**AdriaClim - Climate change information, monitoring and management tools for adaptation strategies in Adriatic coastal areas**

***2014 - 2020 Interreg V-A Italy - Croatia CBC Programme - Strategic Project***

***Strategic theme*** *2 - Climate change adaptation*

***Specific objective*** *2.1 - Improve the climate change monitoring and planning of adaptation measures tackling specific effects, in the cooperation area*

***Start date*** *01/01/2020* - ***End date*** *31/12/2022*

***TOTAL BUDGET*** *€ 8.823.415*

**INTRODUCTION -** Model-based predictions indicate rising temperatures for both the Mediterranean and the Adriatic sea with the latter possibly experiencing an increment of about +1.5/1.6°C in temperature and 7cm in sea-level by 2050. Higher temperatures associated with an increased frequency and magnitude of storms impose significant coastal management challenges that are better dealt with if combined efforts from a range of public institutions are set in place. Hence, the project "Climate Change information, monitoring and management tools for adaptation strategies in Adriatic Coastal Areas" (AdriaClim) has been first conceived to address climate change along the Adriatic shores both in the Italian and Croatian emerged and submerged territories.

**PARTNERSHIP -** The Regional Agency for Prevention, Environment and Energy in Emilia-Romagna (Arpae) is the project's Lead Partner (LP) being in charge of the coordination through its Hydro-Meteo-Climate Service (Arpae-SIMC) department. In addition to Arpae, 18 other Project Partners (PPs) are involved in the project: 12 Italian and six Croatian institutions:

PP1 - NATIONAL RESEARCH COUNCIL (CNR)
PP2 - REGIONAL AGENCY FOR ENVIRONMENTAL PROTECTION AND PREVENTION OF VENETO
PP3 - ZADAR COUNTY DEVELOPMENT AGENCY ZADRA NOVA
PP4 - DUBROVNIK NERETVA COUNTY
PP5 - RUDER BOSKOVIC INSTITUTE
PP6 - PUBLIC INSTITUTION RERA SD FOR COORDINATION AND DEVELOPMENT OF SPLIT-DALMATIA COUNTY
PP7 - INSTITUTE OF OCEANOGRAPHY AND FISHERIES
PP8 - APULIA REGION
PP9 - EURO-MEDITERRANEAN CENTER ON CLIMATE CHANGE FOUNDATION
PP10 - ALMA MATER STUDIORUM - UNIVERSITY OF BOLOGNA
PP11 - ENVIRONMENTAL PROTECTION AGENCY OF FRIULI VENEZIA GIULIA
PP12 - ITALIAN NATIONAL INSTITUTE FOR ENVIRONMENTAL PROTECTION AND RESEARCH ISPRA
PP13 - MARCHE REGION – PRODUCTIVEACTIVITIES, EDUCATION AND LABOUR
PP14 - LOCAL HEALTH AUTHORITY NR 3 - VENETO
PP15 - MOLISE REGION
PP16 - EMILIA-ROMAGNA REGION
PP17 - CITY OF VENICE
PP18 - REGION OF ISTRIA

**PROJECT MAIN OBJECTIVES -** The project is strongly committed to increasing climate resilience through the development of new climate adaptation plans or updating already existing ones. Observing and modelling activities are fundamental parts when dealing with climate change and future scenarios as they are information providers able to cover diverse areas of knowledge and facilitate the development of management and adaptation plans. AdriaClim intends to contribute on filling the geographical coverage gaps in existing systems associated to supplementary efforts focusing on enhancing the systems' general capabilities. Additionally, Italy and Croatia shall benefit from consolidated adaptation and mitigation capacities with strengthened cooperation.

**MAIN OUTPUTS –** In terms of observing and modelling systems, the project focuses on improving and setting up cross-border methodologies/protocols on coastal/marine monitoring as means to harmonize and improve accessibility of observing and modelling tools and products. Among the cooperation area, four monitoring systems are expected to be put in place in Italy and other four in Croatia, including integrated high-resolution modelling tools.

As part of the adaptation and mitigation plans, climate change risks and vulnerability maps are expected to be developed for each Pilot area with at least five adaptation plans being designed and adopted/updated by relevant authorities. Furthermore, the project aims on setting a permanent cross-border expert management body to foster the collaboration on adaptation planning and mitigation measurements among Italian, Croatian and International institutions.

