

Strategic Resources for the Mediterranean Littorals Adaptation to Climate Change (BEACHMED-3)

Draft of a project among Peripheral Regions, Universities and Entrepreneurs of the Mediterranean

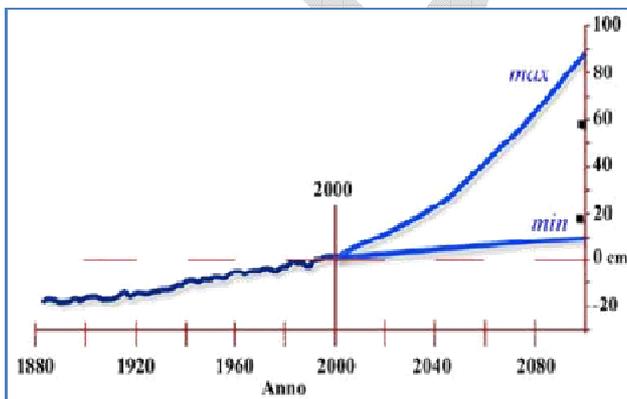
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Why the littorals One of the most direct consequences of climate change will be the littoral crisis due to flood risks (www.euroSION.org).

Once we realise that these changes will effectively happen, it is necessary to launch long-term **Civil Defence** policies in order to protect the places where the CC effects overlap other concomitant phenomena, **since it is there that CC will cause the worst damage**. Coastal zones are already hit by erosion, river floods and subsidence, but nonetheless they are more and more urbanised and crowded. Therefore, we need to promptly study the most suitable solutions in order to prevent risks from worsening. This is especially true for these littorals, which are more exposed to flood risks due to their particular morphology: coastal ponds bounded by dune belts or areas below sea level, river deltas, polders, etc.



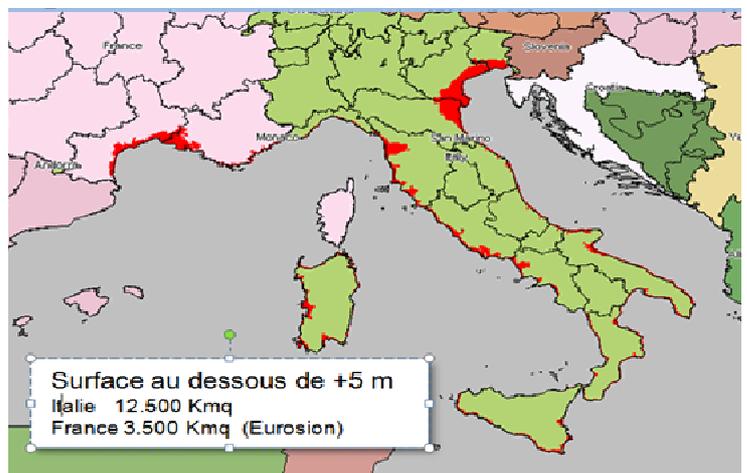
Why the Mediterranean The defence against floods has always been a major problem for Northern countries, which have acquired a great experience in the subject matter and had to develop long-term **Civil Defence** strategies, by building artificial dams and beaches. The high availability of sand on the bottom of the North Sea enabled them to build large structures that now have to be reconsidered taking into



account CC, but without the need to radically change a centuries-old strategy. In the Mediterranean basin, this kind of experience does not exist. We need to start realising that the territories that we once torn away from the sea or marsh waters have to be protected, just like it happens in Northern Europe. **As a matter of fact, there are no other alternatives to sea level rise and wave height rise..... but the setting back of the bank!**

Why a Project The protection of littorals cannot entail the use of cement or the construction of rocky defence structures on beaches and dunes. Consequently, every sustainable strategy we adopt must aim at reinforcing coasts, by using materials that can be found on site or that are compatible with the former. This approach is even more imperious if we consider the environmental, landscape and tourist heritage constituting the uniqueness of the Mediterranean coasts. This means that we have to carry out an extensive research and a feasibility assessment in order to know whether there are sand resources available for the reinforcement and maintenance of littorals, and whether they can be exploited and used. Even in case it is not necessary to intervene immediately or in case a limited intervention is sufficient, **it is strategic to have a complete knowledge of the sand resources in the Mediterranean as soon as possible**, in order to develop a long-term supplying plan. This activity has already been launched in the framework of several European initiatives, the most important of which is the BEACHMED-e project (2005-2008, INTERREG IIC, with a budget of 7.6 million €, www.beachmed.eu), which already gave important results. However, it is necessary to extend this project to the whole Mediterranean continental platform, by involving countries from North Africa and the Middle East, as well as by envisaging a sustainable use of resources and concerted and well-balanced adaptation policies.

The European public actors The scale of the interventions for the adaptation of littorals to CC must take into account not only the general conditions (meteorological and climatic aspects, sedimentological balance, etc.) but also local needs and peculiarities (environmental constraints, social and economic aspects, etc.). It is more and more evident that the regional or departmental level is the most suitable for a **concerted and sustainable management of coastal zones**. The experience in European projects such as BEACHMED et BEACHMED-e, concretely showed that - with the cooperation of decentralised governmental structures – Regions can deal with and manage the different aspects related to CC adaptation programmes. Today, Regions are the public actors most suitable to carry on a specific adaptation programme in the Mediterranean. Moreover, we must not forget the importance of giving the project leadership to public administrations competent in this sector. As a matter of fact, it is not possible to let other actors (such as Universities or Research Institutes) implement projects aimed to be used by these very administrations: we risk first not to ask the right basic questions, and second, to obtain results that are faultless from a scientific point of view, but which cannot be practically used. Lazio Region has already proved to be able to coordinate an enlarged partnership with the Mediterranean peripheral regions. This partnership is already solid and was tested through several international projects (BEACHMED, BEACHMED-e, COASTANCE) that undoubtedly had a first level importance in this sector.



