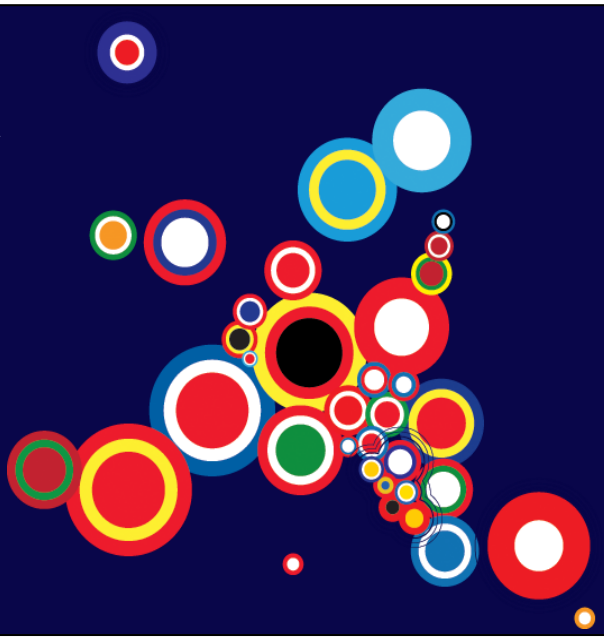
INSTRUMENT FOR PRE-ACCESSION ASSISTANCE (IPA II) 2014-2020

BOSNIA AND HERZEGOVINA

Support to Flood Protection and Water Management



Action summary

The Action supports the development of integrated flood risk management in Bosnia and Herzegovina observing the cornerstone relevant European Union Floods Directive and the Action Plan for Flood Protection and Water Management developed by an ad-hoc Working Group gathering all relevant stakeholders.

The assistance will be provided within two components through sets of activities aiming to increase capacities (in terms of prevention, protection and preparedness) for integrated flood risk management. Component 1 is designed for the development of hydrological forecasting system for Sava River Basin. The scope of Component 2 will be re/building infrastructure for protection from potential floods at the sites with highest flood risk.

The two components will be implemented with synergetic efforts to establish and strengthen the network of key stakeholders and institutions for integrated flood risk management in the country.

Action Identification	
Special Measure Title	Special Measure for flood recovery and flood risk management
Action Title	Support to Flood Protection and Water Management
Action Reference	IPA 2014/ 037-703. 1/ Special measure on flood recovery and flood risk management / Support to Flood Protection and Water Management
Sector Information	
IPA II Sector(s)	NA
DAC Sector	74010 - Disaster prevention and preparedness
Budget	
Total cost	EUR 15 million
EU contribution	EUR 15 million
Management and Implementation	
Method of implementation	Direct management
	The Delegation of the European Union to Bosnia and Herzegovina
Location	
Zone benefiting from the action	Bosnia and Herzegovina
Timeline	
Deadline for conclusion of the Financing Agreement	at the latest by 31 December 2015
Contracting deadline	3 years following the date of conclusion of the Financing Agreement, with the exception of the cases listed under Article 189(2) Financial Regulation
End of operational implementation period	6 years following the date of conclusion of the Financing Agreement.

1. RATIONALE

PROBLEM AND STAKEHOLDER ANALYSIS

In May 2014, catastrophic floods hit Bosnia and Herzegovina, resulting in several dozens of casualties and causing the destruction of public and private infrastructures, as well as hitting hundreds of thousands of households, leaving many of them, mostly vulnerable groups, without proper shelter. The European Union (EU), the United Nations and the World Bank supported a Recovery Needs Assessment (RNA) conducted from 25th May to 17th June 2014. The assessment reflected the damages, effects, impact and needs on the basis of information available at the time it was written.

As a matter of fact, it is not only the largest precipitation in 120 years that affected the country, but pre-existing environmental degradation factors such as deforestation, intrusion in riverbeds and construction in hazardous risk exposed areas that aggravated the situation. 70 local governments have suffered damages, losses, as well as social or environmental impacts of a varying degree. Around 90 000 persons were temporarily displaced from their homes and more than 40 000 took extended refuge in public or private shelters or moved in temporarily with relatives or friends.

The total economic impact of the disaster is estimated to have reached 3.98 Billion BAM[1]. Housing and household items, and livelihoods and employment weigh more than a half of the total damages and loses (2.4 Billion BAM), then transport and communications (0.9 Billion BAM) and agriculture (0.37 Billion BAM). The RNA describes the needs and presents the measures for the sectors of agriculture, education, health, public services and facilities, housing, energy, livelihoods, transport, water and sanitation. The country`s (both government and the private sector) absorption capacities are critical for the response to short, medium and long-term recovery and reconstruction needs.

