

**Standard Summary Project Fiche – IPA centralised programmes**  
**(Regional / Horizontal programmes ; centralised National programmes)**

**1. Basic information**

**1.1 CRIS Number: 2007/19322**

**1.2 Title: Study of flood prone areas in Serbia, Phase 1**

**1.3 ELARG Statistical code: 03.11**

**1.4 Location: Serbia**

**Implementing arrangements:**

**1.5 Contracting Authority (EC): EC Delegation**

**1.6 Implementing Agency: N/A**

**1.7 Beneficiary (including details of project manager):** Water Directorate of the Ministry of Agriculture, Forestry and Water Management

**Financing:**

**1.8 Overall cost: 2.0 million**

**1.9 EU contribution: 2.0 million**

**1.10 Final date for contracting:** 3 years after the signature of the Financing Agreement

**1.11 Final date for execution of contracts:** 5 years after the signature of the Financing Agreement

**1.12 Final date for disbursements:** 6 years after the signature of the Financing Agreement

**2. Overall Objective and Project Purpose**

**2.1 Overall Objective:**

To develop a national flood control strategy, in line with EU water/flood management directives and legislation.

**2.2 Project purpose:**

- Development of integrated flood management framework
- Introduction of land use planning, zoning and risk assessment
- Development of an early warning systems and upgrading of contingency planning and emergency measures
- Integration of Pollution prevention measures

**2.3 Link with AP/NPAA / EP/ SAA**

**Under Article 97 (Agriculture and the Agro-Industrial Sector) of the SAA** co-operation should aim at modernising and restructuring the agriculture and agro-industrial sector, in particular to reach community sanitary requirements, to improve water management and rural development as well as to develop the forestry sector in Serbia and at supporting the gradual approximation of Serbian legislation and practices to the Community rules and standards.

**The Action Program for Sustainable Flood Protection in the Danube River Basin (2004)**, carried out through the activities of the International Commission for the Protection

of the Danube River (ICPDR) and in cooperation with all countries of the Danube River Basin supports flood management policy in Serbia, and protection of people, reduction of damages and flood-related environmental risks.

## **2.4 Link with MIPD**

According to MIPD it is necessary to develop the full potential and the competitiveness of Serbia's inland waterway transport sector for socio-economic development, in particular in the Danube basin. In addition, special attention will be paid to floods prevention and natural and human actions induced catastrophes (p. 19).

The MIPD also identifies the need to improving infrastructure in order to promote business related activities and public services and to facilitate economic and cultural links within Europe. Specific action instruments for flood prevention and management will be incorporated notably with regard to the regional dimension of the problem.

## **2.5 Link with National Development Plan (where applicable)**

N/A

## **2.6 Link with national/ sectoral investment plans(when applicable)**

The main objective of the Water sector in Serbia, in line with the Serbian Government's European Integration Strategy, and in line with the membership in the ICPDR is harmonization with the European Water Framework Directive holding ahead of us the final goal achievement of the good water status, water supply and flood protection.

The Water Master Plan of Serbia the strategic document of the water sector adopted by the Government of Serbia in 2002 is aiming to implement the polluter pays principal and user pays principal. A part of it is contained in the existing water law and more in the draft water law prepared by the Directorate for Water.

## **3. Description of project**

### **3.1 Background and justification:**

The Directorate for Water is in charge of integrated water management for the territory of the Republic of Serbia.

Serbia's water sector provides many opportunities and challenges. The River Danube is not only the major transport artery in Serbia and is designated as Corridor VII within the Trans-European Network (TEN-T) and, being linked to the Rhine through the Rhine- Main-Danube canal, it is a strategic connection between the Black Sea and the North Sea,

However, bearing in mind the geographical position of Serbia, the water sector is coping with problems of lowland nature (flooding, drainage...), hill and mountain nature (erosion, flash floods...) and above all scarcity of fresh water for water supply in combination with the discharge of untreated waste water.

