

ADRIADAPT

Report on guidelines for building coastal resilience

Deliverable 4.1.3

Work Package 4
Activity 4.1

PAP/RAC

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1 Background information

Adriadapt – a resilience information platform for Adriatic cities and towns, is a collective effort of 6 Italian and 5 Croatian partners aiming to promote local and regional resilience by developing the knowledge base required to identify suitable climate adaptation and planning options, thereby enabling local authorities to respond to policy needs related to climate action in urban and coastal zones of the project area.

The Project is structured in 5 working packages (WPs), where within WP4 and WP5 strategic guidelines for local and regional authorities are to be developed. These publications also serve as the backbone of the knowledge platform. An expert meeting was organized by PAP/RAC in Split in June 2019 in order to harmonize the approaches and secure efficient collaboration of the partners responsible for WP4 and WP5. The meeting was attended by the representatives of the partners responsible for all WPs, besides WP 3, but with the representatives of the WP 3 a Skype session was organized.

2 Process of development

Document “Guidelines for enhancing resilience along Adriatic coasts” builds on the previously published PAP/RAC document “Recommendations for building resilience” that were prepared in the framework of the development of the Coastal Plan for the Šibenik-Knin County, Croatia. These “Recommendations” represents the starting point for the guidelines produced within the ADRIADAPT project, and is complemented with the information provided in the knowledge base. The initial version encompassed the key challenges for the Šibenik-Knin County coast, sustainable spatial development and challenges for the narrow coastal belt. The main issues for updating consider the different geographical scale including different coastal realities of Italy and Croatia, as well as additional topics needed, such as, for example, social dimensions of resilience, nature based solutions for coastal resilience, as well as vast experience of Italian partners in dealing with coastal erosion.

This document also represents the backbone for the knowledge management platform produced within the Adriadapt project. The draft list of contents was sent to CMCC and to IUAV in August 2019, in order to merge/harmonize language and methodologies, to agree on the contents and on contribution of the partners to this document. Activity started by PAP/RAC's translating in English the initial document which was published in Croatian, so to enable Italian experts to work on it too. In autumn 2019 PAP/RAC developed 3 ToRs to enlarge the team with the 3 additional experts. From PAP/RAC roster of experts 3 top experts were selected and contracted; coastal protection expert to upgrade the document with the Italian experiences in fighting coastal erosion; sociologist to upgrade the response in the domain of societal and social measures; and the landscape architect to upgrade the document in the field of green measures and nature-based solutions. Experts got the additional task of preparing description of the relevant adaptation options.

Upon finalization of the catalogue of adaptation measures (with 43 adaptation options presented) and development of 11 case studies, PAP/RAC staff revisited draft guidelines and reviewed the document to include findings from the knowledge management platform. One more expert, spatial planner reviewed the final version of the guidelines. PAP/RAC decided to change the title into Coastal Resilience Handbook, since it was assessed to be more attractive for the target audience than the Guidelines.



Cover page of the document in English



Cover page of the document in Croatian



Cover page of the document in Italian

Finally, for Croatian market a short summary tailor made for key policy-makers - mayors and for citizens have been produced, as well as the announcement of the catalogue of adaptation options through an artistic leaflet announcing different adaptation options that might be used along different types of coastal zones.

3 Contents of the document

1. ADRIATIC COAST
 - 1.1. Geography, geology, nature and natural processes
 - 1.2. Demography, coastal urbanization, coastal landscapes and seascapes
 - 1.3. Human activities and impacts
 - 1.4. coastal typology
2. CLIMATE CHANGE IN THE ADRIATIC COASTAL ZONE
 - 2.1. Climate change data & projections
 - 2.2. Observed climate change impacts in Adriatic cities of Italy and Croatia
3. RESILIENCE
 - 3.1. Defining resilience
 - 3.2. Climate resilient pathways
 - 3.3. Choosing the appropriate response
4. SOCIETAL MEASURES
 - 4.1. Governance
 - 4.2. Planning and management
 - 4.3. Management of coastal risks
 - 4.4. Early warning systems
 - 4.5. Spatial Planning
 - 4.5.1. Coastal setback
 - 4.5.2. Managed retreat
 - 4.6. Sustainable spatial development of coastal zone
 - 4.6.1. Rational use of coastal land
 - 4.6.2. Preservation of the values of coastal landscapes
 - 4.6.3. Improvement of quality of build-up spaces
 - 4.7. Social measures
 - 4.7.1. Enabling coastal population to co-create its future environment
 - 4.7.2. Raising awareness and developing systematic education of people in coastal areas and beyond
 - 4.7.3. Encouraging the process of changing an Individual's behaviour
5. GREEN MEASURES

