

IPA 2010 CROATIA PROJECT FICHE

HR-2010-03-27-05

1. Basic information

1.1 Cris number: IPA/2010/022-460

1.2 Title: **Development of flood hazard maps and flood risk maps**

1.3 ELARG Statistical code: 03.27 – Environment

1.4 Location: Republic of Croatia

Implementing arrangements:

1.5 Implementing Agency:

Central Finance and Contracting Agency (CFCA)

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1.6 Beneficiary (including details of SPO):

Ministry of Regional Development, Forestry and Water Management (MRDFWM)

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The project partner: Hrvatske vode (Croatian Waters)

Financing:

1.7 Overall cost (VAT excluded)¹: EUR 1 100 000

¹ The total cost of the project should be net of VAT and/or other taxes. Should this not be the case, the amount of VAT and the reasons why it should be considered eligible should be clearly indicated (see Section 7.6)

1.8 EU contribution: EUR 1 045 000

1.9 Final date for contracting: 2 years following the date of conclusion of the Financing Agreement

1.10 Final date for execution of contracts: 2 years after the end date for contracting

1.11 Final date for disbursements: 3 years after the end date for contracting

2. Overall Objective and Project Purpose

2.1 Overall Objective: Contribution to the further harmonization and implementation of the EU water-related *aquis communautaire*.

2.2 Project purpose: Implement requirements of EU Directive 2007/60/EC in the preparation of flood hazard maps and flood risk maps in the Republic of Croatia.

2.3 Link with AP/NPAA / EP/ SAA

1. National Programme for the Integration of the Republic of Croatia into the European Union 2009

A key priority under Chapter 3.27.4 Water Quality of the National Programme for the Integration of the Republic of Croatia into the European Union 2009 is the adoption of the Water Act and the Act on Water Management Financing and accompanying supporting legislation.

The new Water Act and the Act on Water Management Financing were adopted on 18 December 2009, and this project will contribute to the implementation of the new Water Act. Croatian Waters are obliged to undertake preliminary flood risk assessment, develop flood hazard maps and flood risk maps and to prepare flood risk management plans (in particular related to the obligations laid down in Articles 110, 111, 112 and 113).

2. Stabilization and Association Agreement, COM (2001) - 371 final:

This project will contribute to the following priorities stipulated in Article 103:

1. The Parties shall develop and strengthen their cooperation in the vital task of combating environmental degradation, with the view to promoting environmental sustainability.

2. Cooperation could centre on the following priorities:

- Continuous approximation of laws and regulations to Community standards.

3. In the field of protection against natural disasters, the Parties will cooperate to ensure the protection of people, animals, property and environment against man-made disasters. To this end, the cooperation could include the following areas:

- the exchange of the outcome of scientific and research development projects;

- mutual and early notification and warning systems on hazards, disasters and their consequences;
- rescue and relief exercises and assistance systems in case of disasters;
- exchange of experience in rehabilitation and reconstruction after disaster.

4. Council Decision of 12 February 2008 (2008/119/EC) on the principles, priorities and conditions contained in the European Partnership with Croatia, Brussels, COM(204):

Pursuant to the Article 1 and given Annex, further work on the transposition of the *acquis* has been identified as a medium-term priority in the environmental sector.

2.4 Link with MIPD

This project is envisaged to contribute to the MIPD 2009-2011 third Strategic objective under IPA Component I “to further enhance Croatia’s ability *to assume the obligations of membership* by supporting the institutional capacity building for *acquis* transposition and implementation according to the priorities identified in the Accession Partnership, the screening reports and subsequent negotiations in the different chapters of the *acquis*”.

2.5 Link with National Development Plan

N/A

2.6 Link with national/ sectoral investment plans

1. The Water Management Strategy (Official Gazette No 91/08; adopted on 5th July 2008 by the Croatian Parliament) defines the legislative, organisational, financial, technical, scientific, and IT aspects of water management activities in the present socio-economic circumstances of the accession process of the Republic of Croatia to the European Union, as well as in the future circumstances of the full membership.

One of the activities under Chapter 5.1.1 of the Water Management Strategy is Activity 3 “Development of flood risk maps and flood hazard maps for the whole of Croatia, and their presentation to the interested public”.

The Strategy shall be in force as long as the assumptions on the basis of which it was adopted hold true, taking into consideration the period of legal approximation lasting until the end of 2008, and two 15-year investment cycles closing at the end of 2038.

2. The Water Act (Official Gazette No 153/09, Articles 105, 110, 111, 112, & 113)

The new Water Act was enacted in late 2009 as a direct outcome of the negotiations with the European Commission and the requirements taken over under Chapter 27-Environment. It complies with requirements of the Water Framework Directive (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy) as well as the part of the *acquis* referring to the flood hazard maps and flood risk maps (the Floods Directive (2007/60/EC)).