**PROJECT STRUCTURE AND WPS DESCRIPTION -** The project is divided in Working Packages (WPs) covering the project preparation (WP0), management and coordination of activities (WP1), communication activities (WP2), climate change monitoring (observing and modelling) systems (WP3), information system and products (WP4), and adaptation plans (WP5) with nine pilots being developed in different regions of both countries.

The first three WPs are normally dealt by admnistrative and public relations offices while the other three (WP3, WP4, and WP5) directly involve the application/development of technical tools/expertise. Climate change monitoring (observing and modelling) systems (WP3) focuses on increasing the modelling and observing capacities in terms observation and modelling quality and resolution. Biogeochemical and physical components will be addressed in a way to provide data and insights on how climate change influences their patterns and distribution. The activities in the WP3 are: design and implementation of the observing systems (3.1), design and implementation of the integrated modelling systems (3.2), quality control of the observations and validation of the modelling systems (3.3), integration and assessment of information of monitoring (obs/models) components for each pilot (3.4), assessment of vulnerability, hazards and impacts on the Pilot areas (3.5), and Transnational Expert Management Body (3.6).

Information system and products is the title of the WP4 and its main objective involves the development of an advanced common and interoperable system prone to facilitate sharing of data and modelling results among the partners and to be subsequently used for the adaptation plans

creation/updating. System architecture design (4.1), data transformation and climate change indicators development (4.2), big data repository and networking services (4.3), Geoportal development (4.4), and climate literacy toolkit (4.5) are the steps involved in this WP.

Using the results of WP3 and WP4 it will be possible to downscale the approaches towards a local adaptation plan development to be implemented as part of the WP5 (Adaptation Plans). The territorial PPs will take the lead and cooperate with local authorities and relevant stakeholders to identify locally significant socioeconomic activities and the most important ecosystem services as means to develop plans to increase the resilience of each pilot area. The first activity is the Critical analysis of existing national and regional/local adaptation plans (5.1), being followed by the coordination of adaptation plans design and of stakeholder engagement (5.2) prior to the development of each pilot area's plan. The pilot areas addressed by this activity are: Friuli-Venezia-Giulia (5.3), Veneto (5.4), Emilia-Romagna region (5.5), Puglia Region (5.6), Dubrovnik Neretva (5.7), Split-Dalmatia (5.8), Marche region (5.9), Molise region (5.10), and Zadar County (5.11).

