



# Improving the European Rivers Water Quality through Smart Water Management Policies

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## Action Plan RDFA



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## LIST OF ABBREVIATIONS

ABBREVIATIONS	
<b>B</b>	
BIGDATA 4RIVERS	Improving the European Rivers Water Quality through Smart Water Management Policies
<b>D</b>	
DC	Directive 2000/60/CE
<b>E</b>	
ERDF	European Regional Development Funds
<b>R</b>	
ROP	Regional Operational Programme
RDFA	Regional Development Fund of Attica
RoA	Region of Attica
RPACC	Regional Plan for the Adaption to Climate Change of Attica

## 1. PREFACE

The present document consists of the Action Plan of the Regional Development Fund of Attica (RDFA), for the Region of Attica, elaborated within the scope of BIGDATA4RIVERS project which was approved under the fourth call for the Interreg Europa program and is co-financed by the European Regional Development Fund (ERDF).

The overall objective of BigData4Rivers is the exchange of experiences and good practices aiming to go further in the implementation of the water directives by proposing and promoting intelligent water management based on ICT technologies. The rich regional knowledge and capabilities for the implementation of a smart water management and exchanged experiences between partners, stakeholders and technicians linked to the implementation of the project offered the opportunity and inspired us for the elaboration of an Action Plan that combines smart water management and adaptation to climate change, enhancing awareness and civil protection.

Within the scope of the project each partner is expected to promote the implementation of its Action Plan via a specified policy instrument. The present Action Plan is the result of close collaboration with the Management Authority of the Regional Operational Programme of Attica.

## 2. EXECUTIVE SUMMARY

### 2.1. Introduction

One of the Europe's most relevant resources are the rivers that cross it. They are not only the main responsible for the rich & diverse European natural ecosystems but also the main source of the water used by the population & population activities

Water is a scarce resource that must be protected and reused & in this context the preservation of the quality of the European rivers' water is a major concern of local, regional, national & even European authorities

The project aims to go forward in the water directives implementation proposing the promotion of a smart water management (ICT should support the implementation of a smart water management in the participant territories as a transversal enabling technology that generates real-time information & allows different stakeholders to access & share it for a supported decision making process)

The overall objective of the project is to exchange experiences & good practices between partners in the field of the efficiency of the water systems, to adapt those good practices & apply the lessons learnt to each partner reality through the development of individual action plans & to promote their application through the partners' policy instruments

BIGDATA4RIVERS is in essence a driver for the generation & exchange of information & knowledge enabling better planning processes & decision-making regarding the local/regional water management. The interregional learning process will allow partners to learn & support each other based on their own experiences in the EU Water Framework directives implementation.

The RDFA has been established with the aim of supporting the implementation and accelerating payment procedures in regard to EU co-financed projects. Its development-oriented character makes it an active tool at local and regional level towards the development of the Region. Through the years RDFA aims were also to support the region in a variety development sectors including environmental aspects, so its capacity to contribute to regional development and technical assistance, in particular in the field of study, research and program implementation, renders the RDFA a potential tool for growth, combining the benefits from the public with those of the private sector. Since RDFA is implementing many EU projects on behalf of ROA, supported also by the Managing Authority its competences and experiences in the issue addressed by this policy are many. The policy instrument chosen falls into RDFA responsibility in terms of management in cooperation with policy- related stakeholders.

## 2.2. The Policy Instrument

The Managing Authority of Attica, represented by the Regional Development Fund, as entity is responsible for the design, management and monitoring of the Regional Operational Programme for 2014-2020. It is the owner of the policy instrument Regional Operational Programme of Attica and it has the overall control over programme specification and the allocation of financial resources, taking into consideration the provisions of European and national legislation. Regional Operational Programme for 2014-2020 consists of priority axes associated with the actions that Region of Attica wants to implement.

More specifically, for BD4R Programme the priority axes which are connected with actions that Region wants to implement are axes number 05 and 06:

- Priority Axis 05 - Promoting climate change adaptation, risk prevention and management
  - *Investment Priority 5a*: Supporting dedicated investment for adaptation to climate change
    - *Specific objective 5.a.1*: Limiting the effects of floods from the effects of climate change in the man-made and natural environment.
- Priority Axis 06 - Improving the Quality of Life in the Urban Environment
  - *Investment Priority 6b*: Investments in the water sector in order to meet the requirements of the Union's environmental acquis and address the needs identified by Member States for investments that exceed those requirements.
    - *Specific objective 6.b.1*: Expansion of water supply networks in settlements that do not have access to high quality drinking water.