The Water Act regulates the legal status of waters, the water estate and water management facilities, management of water quality and quantity, protection against adverse effects of water, detailed amelioration drainage and irrigation, activities of public water supply and public sewerage, special activities for the purposes of water management, institutional organization of performing these activities, and other issues related to waters and the water estate. Particular reference to the protection against adverse effects of water and risk management is prescribed in the Article 105. Tasks conferred to the Croatian Waters to devise preliminary flood risk assessment, flood hazard and flood risk maps as well as flood risk management plans are further elaborated in Articles 110-113.

3. Act on Water Management Financing (Official Gazette No.153/09)

The Act on Water Management Financing lays down the sources of funds for the financing of water management in Croatia. Funds for financing water management are secured in the budget or from contributions and fees which are paid by the users of the water system.

4. National Flood Defence Plan

The National Flood Defence Plan (Official Gazette Nos. 8/97, 32/97, 43/98 & 93/99) lays down, among other things, the following:

- areas, sectors and sections of watercourses and protection water structures subject to flood defence measures;
- water levels at which regular and emergency flood defence measures start in a given area;
- legal and natural persons that are responsible for implementing flood defence measures and ice defence measures on watercourses;
- measures to be taken before, during and after flood defence;
- duties, responsibilities and authorities of the flood defence manager;
- communications system;
- method for collecting data and distributing information on events and measures taken during flood defence and/or ice on watercourses.

As a legal entity for water management, Hrvatske vode is the main bearer and organizer of the implementation of preventive measures, preparatory activities, and flood defence measures. Flood defence is planned and organized at the level of river basin districts, and within the river basin districts at the level of county territories, sectors, and watercourse sections.

The future flood hazard maps and flood risk maps which will result from this project will contribute further to the implementation of the National Flood Defence Plan.

5. Water Management Plan (Hrvatske vode)

A Water Management Plan is prepared by Hrvatske vode each year. It provides funds for the implementation of technical tasks of general interest for water management. Among other things, these tasks include the preparation of river basin management plans, respecting in the process the requirements of the Directive on the assessment and management of flood risks. For the purpose of implementation of the Directive on the assessment and management of flood risks, financing studies are developed as well

as other documentation required for the preparation of flood hazard maps and flood risk maps.

3. Description of project

3.1 Background and justification:

Water management in the Republic of Croatia is regulated by the Water Act (Official Gazette No 153/09), the Act on Water Management Financing (Official Gazette No 153/09), and the accompanying subordinate regulations. The activities conducted so far in the sense of harmonization of the national legislation related to the supporting bylaws which derive from the new Water Act and the new Act on Financing of Water Management, will soon be finished, upon which the national legislation will be harmonized with the regulations of the EU water-related directives, including the Floods Directive (2007/60/EC).

Water management in Croatia is under responsibility of the Ministry of Regional development, Forestry and Water Management (MRDFWM) and Hrvatske vode (Croatian Waters, CW) - agency for water management. The present legislative framework also includes state administration bodies and institutes competent for water management issues: Ministry of Environmental Protection, Physical Planning and Construction, Ministry of the Sea, Transport and Infrastructure, Ministry of Culture, Ministry of Health and Social Welfare, Ministry of Economy, Labour and Entrepreneurship and related institutions such as the Meteorological and Hydrological Service of Croatia, Institutes for Public Health and others. According to the Water Act (OG No 153/09), Croatian Waters are obliged to undertake preliminary flood risk assessment, develop flood hazard maps and flood risk maps and to prepare flood risk management plans.

Protection against adverse effects of water includes activities and measures for flood defense, defense against ice on watercourses, protection against erosion and torrents, and for the elimination of consequences of such activities. In this process nature protection requirements are fulfilled. The establishment, maintenance, and systematic improvement of adequate preventive protection of the population and assets against floods is one of the basic tasks of the water management sector and a necessary precondition for Croatia's further economic development. Regardless of great efforts, the present status of preventive flood protection can still be improved.

Currently low level of public awareness of flood risks is, among other things, the result of a relatively long period without catastrophic floods that last struck Croatia in the 1960s and 1970s (catastrophic flooding of the Sava, Drava, and Danube Rivers). High waters were later successfully evacuated thanks to the existing protective systems. However, it has to be pointed out that Croatia has not experienced extreme floods with high return periods that have recently struck Western and Central Europe. Local floods of mountain torrents - frequent in Croatia in the last fifteen years - caused heavy damage on the local level. Public awareness on a flood protection issues, in general, in Croatia is developing. One of the undertaken measures to raise public awareness are flood protection reports published on the web site of Croatian Waters (www.voda.hr).

Operative flood defence in Croatia functions well, as confirmed by successful flood defence on the Danube and Drava Rivers in 2006, when a huge water wave, that

caused extensive damage to the upstream and downstream countries, was evacuated through Croatia with no significant damage. Numerous flood defence systems have been constructed on the territory of the Republic of Croatia. However, it has to be noted that a large number of regulation structures was constructed in the 1970s. Today these systems do not adequately protect the area. On one hand, this is due to the modified hydrological conditions and on the other, due to modified circumstances on the defended area (greater level of development in settlements, progress of economic activities, etc.).