# Project AdriaClim TOTAL BUDGET

| Project duration (months) | | | M01-06 | M07-12 | M13-18 | M19-24 | M25-30 | M31-36 | |
|---|---|---|---|---|---|---|---|---|---|
| WP1 | Project management | Timeframe | **128,460.70 €** | **162,812.50 €** | **169,162.50 €** | **175,012.50 €** | **186,722.50 €** | **190,875.00 €** | **1,013,045.70 €** |
| 1.1 | START-UP ACTIVITIES | M1-M6 | 42,566.25 € | 0.00 € | 0.00 € | 0.00 € | 0.00 € | 0.00 € | **42,566.25 €** |
| 1.2 | DAY-TO-DAY PROJECT MANAGEMENT, COORDINATION AND INTERNAL COMMUNICATION | M1-M36 | 34,028.50 € | 61,197.25 € | 71,846.00 € | 64,536.00 € | 83,166.00 € | 76,083.50 € | **390,857.25 €** |
| 1.3 | STEERING AND MONITORING OF THE PROJECT IMPLEMENTATION | M1-M36 | 18,883.50 € | 52,174.50 € | 42,760.75 € | 61,035.75 € | 53,770.75 € | 49,670.75 € | **278,296.00 €** |
| 1.4 | FINANCIAL MANAGEMENT | M1-M36 | 32,982.45 € | 49,440.75 € | 54,555.75 € | 49,440.75 € | 49,785.75 € | 65,120.75 € | **301,326.20 €** |
| WP2 | Communication activities | Timeframe | **96,525.00 €** | **97,110.90 €** | **82,190.90 €** | **102,725.90 €** | **62,742.05 €** | **113,679.55 €** | **554,974.30 €** |
| 2.1 | START-UP ACTIVITIES (incl. Communication and dissemination strategy) | M1-M6 | 51,168.75 € | 5,000.00 € | 0.00 € | 0.00 € | 0.00 € | 0.00 € | **56,168.75 €** |
| 2.2 | WEBSITE, SOCIAL MEDIA AND DISSEMINATION MATERIAL | M1-M24 | 21,920.00 € | 40,826.70 € | 39,939.20 € | 49,151.70 € | 21,650.00 € | 40,402.50 € | **213,890.10 €** |
| 2.3 | EVENTS, TRAINING AND WORKSHOPS | M1-M36 | 23,436.25 € | 51,284.20 € | 42,251.70 € | 53,574.20 € | 41,092.05 € | 73,277.05 € | **284,915.45 €** |
| WP3 | WP3 Project Implementation | Timeframe | **142,379.10 €** | **1,055,986.60 €** | **701,942.95 €** | **657,092.95 €** | **422,592.95 €** | **400,892.95 €** | **3,380,887.50 €** |
| 3.1 | DESIGN AND IMPLEMENTATION OF THE OBSERVING SYSTEM UPDATES | M1-M36 | 42,159.55 € | 739,125.40 € | 345,767.95 € | 271,142.95 € | 63,542.95 € | 69,817.95 € | **1,531,556.75 €** |
| 3.2 | DESIGN AND IMPLEMENTATION OF THE INTEGRATED MODELLING SYSTEMS | M1-M36 | 60,034.55 € | 141,525.40 € | 94,355.45 € | 102,180.45 € | 87,280.45 € | 83,405.45 € | **568,781.75 €** |
| 3.3 | QUALITY CONTROL OF THE OBSERVATIONS AND VALIDATION OF THE MODELLING SYSTEMS | M6-M36 | 6,550.00 € | 67,218.75 € | 74,643.75 € | 101,843.75 € | 97,568.75 € | 75,693.75 € | **423,518.75 €** |
| 3.4 | INTEGRATION AND ASSESSMENT OF MONITORING (OBSERVATIONS AND MODELS) COMPONENTS INFORMATION FOR EACH PILOT | M12-M36 | 0.00 € | 38,285.00 € | 118,593.75 € | 96,918.75 € | 94,568.75 € | 84,543.75 € | **432,910.00 €** |
| 3.5 | ASSESSMENT OF VULNERABILITY, HAZARDS, IMPACTS ON SOCIO ECONOMIC AND ECOSYSTEM SERVICE | M1-M36 | 33,635.00 € | 40,310.00 € | 41,585.00 € | 52,235.00 € | 53,010.00 € | 52,660.00 € | **273,435.00 €** |
| 3.6 | TRANSNATIONAL EXPERT MANAGEMENT BODY | M6-M36 | 0.00 € | 29,522.05 € | 26,997.05 € | 32,772.05 € | 26,622.05 € | 34,772.05 € | **150,685.25 €** |
| WP4 | WP4 Project Implementation | Timeframe | **49,224.55 €** | **237,892.05 €** | **345,900.90 €** | **424,275.90 €** | **259,549.55 €** | **233,654.55 €** | **1,550,497.50 €** |
| 4.1 | SYSTEM ARCHITECTURE DESIGN | M1-M25 | 39,747.05 € | 68,251.25 € | 76,217.95 € | 66,817.95 € | 3,725.00 € | 4,070.00 € | **258,829.20 €** |