However, in July 2014, new floods hit the country again and stressed the urgency for and importance of addressing the issues of flood protection and water management. Since the floods also hit the neighbouring Serbia causing similarly severe damages and losses, the European Commission (EC), France and Slovenia convened a donor conference[2] aiming to support both countries in their efforts to prevent further threats and curb the negative effects of the floods. At the conference, EUR 809.2 million were pledged to Bosnia and Herzegovina and EUR 41.4 million for cross-border activities with Serbia. It has been agreed that both countries would develop integrated flood risk mapping and vulnerability assessments as well as sound flood risk management plans including weather and hydrological forecasting aiming to fully align with the EU Floods Directive[3].

Since both Bosnia and Herzegovina and Serbia belong to the same river basin a regionally integrated flood response strategy is required.

The EU has encouraged Bosnia and Herzegovina to develop a comprehensive Action Plan as a recovery framework for flood protection and water management, including institutional arrangements, policy and planning, financing mechanisms and implementation. The Action Plan should set the context for harmonised and coordinated flood protection and river management both within Bosnia and Herzegovina and on a regional basis[4]. Further on the EU initiative, a Working Group with has been set up and tasked to draft the Action Plan for flood protection and water management by the end of September 2014[5]. The Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina has a coordinating role within the Working Group.

The Working Group consists of representatives competent for flood protection and water management, i.e.:

- Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina (MoFTER);

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1 Bosnia-Herzegovina Convertible Mark

2 Conclusions of Donors conference for Serbia and Bosnia and Herzegovina "Rebuilding Together" (Brussels, 16th July 2014)

3 Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks (text with EEA relevance) - http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2007.288.01.0027.01.ENG

4 Ref. Ares(2014)2637218 - 08/08/2014, Brussels, ELARG D/GSH/ARES(2014); Ref. Ares(2014)2035567 - 20/06/2014; Brussels, ELARG D3/DK/caf — Ares (2014) 1795936

5 Bosnia and Herzegovina Ministry of Foreign Trade and Economic Relations, the Minister, Letter to the EU Delegation to Bosnia and Herzegovina H.E. Mr. Peter Sorensen, Ambassador, No: 06-06-28-1 485-21 I 4, Sarajevo, 14 July 2014. See also Ruling, 06-02-1603/14, 14.07. 2014.

- Government of Brčko District Bosnia and Herzegovina;
- Ministry of Agriculture, Forestry and Water Management of Republika Srpska;
- Federal Ministry of Agriculture, Water Management and Forestry;
- Public Institution - Vode Srpske;
- Sava River Watershed Agency Sarajevo, Federation of Bosnia and Herzegovina;
- Agency for Watershed of Adriatic Sea in Mostar, Federation of Bosnia and Herzegovina;
- Republic Hydro-meteorological Service of Republika Srpska;
- Federal Hydro-meteorological Institute.

In line with the Action Plan the Working Group has prepared the present Action as a part of IPA II assistance "special measures" to Bosnia and Herzegovina, which is on the other hand only a part of the EU comprehensive flood recovery related assistance to Bosnia and Herzegovina.

It is expected that frequency and intensity of natural disasters increase quite sharply during next decade as a consequence of climate change. The capability of a country to reduce disaster risks depends on three factors: *appropriate infrastructure investment*; the *ability to provide reliable scientific information on vulnerability, exposure, and predictions of hazards* and the *ability to use this information to determine disaster risk and to act accordingly.* Bosnia and Herzegovina has to be prepared to rapidly respond to this challenge. Thus, the current Action will be focused on the establishment of an integrated water management system in the country that will ensure reduction of (potential) flood-related damage to human health, environment, cultural heritage and economic activity in the entire country.

Component 1 - Hydrological forecasting system for Sava River Basin in Bosnia and Herzegovina (Phase 1. Bosnia River): a reliable forecasting capability is fundamental to an early-warning system for meteorological, hydrological, and climate-related hazards. Accurate early warnings of hydro-meteorological hazards are crucial to give people time to flee from a flash flood, or other natural extreme phenomena, by providing information on the occurrence of a public health hazard. These warnings are vital because weather hazards and related events - such as storms, heat waves, cold waves, windstorms, floods, and droughts - jointly cause more economic damage and losses of lives than other natural disasters[6]. In recent decades, such damage has been increasing, and climate change may make such events even more dangerous[7]. In other words, although exposure to hazards cannot be avoided, the potential ensuing disasters can be mitigated. Thanks largely to advances in weather forecasting and risk assessments people can be better prepared for natural disasters.