Sustainable protection against floods and other adverse effects of water implies achieving economically justified levels of protection of the population, tangible assets, and other values at risk (industrial facilities, roads, infrastructural systems, agricultural areas, cultural and historical heritage, etc.), along with promoting conservation and improving the ecological status of water bodies and floodplains, in order to create preconditions for further sustainable economic development. The re-evaluation of flood risk will initiate an economically efficient and environmentally sound improvement of the level of protection.

EU Directive 2007/60/EC on the assessment and management of flood risks (Floods Directive) obliges the MSs to prepare the following:

- a) Preliminary flood risk assessment, Articles 4 & 5 (by 22 December 2011);
- b) Flood hazard maps and flood risk maps, Article 6 (by 22 December 2013);
- c) Flood risk management plans, Article 7 & 8 (by 22 December 2015).

In reference to **a) Preliminary flood risk assessment**, based on available or readily derivable information, such as records and studies on long-term developments, several preliminary flood risk assessments have already been executed in line with the requirements. Preliminary analyses for a minimum of two pilot projects – one in the area of the Adriatic basin and one in the area of the Black Sea basin have already been carried out.

Moreover, there are a few preliminary flood risk assessments currently under preparation. Development of the remaining preliminary flood risk assessments in the Republic of Croatia is planned to be carried out during 2011. Development of these ongoing and the new preliminary flood risk assessments planned for 2011 will provide a wider selection of potential pilot areas.

The start of the Twinning project is planned for the beginning of 2012, by which time nearly all preliminary risk assessments in the Republic of Croatia should be completed, and among which the best pilot projects would then be selected.

In reference to **b) Flood hazard maps and flood risk maps**, participation in the preparation of flood hazard maps and flood risk maps on pilot areas is one of the main tasks of the Twinning project. It is expected for the Twinning project to help prepare these maps for the selected pilot areas on the basis of the results of previously undertaken preliminary flood risk assessment. At the beginning of the project a Project Implementation Plan (Result 1; Activity 1) will be prepared, in which the minimum two pilot areas of adequate sizes will be defined, as follows: one pilot area in the Black Sea basin and 1-2 pilot areas in the Adriatic basin. Due to the specific characteristic of the karst area, for the purposes of this project, room was left for the establishment (if needed) of two pilot areas in the Adriatic basin. A decision on the number and size of pilot areas will be reached on the basis of the recommendations of the Project Implementation Plan.

In the second stage, the following appropriate background data on the flood risk areas on the basis of preliminary assessments for all of the pilot areas should be prepared: digital terrain models (DTM), longitudinal and cross profiles of watercourses; hydrological analyses; land use information; other required background documents, depending on methodology. These background documents and data are a precondition for the mathematical modelling, i.e. preparation of flood hazard maps and flood risk maps on the pilot areas.

In addition to the preparation of the flood hazard maps and flood risk maps, several guidance documents adapted to Croatian circumstances will be prepared as one of the results of this project. The guidance documents should be of significant help to Croatian experts for successful implementation of the Floods Directive on the pilot areas, as well as on other areas in the Republic of Croatia. A list of the proposed guidance documents is presented in the description of results, i.e. activities.

During the entire project period, a set of training programs are also going to be organised which are intended at preparing Croatian experts as much as possible for the fulfilment of requirements of the Directive and flood risk management. At the end of the Twinning project, general public needs to be informed about the project results.

Finally, **c) The preparation of flood risk management plans** will be undertaken. One of the twinning project results will be a set of guidance documents for the preparation of flood risk management plans. Following the phase of the preparation of flood hazard maps and flood risk maps for the pilot areas, the guidance documents are going to be of great help to Croatian experts for the upcoming phase of the preparation of flood risk management plans (after the completion of the Twinning project).

Officials of the right function and a high enough ranking will benefit from the project. The beneficiary intends to implement the proposals and recommendations of the project leader. It is planned for the beneficiary to further continue the preparation of flood risk management plans for the pilot areas based on the flood hazard maps and flood risk maps and the guidance documents resulting from this Twinning project.

3.2 Assessment of project impact, catalytic effect, sustainability and cross border impact (where applicable)

- Project Impact: The implementation of the project will contribute significantly to the implementation of the Floods Directive and EU water-related directives. The assistance of the Twinning project team will be crucial in the preparation of flood hazard maps and flood risk maps on the pilot areas and capacity building in the Ministry of Regional Development, Forestry and Water Management and Hrvatske vode.

- Catalytic effect: This project will assist and enable the Republic of Croatia to fulfil the EU requirements set out by the EU Directive 2007/60/EC that will be obligatory for Croatia as a future Member State. Twinning assistance will facilitate the process of meeting its requirements by providing its expertise in devising the needed set of documents. All outputs are going to be of great help to Croatian experts for the upcoming phase of the preparation of flood risk management plans (after the completion of the Twinning project).

- Sustainability: Three main phases of implementation in relation to the Twinning project are foreseen. Preliminary flood risk assessment on the pilot areas have been and will be carried out before the Twinning project while the preparation of flood

hazard maps and flood risk maps on the pilot areas will be carried out through the Twinning project. Preparation of flood risk management plans on the pilot areas, as well as on other areas in Croatia will be undertaken after the Twinning project. Finally, flood risk management plans for the pilot areas based on the flood hazard maps and flood risk maps and the guidance documents resulting from this Twinning project will be prepared.