Deterioration of existing structures is an outcome of lack of financing. The financing of the water sector should be improved once the new Water Law is in place.

Flood protection in Serbia was traditionally accomplished by implementation of a principle “combating floods”. In order to provide safety for inhabitants and goods located within the flood-prone areas, the applied approach required a construction of large and costly structures (dams, reservoirs, embankments, river-channel improvement structures, relief channels etc.). The total investment in flood protection structures to date is approximately 2.6 Billion EUR.

Nevertheless, the present state of flood protection in Serbia is still inadequate. Firstly, floods endanger a considerable part of the country. In addition, significant flood risk is present even where flood protection systems have been developed. The risk magnitude is larger where characteristics of the flood protection structures are inadequate. Furthermore, a long-lasting practice of low investments into the regular maintenance led to a significant decrease of the structural reliability, which lowered the designed degree of protection.

In the past five years flood damage has caused up to 100 million Euros of damage in Serbia. Large areas of the country are periodically flooded by high river levels, causing serious damage to agriculture and other interests. The extent of the flood prone areas in Serbia covers some 1.57 million ha, of which 1.45 million ha occur in Vojvodina. Some 80% of the potentially flooded area is agricultural land. 512 larger settlements, 515 industrial installations, 4,000 km of roads and 680 km of railways are also prone to flooding. In Vojvodina specifically, 1.0 million ha of agricultural land, 260 settlements, 3,840 km of roads, and 150 km of railways are prone to flooding at the 1 in 100 year risk level. Vojvodina also has a special problem outside its control, in that uncontrolled flows across the border from Romania must be absorbed.

Flooding in April 2005 caused serious damage to private property, agriculture and public infrastructure. For example the total damages in the three most flood prone municipalities in Banat caused by the flooding was estimated at EUR 12.6 million. According to Vode Vojvodine, (water company) the total costs of rescue operations and protection works, excluding of reconstruction works, amounted to EUR 3 million, Table 1 shows the total damages broken down by damage category and municipality.

**Table 1 Total damages by category and municipality in EUR**

<i>Municipality</i>	<i>Agriculture</i>	<i>Private buildings</i>	<i>Estimated total per municipality</i>
Zitiste	1,369,668	997,878	2,367,546
Secanj	1,743,093	8,225,025	9,968,118
Plandiste	227,075	-	227,075
<i>Estimated total</i>	<i>3,339,836</i>	<i>9,222,903</i>	<i>12,562,739</i>

By the law, the responsibility for flood protection in Serbia is vested in the Ministry of Agriculture, Forestry and Water Management, Directorate of Water, with Vode Vojvodine (water company) and Serbia Vode (water company) acting as executive branches. Municipalities have no authority over flood protection facilities located in their territory. This legal provision is rightly so organized, as water management issues - including flood protection - stretch far beyond municipal boundaries.

The Development of a national co-ordinated flood control strategy with provision for mitigation measures to minimise / reduce the impact of flooding on people, economic sectors such as agriculture, industry, tourism and IWT.

Such mitigation measures would include detailed mapping of flood prone regions, as well as an early warning flood forecasting system. The availability of such maps would be very beneficial to potential economic investors (e.g. Foreign Investors).

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

The main task of the Project is to upgrade the flood management policy in Serbia, and protect people, reduce damages and flood-related environmental risks. Proposed activities are in line with activities agreed for development of Action Program for Sustainable Flood Protection in the Danube River Basin (2004), which is going on through the activities of the International Commission for the Protection of the Danube River (ICPDR) and in cooperation with all countries of the Danube River Basin. Also, proposed activities are envisaged to be obligatory when the EU flood risk management Directive became operational.