The Africa and Near Mid-East Mediterranean

The Mediterranean Regions in North Africa and in Near Mid-East and in Europe all share the same problems. To some extent, their situation may be less serious since they are less populated as a whole, but there are the location of some of the basin's most population-concentrated agglomerates, and in some cases the conditions are critical because of the uncontrolled urbanisation and urban sprawl. Adding to that the effects of massive infrastructures, such as the great setting back of the delta of the Nile after the construction of the Aswan dam, one must realise that the adaptation strategy must involve as many Mediterranean Regions as possible in order to **seize this important occasion to bring them together again**, and cooperate for the sake of common future. This particular approach and the direct involvement of regional/local communities may assist us to overcome some of the political difficulties in the Middle Eastern countries and that possibly still hinder the effective launch of the Union for the Mediterranean. From a geo-political point of view, it is just as much important to have strong relationships with Northern African countries, whose continental platforms are very rich in sand, just like those in the North Sea. Among the most reliable public actors, and who are already partners of the BEACHMED e BEACHMED-e projects, there are the Moroccan public company **DRAPOR** (*Dragages des*



Ports - www.drapor.com), which is the most experienced company in sea management in Maghreb and the Tunisian public agency **APAL** (*Agence pour l'Aménagement des Littoraux* www.apal.nat.tn), specialised in the scientific designing, maintenance and follow-up of sustainable defence interventions on the Tunisian coast.

The Universities **If on the one side the administrations in charge of coastal planning must**

play a leadership role in territorial adaptation projects, on the other, the contribution from the scientific community is fundamental in order to find the most recent and sustainable technological solutions to the problems identified by the administrations. With the above-mentioned Beachmed-e project (Regional Framework Operation, INTERREG IIIC programme), the partner Public Administrations (9) coordinated 30 Universities/Institutes for the implementation of 9 projects. Thanks to this organisation, concrete results were achieved, such as the identification and characterisation of several submarine sand fields (Département de l'Hérault, Regione Liguria) or the identification and characterisation of sand stocks to be used for beach nourishment (Generalitat de Catalonia) or even the follow-up of climate change at a regional level (Regione Emilia-Romagna, Direction Régionale de l'Équipement Languedoc-Roussillon), etc. This kind of organisation is exactly what we need to launch a Mediterranean research programme whose aim is to find resources to be used against CC risks. Therefore, with this experience in mind, we must involve all the scientific structures that have developed a highly advanced and well targeted know-how in the field of sustainable adaptation policies to CC .

The private actors As desired by the Union for the Mediterranean, the privileged

participation of the private sector can be well developed in this project. In the first European project BEACHMED, one of the partners was the EUDA (*European Dredging Association* www.european-dredging.info) an association that gathers the most important European dredging companies, and which financed a feasibility study about the solutions proposed and the existing technologies in the dredging industry. Moreover, among the key initiatives recognised by the UpM – such as long-term Civil Defence -, it is possible to **define a precise**

role for private actors that, in this case, represent an essential partner if we want to fine-tune the technologies used to exploit the resources individuated. As we have already seen before, this sector is willing to finance a project enabling it to know an important potential market in the Mediterranean, which can **offer important employment opportunities** in the maritime sector. Once more then, we have to go along a path we have already travelled in the course of other experiences and whose success probability is well evident and sure.



"Climate change and rising sea levels demand our full attention and focus on coastal management."

A project with a variable structure In order to better meet the

requirements of a complex project with different operational levels, we chose to use a variable structure. The latter refers not only to the sub-aspects to be dealt with, the extension and the level of partnership, but also to the duration and the economic dimension. The main characteristics of this initiative are summarised in the following table.

Chapter	Sub-aspects	Partnership
1 Analysis of the Mediterranean coastal territory and of its resources compared to the effects of CC.	<ul style="list-style-type: none"> • Morphological and sedimentological characterisation of the Mediterranean littorals and of its continental platform in order to find the resources to protect sand beaches • Assessment and prevision of climate change at a Mediterranean regional scale • Territorial socio-environmental analysis of the activities foreseen in the different scenarios of adaptation to climate change 	1st level of partnership: exchange of experiences and common documents among Regional and Departmental Administrations, close cooperation among Universities/Research Institutes, technical and financial participation of the entrepreneurs involved.
2 A Mediterranean Plan for the littoral adaptation to CC	<ul style="list-style-type: none"> • Mediterranean coastal flooding risk assessment programme and definition of common methodologies • CC adaptation measures planning and resources management plans (in the framework of the maritime spatial planning and the Integrated Coastal Zone Management) 	2nd level of partnership: close cooperation among the public Administrations involved, preparation of planning documents, technical support to Universities/Research Institutes and to the entrepreneurs involved.
3 Implementation of the works for the littoral adaptation to CC	<ul style="list-style-type: none"> • Adaptation project of the Mediterranean littorals more exposed to flooding risk • Completion of the interventions for littorals adaptation to CC. • Programme for the follow-up of interventions and the development of results 	3rd level of partnership: establishment of a European group for territorial cooperation open to non-European regions for the constant follow-up and the continuation of the project