- Cross border impact: Due to the geographic position and hydrographical characteristics of the national territory, flood protection is traditionally related to bilateral and multilateral cooperation. Cross border impact will be known after the selection of pilot areas and designated flood risk areas.

3.3 Results and measurable indicators:

The activities described in this project need to lead to the following results:

Result 1

- 1.1. Project Implementation Plan and Methodology for the preparation of flood hazard maps and flood risk maps prepared.
- 1.2. Minimum 2 pilot areas of adequate sizes selected.

Indicator:

- 1 Project Implementation Plan and Methodology for the preparation of flood hazard maps and flood risk maps before proceeding to the Activity 2.
- Minimum 2 two pilot areas of adequate sizes selected before proceeding to the Activity 2.

Result 2

- 2.1. Data for the minimum 2 flood risks areas (identified as a result of the preliminary analysis) collected.
- 2.2 Digital terrain models (DTM) for the minimum 2 flood risks areas (identified as a result of the preliminary analysis) prepared.
- 2.3. Longitudinal and cross sections of watercourses for the minimum 2 flood risks areas (identified as a result of the preliminary analysis) prepared
- 2.4. Hydrological data for the minimum 2 flood risks areas (identified as a result of the preliminary analysis) prepared and analysed;
- 2.5. Land use information for the minimum 2 flood risks areas (identified as a result of the preliminary analysis) prepared..

Indicators:

- 2.1. Data for the minimum 2 flood risks areas before proceeding to the Activity 3
- 2.2. Digital terrain models (DTM) for the minimum 2 flood risks areas before proceeding to the Activity 3
- 2.3. Longitudinal and cross sections of watercourses for the minimum 2 flood risks areas before proceeding to the Activity 3
- 2.4. Hydrological data for the minimum 2 flood risks areas before proceeding to the Activity 3
- 2.5. Land use information for the minimum 2 flood risks areas before proceeding to the Activity 3

Result 3

Flood Hazard Maps and Flood Risk Maps for selected pilot areas (minimum 2 flood risks areas) prepared.

Indicator: Flood Hazard Maps and Flood Risk Maps for selected pilot areas (minimum 2 flood risks areas) by the end of the project

Result 4

4.1. Guidance Document on the technical aspects of the preparation of flood hazard maps prepared.

4.2. Guidance Document on the assessment of flood risks and adverse consequences of floods prepared.

4.3. Guidance Document on the integrated assessment of existing and planned civil engineering measures for flood protection prepared.

4.4. Methodology for assessing potential impacts of climate change on flood risks prepared.

4.5. Guidance Document on the participation of the public and stakeholders in flood risk management prepared.

4.6. Guidance for Risk Management Plans prepared.

Indicator:

4.1. 1 Guidance Document on the technical aspects of the preparation of flood hazard maps by the end of the project.

4.2. 1 Guidance Document on the assessment of flood risks and adverse consequences of floods by the end of the project.

4.3. 1 Guidance Document on the integrated assessment of existing and planned civil engineering measures for flood protection by the end of the project.

4.4. 1 Methodology for assessing potential impacts of climate change on flood risks by the end of the project.

4.5. 1 Guidance Document on the participation of the public and stakeholders in flood risk management by the end of the project.

4.6. 1 Guidance for Risk Management Plans by the end of the project.

Result 5

5.1. Capacity of relevant institutions strengthened

Indicator: 5 Workshops delivered in order to improve management of the Flood Directive requirements in two institutions (MRDFWM and CW) by the end of the project.

3.4 Activities:

Activity 1 Development of the Project Implementation Plan and selection of the pilot areas

1.1 Development of the Project Implementation Plan and Methodology for the preparation of flood hazard maps and flood risk maps for the selected pilot areas.

1.2. Selection of the minimum 2 pilot areas of adequate sizes will be defined: one pilot area in the Black Sea basin and 1-2 pilot areas in the Adriatic basin.

Activity 2 Data collection and preparation of data sets for maps the minimum 2 flood risks areas identified as a result of the preliminary analysis

- 2.1. Data collection
- 2.2. Digital terrain models (DTM)
- 2.3. Longitudinal and cross sections of watercourses preparation
- 2.4. Hydrological data preparation and analysis
- 2.5. Land use information preparation and validation

Activity 3 Preparation of Flood Hazard Maps and Flood Risk Maps on the pilot areas

Preparation of flood hazard maps and flood risk maps for the pilot areas through the process of mathematical modelling (simulation) of floods. Flood hazard maps on the pilot areas shall cover the geographical areas which could be flooded according to the following scenarios:

- (a) floods with a low probability, or extreme event scenarios;
- (b) floods with a medium probability (likely return period ≥ 100 years);
- (c) floods with a high probability, where appropriate.