### **3.3 Results and measurable indicators:**

Result 1: Upgrade of the data bases for flooded areas

Indicator 1: Submission and acceptance of the Indicative Inundation Maps (IIM)

Result 2: Identification of the areas that are most vulnerable by floods on the basis of the Flood Zoning Maps (FZM)

Indicator 2: Submission and acceptance of the Flood Zoning Maps (FZM)

Result 3: Provided information for areas at risk to give an input for spatial planning. Increase of public awareness of the areas at risk from flooding. Support management and reduction of risk to people, property and environment

Indicator 3: Submission and acceptance of the Flood Risk Maps (FRM)

### **3.4 Activities:**

Activity 1

Review of Serbia's institutional capacities/capabilities to manage national water resources. Carry out a gap analysis to identify legislative, resource or policy needs. Analyse flood control capabilities within overall national water management framework.

Activity 2:

Prepare indicative inundation maps (IIM) for areas where no flood maps are yet available, covering the majority of the floodplains; Extend indicative inundation maps to all floodplains and develop flood zoning maps (FZM) (defining zones of different magnitude and frequency of hazards) for those areas which are in danger in case of floods exceeding assessment limits. Develop comprehensive flood risk map (FRM) which should be developed for those floodplains identified as the most vulnerable by the flood zoning maps.

A step-by-step approach in developing flood maps in the sub-basins must be applied:

- first, organisational review to prepare the indicative inundation maps (IIM) for areas where no flood maps are yet available, covering the majority of the floodplains;
- second, to extend indicative inundation maps to all floodplains and develop flood zoning maps (FZM) (defining zones of different magnitude and frequency of hazards) for those areas which are in danger in case of floods exceeding assessment limits;
- the final goal is the comprehensive flood risk map (FRM) which should be developed for those floodplains identified as the most vulnerable by the flood zoning maps.

These activities will be implemented through a Service Contract
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### **3.5 Conditionality and sequencing:**

A key conditionality is coordination at a national level. Flood Management can only be effectively addressed on an inter-ministerial basis with strong vertical links with the Vojvodina and municipalities. The Water Directorate is responsible for this inter-ministerial commitment prior to the launch of this project. Strong coordination needs to be ensured between the Water Directorate and Ministry for Environment, as well as other relevant stakeholders.

Experience demonstrates that the Republic of Serbia does not have a unique plan of management and coordination in the cases of emergency, including floods. It is necessary to develop an integrated system for activities in case of emergency which would make connection between all stakeholders and coordinate their activities, as well as mobilize their capacities.

### **3.6 Linked activities**

#### **Previous activities**

The European Union has been and remains the main donor in the field of Water Management; other projects are supported by the World Bank, Sweden, Norway, Twining.

- **EC Regional CARDS Project "Pilot River Basin Plan for the Sava River -Croatia, Bosnia and Herzegovina, Serbia and Montenegro"** Sava CARDS, started Oct 2004 - Sep 2007 (3 years) and funded by EC - Cards 2003 Regional Program. The overall objective is to enhance water management cooperation among Sava countries using an integrated water management approach as outlined in the EC Water Framework Directive (WFD) and ICPDR issue papers. Specific objectives of this project are: to support the capacities of the Sava Commission being responsible for trans boundary coordination of water management activities in the Sava River Basin, to implement key principles of WFD in pilot river basin (Kolubara) aiming at identifying a harmonized methodology that can be applied in a generic style to other sub-basins of Danube river basin in general and Sava river basin in particular, to implement Common Implementation Strategy - Guidance's (1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13), etc.

#### **On-going and planned activities**

- World Bank Irrigation and Drainage Rehabilitation Project. 25M US\$ IDA credit. A four component project dealing with Flood protection and drainage works under component one, Minor irrigation development under component two, Capacity and institutional building under component three and Implementation under component four. The Project is at the moment under a proposal for additional funding for flood protection purposes.