Hydro-Metrological Services (HMS) in Bosnia and Herzegovina have very limited number of meteorological and hydrological stations. The current HMS observation network is inadequate to respond to disaster risk reduction scopes. The meteorological sensors and equipment at the manned stations are mainly obsolete. Due to the lack of calibration and maintenance, the measurements from these stations do not meet the World Meteorology Organisation (WMO) requirements and standards. Existing HMS facilities do not give a possibility for issuing a precise protection warning against flooding and its consequences. There has been no operative hydrological forecasting model in HMS. This is why the modernisation of HMS, both in terms of equipment and forecasting capacities has become a priority for Bosnia and Herzegovina.

In the current Action, developing the elements of the hydrologic prognostic (forecast) system (HFS) for Bosna River Basin (including sub-basins of the Ukrina, Tinja and Brka rivers-Sava river tributaries) in Bosnia and Herzegovina is envisaged. The Bosna River Basin has been chosen due to the fact that it was an area most affected by the floods in May 2014 with the most significant damages. The Bosna River flows through the two entities: Republika Srpska and the Federation of Bosnia and Herzegovina. Therefore, both entities' institutions are responsible for hydro-metrological service.

Currently, the Federal Hydro Metrological Institute of the Federation of Bosnia and Herzegovina and Republic Hydro-Metrological Service of Republika Srpska operate on their own separate meteorological and hydrological measurements, with a scope to monitor only at the entity level. Data

[6] Global Facility for Disaster Reduction and Recovery (GFDRR) 2012
[7] Intergovernmental Panel on Climate Change (IPCC) 2007

exchange between the two institutions is very limited. In order to create an integrated system, which will enable a broader overview of the meteorological and hydrological information as well forecasts in the entire country, this present Action will assist in modernising hydro-meteorological monitoring networks, hydrometric field measurement equipment, and the hydrological flood forecasting system of the Bosna River and its main tributaries that will include modules of hydrological model, hydraulic model, forecasting model and geographical information system.

Through this component of the Action proposed, it is foreseen to set an integrated system with two equal, harmonised and separate systems that will be established and will be used by the two existing systems as a backup for each other. This system is perceived by key stakeholders as a pilot one and could be used as a hydro-meteorological forecasting system model elsewhere in Bosnia and Herzegovina.

Component 2 - Reconstruction of River Sava basin flood-protecting river banks: when in May 2014 the heaviest rains and floods in more than a century hit the country, cutting off electricity supply and causing many landslides, Bosnia and Herzegovina suffered from almost EUR 2 billion worth of damage to homes, infrastructure and industry. Heavy rains caused rivers to burst their structures, sweep away roads and bridges and set off more than 200 hundreds of landslides. As mentioned earlier, these effects were aggravated by pre-existing environmental degradation such as deforestation, intrusion in riverbeds and construction in hazardous risk exposed areas.

The main flooded area in May 2014 was the Sava River Basin, which forms the border between Bosnia and Herzegovina and Croatia and continues to Serbia and flows into the Danube. North, East and central regions of Bosnia and Herzegovina received more than 250 (and in some areas up to 300) litres of rain per square meter, this is the highest amount measured in the country in the last 120 years. With the influx of enormous quantities of water from its right tributaries (Una, Vrbas, Bosna, Drina) the water level of the Sava River began rising dramatically in border sections between Croatia and Bosnia and Herzegovina, also in Serbia. These heavy rainfalls caused flash flooding across the mountainous areas, destroying bridges and infrastructure. Water levels of Sava's right tributaries rapidly and uncontrollably rose resulting in Sava flooding towns in its plains. The entire watershed leading to the River Sava was overwhelmed and peaked, generating flash floods and carrying debris downstream, creating a path of destruction and desolation. As the River Sava peaked, drainage from the plain was made impossible causing the retention of water in lowlands for an extended period. Bosna River, which flows into Sava in central Bosnia and Herzegovina, has completely flooded the towns of Doboj, Maglaj, Zavidovici and Samac. The smaller river Janja - a tributary of the river Drina - completely flooded the town Janja (Bijeljina area) in the most densely populated area of Bosnia and Herzegovina.