For each scenario the following elements shall be shown:

- (a) the flood extent;
- (b) water depths or water level, as appropriate;
- (c) where appropriate, the flow velocity or the relevant water flow;
- (d) duration of flood event.

Flood risk maps shall show the potential adverse consequences associated with flood scenarios and expressed in terms of the following:

- (a) the indicative number of inhabitants potentially affected;
- (b) type of economic activity of the area potentially affected;
- (c) installations as referred to in Annex I to Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control (1) which might cause accidental pollution in case of flooding and potentially affected protected areas identified in Annex IV(1)(i), (iii) and (v) to Directive 2000/60/EC;
- (d) other useful information such as the indication of areas where floods with a high content of transported sediments and debris floods can occur and information on other significant sources of pollution.

Activity 4 Preparation of Guidance Documents

Preparation and elaboration of Guidance Documents adapted to Croatian circumstances, as follows:

- 4.1. *Guidance Document on the technical aspects of the preparation of flood hazard maps*
- 4.2. *Guidance Document on the assessment of flood risks and adverse consequences of floods* – The Guidance Document should, depending on available data, suggest the methodology for the assessment of direct and indirect flood damage, as well as the way

of taking in account the damage that cannot be expressed through financial indicators (lives, cultural values and the like).

4.3. *Guidance Document on the integrated assessment of current and future civil engineering measures for flood protection* – The Guidance Document should propose the approach for identification of the BAT and BAP for the preparation of flood risk management plans (a program of measure). The catalogue of measures should be systematized in accordance with the flood protection, environmental and economic indicators.

4.4. *Methodology for assessing potential impacts of climate change on flood risks* – The Guidance Document should propose water management measures for adjustment and mitigation of adverse consequences for the possible different scenarios of climate change.

4.5. *Guidance Document on the participation of the public and stakeholders in flood risk management*

4.6. *Guidance for preparation of Flood Risk Management Plans.*

Activity 5 Capacity building for relevant institutions

Activities during the project include the following:

5. 1. Develop training methods for competent staff in two institutions (MRDFWM and CW)
5. 2. Organise and carry out 3 workshops in reducing risks.
5. 3. Organise and carry out 2 workshops in mathematical modelling.

3.5 Conditionality and sequencing:

Since the EU Directive 2007/60/EC (Floods Directive) obliges the MSs to prepare the 1. Preliminary flood risk assessment (Articles 4 & 5); 2. Flood hazard maps and flood risk maps (Article 6); 3. Flood risk management plans (Article 7 & 8).

Sufficient number of projects of preliminary flood risk assessments have already been executed in line with the requirements. Moreover, there are a few preliminary flood risk assessments currently under preparation. Development of the remaining preliminary flood risk assessments in the Republic of Croatia is planned for 2011. Development of ongoing and new preliminary flood risk assessments planned for 2011 will provide a wider selection of potential pilot areas.

The start of the Twinning project is planned for late 2011/ beginning of 2012, by which time nearly all preliminary risk assessments in the Republic of Croatia should be completed, and among which the best pilot projects would then be selected. One of the first tasks of the Twinning project would in fact be the selection of pilot projects based on the available completed preliminary flood risk assessments.

3.6 Linked activities

Lessons learned and experiences gained within the projects listed below have contributed to the further harmonization and implementation of the EU water-related *aquis communautaire*.

CARDS 2003 "Approximation of Croatian Water Management Legislation with EU Acquis", provided complete legal, administrative and institutional assessment and identify regulatory actions for further approximation of national legislation to the EU water acquis through preparation of a draft Strategy and Action Plan for the approximation of Croatian water legislation and conducting horizontal impact assessment on the Nitrates, Drinking Water and Dangerous Substances Directives and the UWWTD. CARDS 2004 "Capacity Building and Development of Guidelines for the Implementation of the Water Framework Directive". The project at hand provided a pragmatic approach for a highly qualified WFD implementation and support the Republic of Croatia in meeting its national goals as well as the European obligations in the field of water use and water protection. The overall objective of the project was to improve the water quality standards and water management in Croatia in line with EU requirements. That objective was complemented by the legal aspect of the above mentioned CARDS 2003 project. Moreover, this CARDS 2004 project was about addressing the issues of present institutional set-up and related ability of supporting the WFD implementation process in Croatia.

As was the case with the implementation of the WFD, the implementation of this Twinning project is also expected to positively impact the fulfillment of the requirements of the EU Directive 2007/60/EC in the preparation of flood hazard maps and flood risk maps in the Republic of Croatia.

INLAND WATERS PROJECT 2008-2012- The objective of this project, co-financed by the World Bank loan, is the development of systems for flood protection, public water supply, and collection and treatment of urban wastewater in the Sava, Drava and Danube river basin districts.

The project implementation period is 2008-2012, and its total value is EUR 105 million. Among other things, it encompasses the development of a flood protection system in the central Sava River basin (Srednje posavlje). The investments will widen the scope of flood management by repairing and widening the dikes and channels under a total of six projects, two of which are located in Lonjsko polje.