The main objective of the Regional Operational is to fund and to implement projects following the European Environmental Acquisition and the National Strategies in the Sector of Waters (Directives 2000/60 and 91/271, other Special Instructions Issues, River Basin Management Plan Runoff, as well as Susceptibility associated with Water).

The actions are aiming at compliance with the requirements of Directive 98/83/EC on water for human consumption and the sustainable management of the water resources of the Region, such as the completion of water infrastructure, mainly on islands and remote settlements of the Region, etc. In the water sector there is a great need to implement targeted infrastructure water supply mainly to the islands of the Region in order to meet the requirements of Directive 98/83 /EC.

The priority for the ROP of Attica (ROA) is very high & critical. There are urgent targeted actions to be implemented through new projects supported, from the River Basin Management Plan & following national & Euro-pane legislation on the protection and management of water resources and mainly, to address the impacts of climate change in all sectors, such as water resources and floods.

## 2.3. Methodology

The Action that RDFA wants to implement, will be a subproject of the main Action that it is already integrated in ROP 2014-2020 and its title is: Attica's Regional Plan for the Adaption to Climate Change, and its total amount is 978.271,09 €. The object of this Action is the preparation of the Regional Plan for Adaptation to Climate Change (PSPKA) of Attica through participatory procedures defined in Law 4414/2016 (Government Gazette 149 / t.A / 09.08.2016).

## 2.4. Vision and Goals

The improvement of the policy instrument addressed will be achieved mostly through new projects supported & through improved governance. Some indicative new projects are:

1. Facilities - Infrastructure for the supply of islands & small agglomerations to meet the requirements of

Directive 98/83 /EC

2. Modernization - upgrade of existing water supply systems (remote control etc.)
3. Development of leakage control systems in treatment facilities & abstraction systems as well as in transport and distribution networks.
4. Removal of pollutants and pharmaceutical residuals from water bodies and treatment facilities
5. Climate Change Observatory
6. Pilot studies concerning stormwater management, flooding risk management, disaster risk reduction, socio-economic development
7. ICT solutions

The project will also help RoA to improve its governance results with special focus in the impact of the efficiency of the water treatment systems in the rivers quality of water (to ensure that the water used is returned to the flow system in adequate sanitary conditions and quality). As a result of the improvement new-targeted actions for the implementation of the River Basin Management Plan and national - EU legislation on the protection and management of water resources will implement.

RoA envisages also the improvement of the policy tool because improvements expected are linked to a desired improved governance managing ERDF funds related to an increased technical know-how concerning best practices & successful case studies on water treatment. In addition, RoA needs to initiate an “updating” & “upgrading” process in terms of acquisition & implementation of new methods & approaches related natural resources, arising thanks to cooperation with EU partners.

Region of Attica intends to address the impacts of climate change in all sectors and especially those that RoA is highly vulnerable, such as water resources and floods. The implementation of Attica’s Regional Plan for Adaptation on Climate Change is of high priority.

The cooperation of RDFA and the Local Stakeholders Group had resulted in the exchange of information between regional and national institutions and the exchange of data available in each of the institutions that participate in LSG group. Transferable parts of Partners' Good Practices, that were identified and assessed by RDFA and Stakeholders' Group peer reviews, are incorporated into the design of the action plan, which will be the content of the new call for Action of the Region of Attica.

Through its participation in the Local Stakeholder Group meetings and the BD4R meetings, RDFA managed to integrate the viewpoints of the bodies in the content of the Action Plan.

## 2.5. Lessons learned

Joint Analytical Report (JAR), provided information of the results obtained in terms of identified good practices, the role of Information and Communication Technologies (ICT) in management and monitoring difficulties and opportunities for improving the policy instruments addressed, as well as, it allowed the exchange of information on experiences, difficulties and good practices in the scope of the implementation of the Policy Instruments addressed by the project, especially the Regional Operational Programs (ROP).

The database of the good practices reached the 41 entries, enreaching the originally 14 good practices presented in JAR by all partners, expanding the variety of the issues addressed. Each practice's results achieved, transferability and other possibilities of use were graded and taking into consideration vision and goals of RoA, 4 good practices of interest were selected.