The Component 2 of the current Action will support the reconstruction of flood-protection structures on the right bank of the River Sava, assisting the rehabilitation of local communities with the most vulnerable groups. The reconstruction of the most urgent embankments in the basin of the River Sava, which will also be done through this component will help to restore normal living conditions and revitalise livelihood in the most flood-affected area of Bosnia and Herzegovina. This component has a great regional dimension since its implementation takes place along the border between Bosnia and Herzegovina and Croatia. It is in line with the elevation of the Sava River embankments in the whole territory of Bosnia and Herzegovina agreed with Republic of Croatia.

KEY REFERENCES

The **Europe 2020** strategy emphasises the need to strengthen the EU economies` resilience to climate risks and the capacities for disaster prevention and response.

The **EC Bosnia and Herzegovina 2014 Progress Report** statesthat "*Regarding water quality, the country still lacks a consistent and harmonised approach to water management at State level. This includes implementing water laws, monitoring and river-basin management plans. The water policy at State level remains to be adopted, while alignment with and implementation of the acquis significantly slowed down. Some steps were taken in drawing up river-basin management plans for the rivers Neretva-Trebisnjica and Sava. The country's capacities to implement water-related EU Directives remain insufficient…*

…Administrative capacity in the environment and climate sectors remains weak. A mechanism for comprehensive alignment with EU legislation across the country is lacking, as is countrywide

strategic planning. Monitoring and reporting on the state of the environment at country level is not yet carried out in a coherent and consistent manner…

…The priorities remain the establishment of a harmonised legal framework for environmental protection and climate action, adequate administrative capacity and functioning monitoring systems. Improvements have to be made to horizontal and vertical interinstitutional coordination on environment and climate change issues among all authorities. Strategic planning and implementation of the environment and climate acquis are necessary." [8]

The EU Floods Directive (2007/60/EC)[3] defines flood risk management plans as one of key elements of integrated river basin management, whereas constitutive elements of flood risk management plans are flood hazard maps and flood risk maps. Flood risk management plans need to be coordinated at the level of the river basin district or competent unit of management within the EU. Following the Floods Directive, competent institutions in Bosnia and Herzegovina (except Brčko District Bosnia and Herzegovina) completed Preliminary Flood Risk Assessments. This is the first of the key activities defined in the EU Floods Directive. Based on the flood hazard maps and flood risk maps, flood risk management plans will be prepared as stipulated in the relevant legislation in Bosnia and Herzegovina, i.e. Support to Bosnia and Herzegovina Water Policy, a `technical basis` for development of sub-strategies for implementation of the EU Floods Directive [Chapter 3],"Strategy of Integrated Water Management of Republika Srpska 2014-2024" [Chapter 11.4]; "Water Management Strategy of the Federation of Bosnia and Herzegovina 2010-2022" [Chapter 4.3.7].

Conclusions of Donors conference for Serbia and Bosnia and Herzegovina "Rebuilding Together"[9]: Bosnia and Herzegovina, together with Serbia, will develop integrated flood risk mapping and vulnerability assessments as well as sound flood risk management plans aiming to full compliance with the cornerstone EU Floods Directive. The introduction of proper land and urban use planning and promotion of sustainable land use practices for improved water retention should go in parallel with the work on flood defence and enhanced climate resilient infrastructure. The rehabilitation of the agricultural sector remains crucial but also requires serious improvements in the field of weather and hydrological forecasting. Early warning systems should be introduced at all levels, with upgraded contingency planning and emergency measures. Cooperation at the regional level for proper river basin management should be embedded in a regionally integrated flood response strategy. Recovery and reconstruction should provide for a proper care of most vulnerable groups.

The current Action will meet the key requirements deriving from the documents referred to above, i.e. lay ground for integrated flood risk and water management in Bosnia and Herzegovina based on cooperation between relevant stakeholders aiming to align with the EU legislation and strategic objectives regarding climate change.

SECTOR APPROACH ASSESSMENT

Floods Protection and Water Management is embedded in the sector Environment[10]. Within the recovery package / "special measures", the current Action will support flood protection and strengthen the water management system in the entire country.

There has been no countrywide environment strategy in Bosnia and Herzegovina. The EU emphasises the need to establish country wide strategies, and the EU assistance is being provided in that context. Outputs of such assistance, in order to be considered as a coherent ensemble in the sense of a country wide strategy, need to be adopted at all levels of BIH. Strategies at entities level are also fragmented and have not been prepared to present the situation and objectives for the sub-sector at a country level in a harmonised way. The "Strategy of Integrated Water Management of Republika Srpska 2014-2024" and the "Water Management Strategy of the Federation of Bosnia and Herzegovina 2010-2022" are relevant strategies at entity levels.