IPA 2009 "Capacity building for implementation Directive on pollution caused by certain dangerous substances discharged into the aquatic environment and the Water Framework Directive". The project is expected to start at the end of 2011 and is aimed at contributing to the further harmonization and implementation of the EU Water related *aquis communautaire* with the focus on implementation of water quality standards in line with the requirements of the EU Directive 2006/11/EC and Water Framework Directive including strengthening of the Croatian water administration capacity.

3.7 Lessons learned

Croatia has gained very good experience and lessons have been learned from the recently finished Twinning project CARDS 2004 "Capacity Building and Development of Guidelines for the Implementation of the Water Framework Directive" which was a great help to Croatia to make step forward to implement WFD (Project: "Capacity Building and Development of Guidelines for the Implementation of the Water Framework Directive" with German and Netherland partners). During two years of work numerous joint activities were implemented under the following components:

- Institution building
- River basin management
- Groundwater
- Surface water
- Economic aspects of the WFD
- Public awareness.

The results of work under specific components as well as mutual exchange of experience are of use to Croatian experts in their further work on the implementation of the WFD. Lessons learnt prove that strengthening and increased training of the stakeholders on twinning requirements and implementations issues is needed while the capacity of the local officials (administration) needs to be strengthened.

The 2009 Country Program Interim Evaluation of EU Pre-accession Assistance to Croatia states that 'projects encompassing Inter-institutional coordination require significant efforts to ensure the active collaboration of all actors involved and an appropriate co-ordination'. Environmental matters, for instance, fall in the remit of several different bodies and in the previous projects this aspect proved particularly challenging. Projects in water sector, like the one proposed here, demand inter-sectoral coordination and involve horizontal and vertical level of cooperation among the ministries, institutions and municipalities which needs to be strengthened.

4. Indicative Budget (amounts in EUR)

			SOURCES OF FUNDING										
			TOTAL EXP.RE	TOTAL PUBLIC EXP.RE	IPA COMMUNITY CONTRIBUTION		NATIONAL PUBLIC CONTRIBUTION					PRIVATE CONTRIBUTION	
CONTRACTS	IB (1)	INV (1)	EUR (a)=(b)+(e)	EUR (b)=(c)+(d)	EUR (c)	% (2)	Total EUR (d)=(x)+(y)+(z)	% (2)	Central EUR (x)	Regional/ Local EUR (y)	IFIs EUR (z)	EUR (e)	% (3)
Contract 1 Twinning	X		1 100 000	1 100 000	1045000	95	55 000	5	55 000				
ACTIVITY 1			55 000	55 000	52 250	95	2 750	5	2 750				
ACTIVITY 2			330 000	330 000	313 500	95	16 500	5	16 500				
ACTIVITY 3			440 000	440 000	418 000	95	22 000	5	22 000				
ACTIVITY 4			220 000	220 000	209 000	95	11 000	5	11 000				
ACTIVITY 5			55 000	55 000	52 250	95	2 750	5	57 750				
TOTAL IB			1 100 000	1 100 000	1 045 000	95	55 000	5	55 000				
TOTAL INV			-	-	-	-	-	-	-				
TOTAL PROJECT			1 100 000	1 100 000	1 045 000	95	55 000	5	55 000	0	0	0	

NOTE: DO NOT MIX IB AND INV IN THE SAME ACTIVITY ROW. USE SEPARATE ROW

Amounts net of VAT

(1) In the Activity row use "X" to identify whether IB or INV

(2) Expressed in % of the **Public** Expenditure (column (b))

(3) Expressed in % of the **Total** Expenditure (column (a))

5. Indicative Implementation Schedule (periods broken down per quarter)

Contracts	Start of Tendering	Signature of contract	Project Completion
Contract 1.	Q2 2011	Q4 2011	Q1 2013

All projects should in principle be ready for tendering in the 1ST Quarter following the signature of the FA

6. Cross cutting issues (where applicable)

6.1 Equal Opportunity

Equal access regardless of sex, nationality, racial or ethnic origin, religion or belief, disability, age or sexual orientation will be guaranteed for participation in the project. Equal opportunities will be ensured by the Steering Committee during the project implementation.

6.2 Environment

Project implementation will contribute to improvement of the Croatian institutional framework in the field of Environment and in such way contribute to environmental protection.

6.3 Minorities

Based on the fundamental principles of promoting equality and combating discrimination, participation in the project will be guaranteed on the basis of equal opportunity for minorities

ANNEX 1: Logical framework matrix in standard format

LOGFRAME PLANNING MATRIX FOR Project:	Programme name and number: IPA component I 2010	IPA/2010/022-460
Development of hazard and flood risk prevention maps	Contracting period expires 2 years following the date of conclusion of the Financing Agreement	Disbursement period expires 3 years after the end date for contracting
	Total budget: EUR 1 100 000	IPA budget: EUR 1 045 000