The knowledge transfer seminars offered the opportunity of better understanding of all the project's policy instruments; the priorities and objectives related to water resources; presented methods, technologies and applications in water and resource management. Furthermore, opportunities were offered for contacting, directly or indirectly, the owners of the selected good practices of interest for better understanding and experience transfer, leading to the final selection of one good practice to be transferred in the region of Attica.

## 2.6. List of actions

The selection of the good practice, namely “Managing the risk of flooding on the Orleans Canal”, was based on its compatibility to the policy instrument, its contribution to the vision and goals of RoA and its transferability to Attica.

RDFA found inspiration in this Region and will import the new Action which will be financed within its programme.

Once the good practice of interest was determined the necessity of drafting the next steps to be followed became evident:

- Area for the good practice to be applied: Identification of the area that faces similar issues to be addressed as the good practice selected
- Possible transferability issues need to be identified and addressed
- Mapping of stakeholders
- Integration through an appropriate project in the policy instrument Regional Operational Programme of Attica
- Conducting tenders (services and supplies)
- Implementation of actions - Elaboration of studies - Installation of systems
- Monitoring results

## 2.7. The monitoring process

During the current Programming Period 2014-2020 the submission of Programme and Project documents are performed via the MIS system (Special Service of Monitoring Information System, Hellenic Ministry of Economy and Development).

The fundamental principle of a Monitoring system is to allow users to capture data, process and disseminate information in a systematic way. Monitoring system enables Region of Attica to measure trends of various indicators based on the data collected in the field.

The monitoring process of the Action will be imprinted in the indicators of the policy instrument which are:

<b>Indicators of Investment Priority 5a</b>						
<b>No</b>	<b>Indicator (O or R)</b>	<b>Measurement unit</b>	<b>Fund</b>	<b>Category of region</b>	<b>Source of data</b>	<b>Frequency of reporting</b>
1.	Population benefiting from flood defenses - CO20 (O)	Number	ROP 2014-2020	More developed	Monitoring information system	Annual
2.	Habitats receiving aid to acquire a better conservation status – CO23 (O)	Hectares	ROP 2014-2020	More developed	Monitoring information system	Annual

The Monitoring Information System, is an information and management system for projects co financed under the National Strategic Reference Framework (NSRF) and the Community Support Framework (CSF). The use of OPS is obliged by

- The requirement set by the Council Regulation (EC) 1083/2006 and the Commission Regulation 1828/2006 concerning the exchange of data between each Member State and the Commission for the management of the Community assistance.
- The need for a single Database to monitor the progress of the Operational Programs and projects of the current (2007-2013) and the previous programming period (2000-2006).

Objective of the system:

- Managing of the data from the highest (NSRF/CSF) to the lowest level (project/sub-project and payment documentation).
- Covering all aspects of management, including physical and financial progress, timetable, administrative and legislative framework.
- Covering all stages of management involved in the planning and implementation of projects and programs
- Exchange data with the database of the European Committee (SFC2007).

For this reason, the functions and controls built into the system are intended:

- To meet the requirements of management of each level of the NSRF, CSF or CF tree-structure (Operational Programs, Priority Axes, Call for proposals, Projects (Operations), and Sub-Projects / Operational Programs, Priority Axes, Measures, Projects (Operations), and Sub-Projects or Projects and Sub-Projects by the competent Management Service
- To ensure the appropriate correlations between the levels in question,
- To allow the competent officials at each management level:
  - To check that commitments are being fulfilled effectively to introduce modifications to the Operational Programs, where necessary
  - To monitor the rates of implementation
  - To effectively assess the results and impact of the Operational Program on a quantified basis.

## 2.8. Conclusions and recommendations

As stated in the proposal of BigData4Rivers, the overall objective is the exchange of experiences and good practices in order to develop seven (7) individual action plans (one for each partner). Each partner is expected to promote the implementation of its action plan via a specified policy instrument.

The elaborated Joint Analytical Report and database of the good practices, as well as, the inter-regional knowledge transfer seminars served their main purpose. They offered regional knowledge and capabilities for the implementation of a smart water management and exchanged experiences between partners, stakeholders and technicians linked to the implementation of the project. They gave the opportunity of better understanding of all the project's policy instruments; the priorities and objectives related to water resources; presented methods, technologies and applications in water and resource management.

Gradually it led to integrating more good practices than originally designed, thus expanding the database created, providing the opportunity to also tackle cross-cutting issues of water management and other European and regional policies.

