period	According to MedECC scenarios: +2.2°C (between +2°C / +2.5°C)
Population	North: 196M / South: 202M / East: 124 M / Total: 522M	High scenario: North: 200M / South: 315M / East: 174M / Total: 689M Medium scenario: North: 179M / South: 293M / East: 157M / Total: 630M Low scenario: North: 172M / South: 264M / East: 146M / Total: 582M
	% > 65 years-old: North: 21.4% / South: 6.4% / East: 8.06%	High scenario: North: 35.5% / South: 14% / East: 20% Low scenario: North: 30.5% / South: 11.7% / East: 16.8%
Urban transition (Urbanisation rate)	Several countries in the South and in the Balkans (10) still have a large rural population (between 35% and 57%) Average urbanisation rate for the Mediterranean: 72%	All Mediterranean countries have an urban population close to or above 70%, with the exception of Egypt (55%) Average urbanisation rate in the Mediterranean: 82%
Fishing, aquaculture and marine biodiversity	Overfishing rate: 73% in 2020 and 58% in 2021 Fishing: 1994: 1.08 million t / 2015: 0.75 million t / 2020: 0.8 million t / 2021: 0.66 million t Aquaculture: 3.2 million t (2021)	Overfishing rate < 50% Fishing: between 0.6 and 1 million t Aquaculture: between 4 and 5 million t
	The Mediterranean: a global biodiversity hotspot (18% of the world's species, 28% of which are endemic) – but highly threatened (8% of species are in danger of extinction)	Major qualitative transformation of marine ecosystems: tropicalisation of species with the disappearance of certain endogenous species (around 20%)
Plastic pollution	The Mediterranean is the most plastic-polluted marine area in the world: 8 times more than the global average. 260,000 t (2015)	Plastic discharges into the sea are expected to increase by a factor of 1.5 to 2 (source: OECD)
Water shortage risk	180 million people in the South and East are facing a water shortage (less than 1000 m ³ /year.cap). 80 million people face extreme shortage (less than 500m ³ /year.cap). 75% of resources are in the North	By 2050, almost the entire population of the Mediterranean Basin will be suffering from water shortages due to drought 290 million people in the southern and eastern Mediterranean
Primary energy	For 2018: Energy demand: 1 022 Mtoe - North: 614 Mtoe / South and East: 408 Mtoe - of which: Fossil fuels (oil, gas and coal) for the region: 777 Mtoe (76% of total demand) / North: 399 Mtoe, i.e. 65% of the EM/ SEMCs: 379 Mtoe or 93% of the EM Renewable energies: 120 Mtoe (12% of total demand) - North: 91 Mtoe, i.e. 15% of the EM/SEMCs: 29 Mtoe or 7% of the EM Nuclear energy: 124 Mtoe (12% of global demand) - North: 124 Mtoe or 20% of the EM / South: 0	Business-as-usual scenario: Energy demand: 1,404 Mtoe (+37%) - North: 543 Mtoe (-11.5%) / SEMCs: 861 Mtoe (+111%) of which: Fossil fuels (oil, gas and coal) for the region: 1,026 Mtoe (73% of total demand) - North: 60% of EM / SEMCs: 82% of EM Renewable energies: 268 Mtoe (19% of total demand) - North: 29% of the EM / SEMCs: 13% of the EM Nuclear energy: 110 Mtoe (8% of global demand) - North: 58 Mtoe or 14% of the EM / South: 52 Mtoe or 6% of the EM

⁸ Sources: 1. Climate: MedECC ; 2. Population : Plan Bleu ; 3. Urban transition (urbanisation rate): United Nations Statistics Office; 4. Fisheries, aquaculture and marine biodiversity: FAO. The state of Mediterranean and black sea fisheries. FAO, 2022. ; Coll, Marta, and al. "The biodiversity of the Mediterranean Sea: estimates, patterns, and threats." PLOS ONE, vol. 5, no. 8, August 2010. ; 5. Plastic pollution: Plan Bleu and OECD; 6. Water shortage risk: Plan Bleu; 7. Primary energy: OME. EM: Energy Mix.



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