Overall objective	Objectively verifiable indicators	Sources of Verification	
Contribution to the further harmonization and implementation of the EU Water related <i>aquis communautaire</i> .	Compliance with the Environmental Acquis for the environmental sector	Progress Report for Croatia	
Project purpose	Objectively verifiable indicators	Sources of Verification	Assumptions
Implement requirements of the EU Directive 2007/60/EC in preparation flood hazard maps and flood risk maps.			
Results:	Objectively verifiable indicators	Sources of Verification	Assumptions
Result 1 1.1 Project Implementation Plan and Methodology for the preparation of flood hazard maps and flood risk maps prepared. 1.2. Minimum two pilot areas of adequate sizes selected	1.1. 1 Project Implementation Plan and Methodology for the preparation of flood hazard maps and flood risk maps before proceeding to the Activity 2. 1.2. Minimum two pilot areas of adequate sizes selected before proceeding to the Activity 2.	Project Progress Reports, Project Implementation Plan.	<ul style="list-style-type: none"> • Capability of relevant stakeholders to implement/enforced project findings and results into practice.

<p>Result 2</p> <p>2.1. Data for the minimum two flood risks areas (identified as a result of the preliminary analysis) collected</p> <p>2.2 Digital terrain models (DTM) for the minimum two flood risks areas (identified as a result of the preliminary analysis) prepared.</p> <p>2.3. Longitudinal and cross sections of watercourses for the minimum two flood risks areas (identified as a result of the preliminary analysis) prepared</p> <p>2.4. Hydrological data for the minimum two flood risks areas (identified as a result of the preliminary analysis) prepared and analysed;</p> <p>2.5. Land use information for the minimum two flood risks areas (identified as a result of the preliminary analysis) prepared and validated</p> <p>Result 3</p> <p>Flood Hazard Maps and Flood Risk Maps for selected pilot areas (minimum two flood risks areas) prepared.</p> <p>Result 4</p> <p>4.1. Guidance Document on the technical aspects of the preparation of flood hazard maps prepared.</p> <p>4.2. Guidance Document on the assessment of flood risks and adverse consequences of floods prepared.</p>	<p>2.1. Data for the minimum two flood risks areas before proceeding to the Activity 3.</p> <p>2.2. Digital terrain models (DTM) for the minimum two flood risks areas before proceeding to the Activity 3.</p> <p>2.3. Longitudinal and cross sections of watercourses for the minimum two flood risks areas before proceeding to the Activity 3.</p> <p>2.4. Hydrological data for the minimum two flood risks areas before proceeding to the Activity 3.</p> <p>2.5. Land use information for the minimum two flood risks areas before proceeding to the Activity 3.</p> <p>3.1. Minimum 2 Flood risks areas Flood Hazard Maps and Flood Risk Maps for selected pilot areas by the end of the project</p> <p>4.1. 1 Guidance Document on the technical aspects of the preparation of flood hazard maps by the end of the project</p> <p>4.2. 1 Guidance Document on the assessment of flood risks and adverse consequences of floods by the end of the project</p>	<p>Project Progress Reports</p>	
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4.3. Guidance Document on the integrated assessment of current and future civil engineering measures for flood protection prepared.	4.3. 1 Guidance Document on the integrated assessment of current and future civil engineering measures for flood protection by the end of the project		
4.4. Methodology for assessing potential impacts of climate change on flood risks prepared.	4.4. 1 Methodology for assessing potential impacts of climate change on flood risks by the end of the project		
4.5. Guidance Document on the participation of the public and stakeholders in flood risk management prepared.	4.5. 1 Guidance Document on the participation of the public and stakeholders in flood risk management by the end of the project		
4.6. Guidance for Risk Management Plans prepared.	4.6. 1 Guidance for Risk Management Plans by the end of the project		
Result 5 5.1 Capacity of relevant institutions strengthened	5.1 5 Workshops delivered in order to improve management of the Flood Directive requirements in two institutions (MRDFWM and CW) by the end of the project		
Activities	Means	Costs	Assumptions
Activity 1 Development of the Project Implementation Plan and selection of the pilot areas 1.1 Development of the Project Implementation Plan	TW	EUR 1 100 000 EUR 55 000	<ul style="list-style-type: none"> Sufficient human and financial resources are made available by all parties in the project

<p>and Methodology for the preparation of flood hazard maps and flood risk maps for the selected pilot areas</p> <p>1.2 Selection of the minimum two pilot areas of adequate sizes will be defined: one pilot area in the Black Sea basin and 1-2 pilot areas in the Adriatic basin</p> <p>Activity 2 Data collection and preparation of data sets for maps the minimum two flood risks areas identified as a result of the preliminary analysis</p> <p>2.1. Data collection 2.2 Digital terrain models (DTM) 2.3. Longitudinal and cross sections of watercourses preparation 2.4. Hydrological data preparation and analysis 2.5. Land use information preparation and validation</p> <p><u>Activity 3 Preparation of Flood Hazard Maps and Flood Risk Maps on the pilot areas</u></p> <p><u>Activity 4 Preparation of Guidance Documents</u></p> <p>4.1 Guidance Document on the technical aspects of the preparation of flood hazard maps 4.2 Guidance Document on the assessment of flood risks and adverse consequences of floods 4.3 Guidance Document on the integrated assessment of current and future civil engineering measures for flood protection 4.4 Methodology for assessing potential impacts of climate change on flood risks 4.5 Guidance Document on the participation of the public and stakeholders in flood risk management 4.6 Guidance for preparation of Flood Risk Management Plans</p>		<p>EUR 330 000</p> <p>EUR 440 000</p> <p>EUR 220 000</p>	<ul style="list-style-type: none"> • Efficient coordination and communication exist between all parties in the project • All necessary documentation is made available and up to date • Training recipients willing to participate in the trainings
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Activity 5 Capacity building for relevant institutions