The latter inspired RoA for the selection of the good practices of interest and led to the one that combines smart water management and adaption to climate change, enhancing awareness and civil protection.

### 3. ACTION PLAN (MAIN PART)

#### 3.1. General Information

Project	Improving the European Rivers Water Quality through Smart Water Management Policies, Acronym: BIGDATA 4 RIVERS
Partner organisation	Regional Development Fund on Behalf of the Region of Attica
Other partners / players involved (if relevant)	
Country	Greece
NUTS2 region	Attica
Contact person	Antigoni Gkoufa, Karavangeli Vicky
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Phone number	

#### 3.2. Policy Context

The Action Plan aims to impact:	<input checked="" type="checkbox"/> Investment for Growth and Jobs programme <input type="checkbox"/> European Territorial Cooperation programme <input type="checkbox"/> Other regional development policy instrument
Name of the policy instrument addressed:	Regional Operational Programme of Attica 2014-2020

#### 3.3. Details of the actions envisaged

##### ***Action 1 : Development of a pilot - research early warning system of flood in buffer zones***

##### ***a) The Background (please describe the lessons learnt from the project that constitute the basis for the development of the present Action Plan)***

The elaboration of the Joint Analytical Report (JAR) promoted a deeper knowledge, among the partners, of the reality of each region with regard to the management of water and water resources, in the context of the community water directive, as well as the identification of good practices in this field.

More specifically, JAR aimed to:

- characterize the situation of each region and respective country in the context of water resources management, the role of river basins, respective management plans and policies adopted;
- characterize the application of community directives, in the scope of water and its management, considering the level of implementation of the WFD in each country, given the prevision programming cycles and the main results obtained;
- describe the areas, in the field of water and water resources management, in which information and communication technologies can play an important role: technologies directly associated with water management and monitoring of the quality of rivers and lakes;
- describe the good practices identified by each partner, according to a previously defined characterization grid and provided for a brief assessment of the conditions for replication of these practices;

- identify the main indicators used, in the regional context, within the scope of WFD and water and water resources management with the aim of allowing a pool of knowledge about the processes for defining the indicators, their meaning and use;
- identify the practices' respective stakeholders, describing their role and relationship with the project.

Experience exchange and discussions led to the inclusion of more good practices by the partners, expanding the original set of 14 good practices to 41 within the scope of the project. Thus creating a database where key elements of each good practice were briefly described and were assessed for their relevance to the project and partner's interest in them.

The information was assessed on the basis of the compatibility with the policy instrument that will be used, namely the Regional Operation Programme (ROP) of Attica, the compatibility and the possibility of integration in current projects already approved by Attica's ROP and the contribution to scopes and goals of RoA. Four good practices were initially chosen for further elaboration, namely:

- ID-23: *Managing the risk of flooding on the Orleans Canal* (6-PP DREAM)
- ID-28: *Solutions of Stormwater management - Kretinga town surface (stormwater) runoff infrastructure development* (7-PP KAUNAS)
- ID-30: *Pilot testing of activated carbon at Kretinga WWTP* (7-PP KAUNAS)
- ID-33: *ALICE: Improving the management of Atlantic Landscapes: accounting for biodiversity and ecosystem services* (1-PP AIMRD)

The knowledge transfer seminars offered the opportunity of better understanding of all the project's policy instruments; the priorities and objectives related to water resources; presented methods, technologies and applications in water and resource management. Furthermore, opportunities were offered for contacting, directly or indirectly, the owners of the selected good practices of interest for better understanding and experience transfer. Thanks to our partners' mediation crucial information, on the previously four good practices mentioned, was delivered for making the final selection of one good practice to be transferred in the region of Attica: ID-23: *Managing the risk of flooding on the Orleans Canal* (6-PP DREAM).

**b) Action (please list and describe the actions to be implemented)**

Title of the Action: Development of a pilot - research early warning system of flood in buffer zones

The selection of the good practice, namely "*Managing the risk of flooding on the Orleans Canal*", was based on its compatibility to the policy instrument, its contribution to the vision and goals of RoA and its transferability to Attica. Last but not least, it serves the implementation of different EU policies (water frame directive, climate change strategy, civil protection).