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8 http://ec.europa.eu/enlargement/pdf/key_documents/2014/20141008-bosnia-and-herzegovina-progress-report_en.pdf

9 Brussels, 16th July 2014

10 The European Commission has defined 9 Sectors to be used for planning (i.e. Country and Multi-Country Country Strategy Papers) and programming (Action Programmes) i.e. 1. Democracy and governance, 2. Rule of law and fundamental rights, 3. Environment, 4. Transport, 5. Energy, 6. Competitiveness and innovation, 7. Education, employment and social policies, 8. Agriculture and rural development, 9. Cross-border cooperation and regional cooperation.

As already mentioned earlier in relation to the Working Group coordinated by MOFTER, in order to be better prepared for the future and prevent such catastrophic events from happening again Bosnia and Herzegovina has been preparing an Action Plan on water and flood management. This comprehensive Action Plan will set the context in which flood protection and river management will be taken forward in a harmonised and coordinated way, both within Bosnia and Herzegovina as well as on a regional basis.

Regarding institutional settings, leadership, the capacity and performance framework, MOFTER is the institution responsible for coordination of strategic planning at the country level. According to the representatives of MOFTER, the capacities for strategic planning are insufficient; approximately, only eight or nine persons are involved at state level and less than ten per entity[11].

With respect to sector and donor coordination: the main participating donors include the European Investment Bank (EIB), World Bank, SIDA, Kreditanstalt für Wiederaufbau (KfW), United Nations Development Programme (UNDP) and the EU. There are individual donor pipelines of projects, which are currently not coordinated. Donor coordination meetings in the environment sector are held but they are directly organised by the donors. There is a need for a stronger role of the national authorities in donor coordination. Besides the EU Delegation, the Swedish International Development and Cooperation Agency (SIDA) has a leading role regarding environment.

LESSONS LEARNED AND LINK TO PREVIOUS FINANCIAL ASSISTANCE

The current Action will capitalise on past and ongoing infrastructure investments projects funded by EU instruments (i.e. CARDS[12], IPA 2007 – 2013). Experience gained from such projects / programmes has shown that mutual cooperation with beneficiary partners in the country and their full commitment during all phases of the project implementation is needed.

It is important that all stakeholders, including relevant ministries, take an active role during the implementation of the Action. Apart from the need for a good coordination with stakeholders in the sector to implement the infrastructure projects, it is crucial that relevant designs, feasibility studies, permits etc. are available *a priori* in order to avoid delays in the implementation of the respective projects.

There are two key lessons deriving from previous interventions in the environment sector in Bosnia and Herzegovina that worth mentioning:

- The institutional set up in the environment sector needs to follow the needs in the sector, which are considerable and grow rapidly as the sector seeks to meet the challenges of meeting EU Directives as well as its growth.
- The Coordination between the Council of Ministers of BiH and Entity Governments needs to be improved.

[11] Mapping of Sector Strategies, Final Report, 28th February 2014, Project No. 2013/318972 - http://ec.europa.eu/enlargement/pdf/financial_assistance/phare/evaluation/2014/20140714-mapping-of-sector-strategies-final-report.pdf