- 5.1. Develop training methods for competent staff of MRDFWM and CW.
- 5.2. Organise and carry out 3 workshops in reducing risks.
- 5.3. Organise and carry out 2 workshops in mathematical modelling..

EUR 55 000

Pre conditions: N/A

ANNEX II: Amounts (in EUR) Contracted and disbursed by quarter for the project

Contracted	2011	2011	2011	2012	2012	2012	2012	2013	2013
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Contract 1.			1 100 000						
Cumulated			1 100 000						
Disbursed	2011	2011	2011	2012	2012	2012	2012	2013	2013
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Contract 1.			500 000					600 000	
Cumulated			500 000					1 100 000	

ANNEX III: Description of Institutional Framework

Water management in Croatia is under the competence of the Ministry of Regional development, Forestry and Water Management (MRDFWM) and Hrvatske vode (Croatian Waters, HV), which is the national water management agency.

The MRDFWM is responsible for establishing the national water management policy and its co-ordination with other sectoral policies, water pollution protection, protection from adverse effect of water, irrigation, inspection and supervision.

Within the MRDFWM, the Directorate for Water Policy and International Projects and the Directorate for Water Management are in charge of water management. Sector for International Projects within Directorate for Water Policy and International Projects is responsible for coordination of projects financed/co-financed from international sources and Sector for Protection from Adverse Effects of Water and Irrigation within Directorate for Water Management is responsible for protection from adverse effects of Water.

HV is a legal person vested with public authority, in charge of water management. HV is, among other things, in charge for the preparation and implementation of the river basin management plans, Flood Risk Management Plans including disseminating information to the public and public involvement in the preparation and implementation of plans.

The main activities of HV, based on the principle of sustainable development and conducted with the purpose of achieving integrated water management, are the following: protection from adverse effects of water; water use; protection of water from pollution. Activities in protection from adverse effects of water among others are: protection from floods and ice in accordance with the National Flood Defence Plan, and flood protection plans for catchment areas enacted by county assemblies.

The present legislative framework also includes state administration bodies and institutes competent for water management issues: Ministry of Environmental Protection, Physical Planning and Construction, Ministry of the Sea, Transport and Infrastructure, Ministry of Culture, Ministry of Health and Social Welfare, Ministry of Economy, Labour and Entrepreneurship and related institutions such as the State Hydrological Institute, Institutes for Public Health and others.

ANNEX IV: - Reference to laws, regulations and strategic documents:

Reference list of relevant laws and regulations:

- Flood Directive (2007/60/EC)
- Water Framework Directive 2000/60/EC
- Directive 85/337/EEC – Environmental Impact Assessment
- SEA (2001/42/EC)
- Access to Environmental Information Directive (2003/4/EC)
- Habitat Directive ((92/43/EC)
- Birds Directive (79/409/EEC)
- ICPDR Action Programme on Sustainable Flood Protection in the Danube River Basin
- Water Act (Official Gazette No 153/09) and accompanying subordinate legislation

- Act on Water Management Financing (Official Gazette No 153/09)
- The Water Management Strategy (Official Gazette No 91/08)
- Protocol on the Methods of Communication between Centres 112 of the National Rescue and Protection Directorate (DUZS) and Flood Protection Centres of Hrvatske vode.
- FASRB (Framework Agreement on the Sava River Basin) Implementation Strategy
- National Flood Defence Plan.

Other national and international legislation not specified here which also directly or indirectly regulates flood-related problems.

Reference to AP /NPAA / EP / SAA (Please see Section 2.3)

Reference to MIPD (Please see Section 2.4)

Reference to National Development Plan (Please see Section 2.5)

Reference to national / sector investment plans (Please see Section 2.6)

ANNEX V: Details per EU funded contract where applicable:

5.1 Task of the project leader:

- to provide institutional advice for the national management staff on all aspects of the implementation of EU Directive 2007/60/EC in the Republic of Croatia,
- to promote co-operation between the responsible Ministry and institutions involved in the implementation of directives,
- to facilitate /organize meetings relevant to the project,
- to provide support to the national management staff,
- to prepare reports with all the relevant information, (to prepare regular Quarterly progress reports and the Final report of the project),
- advise on EU policies and practices related to specific project objectives,
- to supervise and manage the project implementation on a day basis and to propose corrective actions if necessary.

5.2 Task of the short term expert

Short-term experts (STEs) will be required for the performance of specific tasks that require specific education and experience in flood risk management in the operation of the relevant EU and MS structures/bodies, the respective national arrangements.