In order to successfully transfer this good practice in an area in Attica Region at least the following steps should be made:

- Identification/selection of the area that faces similar issues to be addressed as the good practice selected: flooding history, an area or waterbody that would work as buffer zone
- Mapping of the stakeholders: Competent authorities to manage the alert, e.g. warn citizens, take actions for reducing the risk of flooding, civil protection, etc; population affected in case of a flooding incidence; local associations or organizations
- Contacting the competent authorities for managing the alert system, the risk flooding reduction, civil protection
- Identify and address possible transferability issues
- Identify appropriate project/projects within the policy instrument that it could be integrated into complementing its scope and objectives
- Conducting tenders (services and supplies): interdisciplinary team of experts, technical data/specifications, implementation action schedule
- Implementation of practice: Elaboration of studies/services provided (hydraulic model, forecasting module, technical specifications and installation, processing & management plan for the alert system)
- Installation of systems
- Monitoring results

c) **Players involved** (please indicate the organisations in the region who are involved in the development and implementation of the action and explain their role)

- Region of Attica that will design and implement the Action
- Municipality which will constitute the intervention area of the action
- The Managing Authority of the ROA ROP 2014-2020 which will provide incomes and managing experience

d) **Timeframe**

Estimated date of entry: September 2022 till July 2023

TASK	TITLE	TIMEFRAME
1	Consolidation, reinforcement and promotion of the regional stakeholder group.	Aug 2022 - Jul 2023
2	Submission of funding proposal of the Action in the Managing Authority of Attica, through Monitoring Information System	August 2022
	Approval and integration of the Action from Managing Authority of Attica	October 2022
3	Conducting tender for the elaboration of studies/services provided (hydraulic model, forecasting module, technical specifications and installation, processing & management plan for the alert system	January 2023
4	Conducting tender for the supply of the alert system	April 2023
5	Implementing the Action	June 2023

e) **Costs** (if relevant)

The amount of 500.000€ is estimated for the implementation of the Action.

More specifically:

- Study for the forecasting module. (An interdisciplinary team of experts will elaborate the study and the estimated cost is 150.000€).
- Study for the development and installation of alert system. (An interdisciplinary team of experts will elaborate the study and the estimated cost is 100.000€)
- Supply of the Alert system - including staff training (estimated cost: 250.000€).

It will be integrated, as a sub-project (pilot application) into the *Regional Plan for the Adaption to Climate Change (RPACC) of Attica* modifying its total cost (from 978.271,09€) to 1.478.271,09€.

f) **Funding sources** (if relevant)

This Action is connected to both Priority Axes: Priority Axis 05 – Promoting climate change adaptation, risk prevention and management, Investment Priority 5a: Supporting dedicated investment for adaptation to climate change, Specific objective 5.a.1: Limiting the effects of floods from the effects of climate change in the man-made and natural environment and also, Priority Axis 06 - Improving the Quality of Life in the Urban Environment, Thematic Objective 06: Preservation and protection of the environment and promotion of resource efficiency, Investment Priority 6b: Investments in the water sector in order to meet the requirements of the Union's environmental acquis and address the needs identified by Member States for investments that exceed those requirements, Specific objective 6.b.1: Expansion of water supply networks in settlements that do not have access to high quality drinking water of ROP of Attica 2014-2020.

The Action that RDFA wants to implement, will be funded by ROP 2014-2020 through the Priority Axis 05 – Promoting climate change adaptation, risk prevention and management. It will be a subproject of the main project that it is already integrated and funded by ROP 2014-2020 by the title: *Regional Plan for the Adaption to Climate Change (RPACC) of Attica*. The object of this Action is the preparation of the Regional Plan for Adaptation to Climate Change (RPACC) of Attica through participatory procedures defined in Law 4414/2016 (Government Gazette 149 / A / 09.08.2016). The project concerns the elaboration of a Regional Plan and of a Strategic Environmental Impact Assessment for the Adaptation to Climate Change of Attica,

as well as, the installation of systems for monitoring spatial and sectoral vulnerability and progress for the implementation of RPACC.

**g) Impact expected**

The impact that is expected through the implementation of the Action mainly concerns:

- Development and installation of alert system based on:
  - a) water level sensors and
  - b) a hydraulic model
- Development of a forecasting module: Continuous critical rainfall calculation: modeling calculates soil water saturation by analyzing weather data and concluding the rain quantity likely to overflow
- Adaptation to climate change
- Raising public awareness and citizen education
- Flooding risk management and disaster risk reduction by the competent authorities.

**Date:**

**Signature:**

**Stamp of the organisation (if available):**