- An EU funded Twinning project in the Directorate for Water started in 2006, managed by the EAR

The EU through EAR will manage three technical assistance projects, which are:

- The preparation and first phase development of a Water Management Information System is planned. The assistance will focus in making the maximum use of the current data, by organizing them under a common database. The planned technical assistance is directly connected to the strengthening of administrative structures and procedures in the framework of the Twinning project. Therefore the Twinning project and the EAR will establish an efficient flow of communication relating to the progress of the technical assistance project e.g. during the Steering Committee sessions.
- Furthermore, EAR will be responsible for the management of a project for the preparation of a sewerage and wastewater strategic Master Plan for the southern Morava region. Within the scope of this project tender documents for the construction of a 'model' Waste Water Treatment Plan with capacity 5000 PE are prepared. The objective is to prioritize the needs of the region with respect to infrastructure needs for water collection and treatment.
- The preparation of Action Plans for the remediation of three heavily polluted areas (hot spots) identified in the course of this activity that are or have the potential to cause significant pollution to the aquatic environment.

### **3.7 Lessons learned**

Successful water resource management occurs when it is part of an integrated national development planning process. This is not the case in Serbia. The Water Resources Development Master Plan for Republic of Serbia was prepared between 1991 and 1995, and accepted in 2001. In this document is stated that a complex, previously established flood control system should be maintained and enhanced to provide a reasonable protection of population, resources and goods from flooding.

The Master Plan enumerates a variety of works, structures, measures and activities in next 25 years. After year 2002, Serbian authorities and experts started wider cooperation with EU countries, and became aware of the new EU flood control policy. They understood that in case that if the mentioned "combating floods" approach continues to play a dominant role in the future, additional large investments in hydraulic structures and systems will be required. In spite of the large investments, the flood risk cannot be fully eliminated, due to a simple reason that there always is a probability that flood magnitude will exceed the design flood discharge. Therefore, the "combating floods" principle is gradually abandoned and "living-with-floods" approach is introduced in Serbia, as in many more developed and economically stronger countries.

Although the new Strategy of Flood Control is not officially introduced, the Action Program for Sustainable Flood Protection in the Danube River Basin (2004) was used as a platform for new developments, the first phase being the mapping of indicative flood zones along the most important rivers in Serbia.

The World Bank Irrigation and Drainage Rehabilitation Project is dealing with urgent rehabilitations and repairs on flood protection on the Danube and Sava Rivers. In the

preparatory phase a cost benefit analysis has been produced, showing high benefits from investment in flood protection.

A study: Methodology and Mapping Indicative Zones, has been prepared for the purpose of this project.

#### 4. Indicative Budget (amounts in million €)

Activities	TOTAL COST	SOURCES OF FUNDING										
		EU CONTRIBUTION				NATIONAL PUBLIC CONTRIBUTION					PRIVATE	
		Total	% *	IB	INV	Total	% *	Central	Regional	IFIs	Total	% *
Activity 1	TA for Water Directorate											
contract 1.1	2.0	2		2								
contract 1.2												
Activity 2												
contract 2.1												
contract 2.2												
.....												
TOTAL	2 million											

\* expressed in % of the Total Cost

#### 5. Indicative Implementation Schedule (periods broken down per quarter)<sup>1</sup>

Contracts	Start of Tendering	Signature of contract	Project Completion
Contract 1.1	T+1Q	T+3Q	T+8Q

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

#### 6. Cross cutting issues (where applicable)

Development Policy Joint Statement by the Council and the European Commission of 10 November 2000 establishes that a number of Cross-cutting Issues shall be mainstreamed into EC development co-operation and assistance.

Cross-cutting issues will be addressed in the project so as to comply with the best EU standards and practice in that area and in a way which demonstrates how they will be dealt with within the project's framework, its activities and outputs.

Cross-cutting issues will be addressed in a proactive manner, and will present a specific component of projects (at all levels of projects' development, starting from the project identification stage). Synergies between the projects and the objectives of will be identified

<sup>1</sup> [where T=the date of the signature of the FA and xQ equals the number (x) of quarters (Q) following T].

and developed. Also, the projects' objectives and activities need to be screened in order to ensure they won't impact negatively on gender equality, minorities' inclusion and environment.

Finally, the beneficiary will make sure its objectives, policies and interventions have a positive impact on and are in line with the main principles of gender equality, minorities' inclusion and environment.