- 5.1. Measures for coastal cities and towns
 - 5.2. Measures for areas of coastal linear urbanization
 - 5.3. Measures for coastal hinterland
 - 5.4. Measures for natural coasts
 - 5.5. Measures for narrow coastal belt
 - 5.5.1. Increasing the volume of greenery along the coast
 - 5.5.2. Dune construction and restoration
 - 5.5.3. Protection and restoration of coastal wetlands
 - 5.5.4. Artificial reefs
 - 5.5.5. Beach dewatering
 - 5.5.6. Management/protection of rocky coasts (and cliffs)
 - 5.5.7. The role of seagrasses in preventing coastal erosion
 - 5.6. Measures for coastal aquifers and groundwater
6. GREY MEASURES
- 6.1. Coastal flooding protection
 - 6.2. Coastal protection and defence structures
 - 6.2.1. Seawalls, quays and similar structures (rip raps, revetments, rubble mound)
 - 6.2.2. Detached breakwaters (emerged and submerged)
 - 6.2.3. Groins (emerged and submerged)
 - 6.2.4. Beach nourishment
 - 6.3. Coastal advance – raising and extending coastal land
 - 6.4. Adaptation of coastal municipal infrastructure
 - 6.4.1. Solution options for water infrastructure
 - 6.4.2. Solution options for estuary municipal infrastructure
7. CONCLUSIONS

4 Targeted outreach and promotion of adaptation

In order to maximize the outreach of this publication, as well as of the Adriadapt knowledge platform, PAP/RAC has tested several tools – short summaries prepared in the form of brochures, carrying the key messages of this Coastal resilience handbook targeted for 2 stakeholder groups; mayors and citizens:

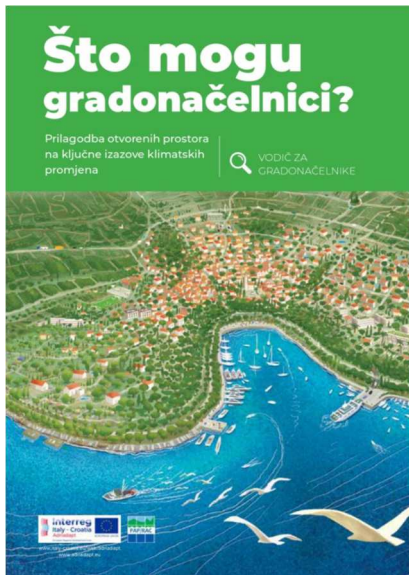
- a) “Guide for mayors – about the adaptation of the open spaces”;
- b) “Guide for citizens – what can you do to protect yourself from runoff flooding”; and

- c) “Enhancing adaptation of the coastal areas – coastal relief flyer with the most promising adaptation options illustrated”.

These outputs, not initially planned in the project document, were developed in order to enhance targeted outreach of the Adriadapt knowledge platform. Particular attention has been dedicated to the illustrations and graphic design. Key messages were illustrated in order to empower texts (“picture says more than thousand words”). The approach will be tested in Croatia, particularly in Croatian pilot areas, since these areas were more familiar to the authors in order to properly tailor-made summaries.

- a) “Guide for mayors – about the adaptation of the open spaces” may be found at:

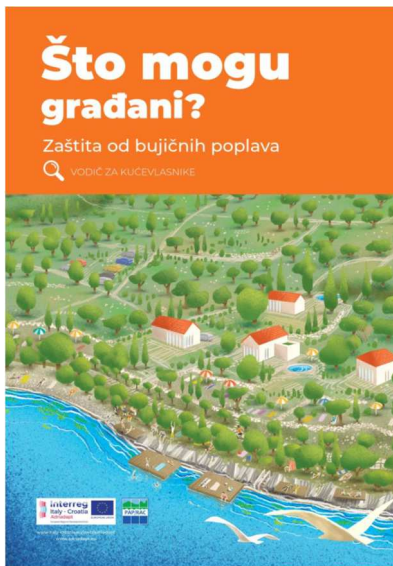
<https://adriadapt.eu/wp-content/uploads/2021/06/Sto-mogu-gradonacelnici.pdf>



Cover page

- b) “Guide for citizens – what can you do to protect yourself from runoff flooding”

<https://adriadapt.eu/wp-content/uploads/2021/05/Adriadapt-Sto-mogu-gradani.pdf>



Cover page

c) “Enhancing adaptation of the coastal areas – coastal relief flyer with the most promising adaptation options illustrated”.



50 copies of Coastal resilience handbook, 200 copies of the Guide for Mayors for adaptation of open spaces to the climate change; 500 copies of the Guide for citizens for protection against runoff flooding and 100 copies of the leaflet on enhancing coastal resilience of Adriatic coast have been printed and disseminated along Croatian coast. Since development agencies of the coastal counties have been undergone the procedure of the accreditation for the regional coordinators – printed materials have been sent to 7 county development agencies – to be disseminated to the mayors of the coastal cities and municipalities.