| 4.2 | DATA TRANSFORMATION AND CLIMATE IMPACT INDICATORS DEVELOPMENT | M12-M36 | 100.00 € | 16,165.00 € | 126,938.75 € | 127,563.75 € | 118,910.40 € | 99,220.40 € | **488,898.30 €** |
| 4.3 | BIG DATA REPOSITORY AND NETWORK SERVICES | M6-M36 | 0.00 € | 59,363.75 € | 37,550.45 € | 99,625.45 € | 37,288.75 € | 37,563.75 € | **271,392.15 €** |
| 4.4 | GEOPORTAL DEVELOPMENT | M6-M36 | 2,012.50 € | 47,264.55 € | 57,426.25 € | 75,926.25 € | 56,932.90 € | 55,707.90 € | **295,270.35 €** |
| 4.5 | CLIMATE LITERACY TOOLKIT | M1-M36 | 7,365.00 € | 46,847.50 € | 47,767.50 € | 54,342.50 € | 42,692.50 € | 37,092.50 € | **236,107.50 €** |
| WP5 | WP5 Project Implementation | Timeframe | **202,757.50 €** | **316,332.50 €** | **521,577.50 €** | **395,537.50 €** | **514,935.00 €** | **352,870.00 €** | **2,304,010.00 €** |
| 5.1 | CRITICAL ANALYSIS OF EXISTING NATIONAL AND REGIONAL/LOCAL ADAPTATION PLANS | M1-M36 | 37,155.00 € | 30,470.00 € | 29,885.00 € | 25,235.00 € | 25,160.00 € | 14,960.00 € | **162,865.00 €** |
| 5.2 | COORDINATED DESIGN OF ADAPTATION PLANS AND STAKEHOLDER ENGAGEMENT | M1-M36 | 40,615.00 € | 49,615.00 € | 49,730.00 € | 48,080.00 € | 47,580.00 € | 37,930.00 € | **273,550.00 €** |
| 5.3 | ADAPTATION PLAN/ MITIGATION PLAN / PLAN OF INTERVENTION / ON THE FVG PILOT AREA | M4-M36 | 1,150.00 € | 3,280.00 € | 11,305.00 € | 10,055.00 € | 11,555.00 € | 10,555.00 € | **47,900.00 €** |
| 5.4 | ADAPTATION PLAN/ MITIGATION PLAN / PLAN OF INTERVENTION / ON THE VENETO PILOT AREA | M4-M36 | 67,950.00 € | 82,150.00 € | 75,055.00 € | 95,575.00 € | 94,030.00 € | 95,450.00 € | **510,210.00 €** |
| 5.5 | ADAPTATION PLAN/ MITIGATION PLAN / PLAN OF INTERVENTION / ON THE EMILIA-ROMAGNA PILOT AREA | M4-M36 | 25,237.50 € | 59,387.50 € | 82,692.50 € | 81,062.50 € | 79,400.00 € | 76,120.00 € | **403,900.00 €** |
| 5.6 | ADAPTATION PLAN/ MITIGATION PLAN / PLAN OF INTERVENTION / ON THE APULIA PILOT AREA | M4-M36 | 8,050.00 € | 16,330.00 € | 44,655.00 € | 40,405.00 € | 44,405.00 € | 41,880.00 € | **195,725.00 €** |
| 5.7 | ADAPTATION PLAN/ MITIGATION PLAN / PLAN OF INTERVENTION / ON THE DUBROVNIK NERETVA PILOT AREA | M4-M36 | 12,825.00 € | 15,700.00 € | 19,105.00 € | 16,275.00 € | 153,330.00 € | 17,850.00 € | **235,085.00 €** |
| 5.8 | ADAPTATION PLAN/ MITIGATION PLAN / PLAN OF INTERVENTION / ON THE SPLIT – DALMATIA PILOT AREA | M4-M36 | 7,475.00 € | 24,225.00 € | 23,170.00 € | 20,725.00 € | 20,945.00 € | 19,000.00 € | **115,540.00 €** |
| 5.9 | ADAPTATION PLAN/ MITIGATION PLAN / PLAN OF INTERVENTION / ON THE MARCHE PILOT AREA | M4-M36 | 2,300.00 € | 15,675.00 € | 16,520.00 € | 15,175.00 € | 16,520.00 € | 15,175.00 € | **81,365.00 €** |
| 5.10 | ADAPTATION PLAN/ MITIGATION PLAN / PLAN OF INTERVENTION / ON THE MOLISE PILOT AREA | M4-M36 | 0.00 € | 17,500.00 € | 17,130.00 € | 17,950.00 € | 20,180.00 € | 23,950.00 € | **96,710.00 €** |
| 5.11 | ADAPTATION PLAN/ MITIGATION PLAN / PLAN OF INTERVENTION / ON THE ZADAR PILOT AREA | M4-M36 | 0.00 € | 2,000.00 € | 152,330.00 € | 25,000.00 € | 1,830.00 € | 0.00 € | **181,160.00 €** |
| BL tot. | | | **619,346.85 €** | **1,870,134.55 €** | **1,820,774.75 €** | **1,754,644.75 €** | **1,446,542.05 €** | **1,291,972.05 €** | **8,803,415.00 €** |
| **WP0 Preparation costs** | | | | | | | | | **20,000.00 €** |
| **Total budget** | | | | | | | | | **8,823,415.00 €** |