### **6.1 Equal Opportunity**

Throughout the duration of the project, steps will be taken to guarantee equal opportunity of access to project activities and benefits.

### **6.2 Environment**

This project will contribute to fulfilment of EU environmental standards in Serbia, which will result in rising of quality of life of citizens and rising of quality of environment. Consistent realization of the EU's legislation and standards in the field of environment protection will result in rising awareness of the citizens of Serbia regarding significance of the environmental protection and sustainable development.

Implementation of the Project will meet the needs of future generations while living within the carrying capacity of the environment. Implementation of the project will provide that the natural resources and man-made resources of the Republic of Serbia are used economically and reasonably with the objective to preserve and enhance the quality of the environment for the present and future generations.

The environmental benefits that can derive from a well structure flood control programme are as follows:

- *better approach to land use management planning and avoids area of high flood risk;*
- *availability of flood maps and early warning flood forecasting system applicable to all economic sectors;*
- *control of polluted flood waters from contaminating agriculture land, and groundwater.*

### **6.3 Minorities**

As stated in the Serbian Poverty Reduction Strategy Paper (PRSP) "The **water sector** strategies of the Governments of the Republic of Serbia appropriately take into account the needs of the poor and address the main challenges the sector is facing. During the implementation of the PRSP the programs need to become more specific in addressing these challenges and it is expected that the monitoring of the service delivery to the poor, especially in rural and semi-urban areas, will help to further define the programs for the water supply and sanitation sector. Such efforts will contribute towards the attainment of environmental Millennium Development Goals.



## ANNEX I: Logical framework matrix in standard format

LOGFRAME PLANNING MATRIX FOR Project Fiche	Programme name and number	
	Contracting period expires 5 years after the signature of the Financing Agreement	Disbursement period: expires 6 years after the signature of the Financing Agreement
	Total budget : 2 million EUR	IPA budget: 2 million EUR

Overall objective	Objectively verifiable indicators	Sources of Verification	
Harmonization with the EU Directive on the Assessment and Management of Floods.	Adoption of new legislation in line with recommendation produced by Report on Flood Risk Mapping-phase 1	Directorate for Water reports ICPDR reports	
Project purpose	Objectively verifiable indicators	Sources of Verification	Assumptions
Development of integrated flood management  Introduction of land use planning, zoning and risk assessment  Development of an early warning systems and upgrading of contingency planning and emergency measures  Pollution prevention.	Upgrade of Annual Flood Protection Plan in line with phase 1 Flood Zoning Maps	Directorate for Water reports Regular monitoring and assessment reports	
Results	Objectively verifiable indicators	Sources of Verification	Assumptions
Result 1: Upgrading of the data base for flooded areas  Result 2: Identification of the areas that are most vulnerable by floods on the basis of the FZM  Result 3: Provided information for areas at risk to give an input for spatial planning. Increase of public awareness of the areas at risk from flooding. Support management and reduction of risk to people, property and environment	Indicator 1: Submission and acceptance of the Indicative Inundation Maps (IIM)  Submission and acceptance of the Flood Zoning Maps (FZM)  Submission and acceptance of the Flood Risk Maps (FRM)	Monitoring reports by implementing agency  EC Del reports  Directorate for Water reports	Development of integrated system for activities in case of emergency which would make connection between all stakeholders and coordinate their activities, as well as mobilize their capacities.
Activities	Means	Costs	Assumptions
Preparation of the indicative inundation maps (IIM) for areas where no flood maps are yet available, covering the majority of the floodplains;  Extension of indicative inundation maps to all floodplains and develop flood zoning maps (FZM) (defining zones of different magnitude and frequency of hazards) for those areas which are in danger in case of floods exceeding assessment limits;  Development of the comprehensive flood risk map (FRM) which should be developed for those floodplains identified as the most vulnerable by the flood zoning maps.	TA to Water Directorate	<b>2 million EUR</b>	Strong coordination between Water Directorate and Ministry for Environment , as well as other relevant stakeholders

Pre conditions

**ANNEX II: amounts (in €) Contracted and disbursed by quarter for the project**

<b>Contracted</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Q4</b>	<b>Q5</b>	<b>Q6</b>	<b>Q7</b>	<b>Q8</b>	<b>Q9</b>	<b>Q11</b>	<b>Q12</b>
Contract 1.1			2.0								
Contract 1.2											
Contract 1.3											
Contract 1.4											
.....											
<b>Cumulated</b>			<b>2.0</b>								
<b>Disbursed</b>											
Contract 1.1			1,200,000	120,000	120,000	120,000	120,000	120,000	200,000		
Contract 1.2											
Contract 1.3											
Contract 1.4											
.....											
<b>Cumulated</b>			<b>1,200,000</b>	<b>1,320,000</b>	<b>1,440,000</b>	<b>1,560,000</b>	<b>1,680,000</b>	<b>1,800,000</b>	<b>2,000,000</b>		



## **ANNEX III**

### **Description of Institutional Framework**

The Ministry of Agriculture, Forestry and Water Management is in charge of implementation and monitoring of this project. The work, mandate and authorisations of the Ministry are regulated by the Law on Ministries (adopted on May 15, 2007 (Official Gazette of Republic of Serbia no. 48/07)) – i.e. Article 9.

The Ministry consists of the following main departments, which have many sub-units:

- Sector for Analytics and Agrarian Policy
- Sector for Rural and Agriculture Development
- Legal Affairs Sector
- Sector for Implementation
- Inspection Surveillance Sector
- Veterinary Directorate
- Forestry Directorate
- Phytosanitary Directorate
- Water Directorate
- Project Centre
- Internal Control and Monitoring Unit

## **ANNEX IV**

### **Reference to laws, regulations and strategic documents:**

#### **Reference list of relevant laws and regulations**

Key laws, regulations and strategic documents in the area of Agriculture and Water Management:

#### *General:*

- Constitution of the Republic of Serbia
- Law for the Implementation of the Constitution of the Republic of Serbia
- National Strategy for Serbia and Montenegro's Accession to the European Union
- Action Plan for the Implementation of the European Partnership

#### *Agriculture and Water Management:*

- Agriculture Strategy
- Poverty Reduction Strategy Paper
- Water Law
- Annual Flood Protection Plan
- Regulation on Categorization of Rivers
- Water Master Plan
- General Plan on protection from water caused damages 2003-2008
- Regulation on digital surveying plan

- Regulation on plans and maps

#### **Reference to AP /NPAA / EP / SAA**

**Under Article 97 (Agriculture and the Agro-Industrial Sector) of the SAA** co-operation should aim at modernising and restructuring the agriculture and agro-industrial sector, in particular to reach community sanitary requirements, to improve water management and rural development as well as to develop the forestry sector in Serbia and at supporting the gradual approximation of Serbian legislation and practices to the Community rules and standards.

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#### **Reference to MIPD**

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The MIPD also identifies the need to improving infrastructure in order to promote business related activities and public services and to facilitate economic and cultural links within Europe. Specific action instruments for flood prevention and management will be incorporated notably with regard to the regional dimension of the problem.

#### **Reference to National Development Plan**

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## **ANNEX V**

### **Details per EU funded contract (\*) where applicable:**

#### Activity 1

Review of Serbia's institutional capacities/capabilities to manage national water resources. Carry out a gap analysis to identify legislative, resource or policy needs. Analyse flood control capabilities within overall national water management framework.

#### Activity 2:

Prepare indicative inundation maps (IIM) for areas where no flood maps are yet available, covering the majority of the floodplains; Extend indicative inundation maps to all floodplains and develop flood zoning maps (FZM) (defining zones of different magnitude and frequency of hazards) for those areas which are in danger in case of floods exceeding assessment limits. Develop comprehensive flood risk map (FRM) which should be developed for those floodplains identified as the most vulnerable by the flood zoning maps.

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