[12] Community Assistance for Reconstruction Development and Stability

2. INTERVENTION LOGIC

LOGICAL FRAMEWORK MATRIX

OVERALL OBJECTIVE	**OBJECTIVELY VERIFIABLE INDICATORS (OVI)**	**SOURCES OF VERIFICATION**	
To support the development of integrated flood risk management in Bosnia and Herzegovina in line with the European Union Floods Directive.	Progress made in harmonisation with the EU Floods Directive	EC Progress Reports Strategic Environmental Assessment (SEA) for Bosnia and Herzegovina	
SPECIFIC OBJECTIVE	**OBJECTIVELY VERIFIABLE INDICATORS (OVI)**	**SOURCES OF VERIFICATION**	**ASSUMPTIONS**
To support the implementation of the Action Plan for Flood Protection and Water Management and thus increase capacities of key stakeholders of Bosnia Herzegovina to manage flood risk management in terms of prevention, protection and preparedness to respond to potential hazards.	Measures in the Action Plan implemented with the support of the Action	EC Progress Reports Competent institutions` reports on the implementation of the Action Plan for Flood Protection and Water Management Annual and final reports on implementation of the Action	Key stakeholders and institutions concerned by the Action Plan for Flood Protection and Water Management fully observe the requirements and timetable of the Action Plan
RESULTS	**OBJECTIVELY VERIFIABLE INDICATORS (OVI)**	**SOURCES OF VERIFICATION**	**ASSUMPTIONS**
Result 1. The meteorological and hydrological observational network is upgraded and the measurement equipment capacities within Bosna River Basin (BRB) are strengthened so that the technical basis for the methodology of a unified hydrological forecasting system/model for the BRB is created.	Number of new and operational stations in meteorological and hydrological observational network within the BRB and sub-basins of the Ukrina, Tinja and Brka rivers	Technical assistance interim and final Reports Supply handover reports	Good co-operation and co-ordination amongst key stakeholders Proactive involvement of all stakeholders involved in implementation of the Action
	Number of cross sections of Bosna River Basin and its main tributaries with the quantitative predictions of flow rates and water levels	Hydrological forecasting reports	
Result 2. Flood protection structure on the river banks of Bosna, Sava and Janja Rivers are reconstructed, assisting the rehabilitation of local communities with the most vulnerable groups	Hectares of industrial, agricultural and residential land protected in the case of floods of magnitude Q1/100 (one – hundred – year flood)	Competent institutions` reports on the implementation of the Action Plan for Flood Protection and Water Management Project Reports	
	Length of Flood protection structure on the respective rivers' banks	Provisional and final acceptance of works	
ACTIVITIES	**MEANS**	**OVERALL COST**	**ASSUMPTIONS**
Component 1. Hydrological forecasting system for Sava River Basin (Phase 1. Bosna River) **1.1.** Provide, install and put into operation the equipment necessary for a unified hydrological forecasting system/model for the BRB and sub-basins of the Ukrina, Tinja and Brka rivers-Sava river tributaries 1.2. Develop the system which will serve for hydrological forecasting	Supply contract(s) with the possible preparatory work. Service contract	EUR 15 million	Competent staff nominated by competent institutions Relevant institutions/ agencies provided necessary information to contracted consultants/experts timely
Component 2. Reconstruction of river Sava basin flood-protecting river banks **3.1.** Reconstruct the flood protection structure on the Sava River Banks **3.2.** Reconstruct the flood protection structure on the Bosna River Banks **3.3.** Reconstruct the flood protection structure on the Janja River Banks	Work Contract(s) + Service contract (TA/supervision)		***Conditionality***: Hydrological-meteorological stations ready for installation of the equipment. ***Conditionality***: Technical documentation for reconstruction works prepared and revised; land expropriation completed; necessary permits and conformities obtained.

ADDITIONAL DESCRIPTION

Following and based on the Recovery Needs Assessment of May-June 2014, Bosnia and Herzegovina comes up with the present recovery Action that would include in its scope flood protection and river management.

—Component 1 – Hydrological forecasting system for Sava River Basin in Bosnia and Herzegovina (Phase 1. Hydrological forecasting system for Bosna River, including hydrological, hydraulic and geographical information system modules for the Bosna River Basin and sub-basins of the Ukrina, Tinja and Brka rivers-Sava river tributaries)

A set of activities will serve to considerably upgrade the meteorological and hydrological observational network, and strengthen measurement-equipment capacities within Bosna River Basin, including provision of adequate software and hardware needed in both institutions competent for hydro-meteorological services. The facilities envisaged will provide qualitatively distinctive progress – prediction of flow rates and water levels on the selected cross sections in the Bosna River Basin, including sub-basins of the Ukrina, Tinja and Brka rivers-Sava river tributaries.

Supply contract(s) and service contract are envisaged:

Supply contract(s):
- supply of servers and working stations, installation of servers, provision of operational software which supports servers functioning, training of staff on the usage of delivered equipment
- supply of equipment for land-field hydrometric measurement
- supply of meteorological and hydrological stations with real time data transmission (including provision of the adequate software for real time data transmission to the Hydrometeorological services, installation and testing)

Service contract:
- service contract needs to develop the system which will serve for hydrological forecasting. The system must include different data types and results of meteorological models forecasts, hydrological models (HBV, regression models, HEC), hydraulic models, etc. The system needs to be based on the software for programming environment (i.e. HBV, MIKE… which needs to be purchased) and then further developed for usage in the Bosna river basin based on the historical meteorological and hydrological data. After the system has been developed, it needs to be installed, and staff of the hydro meteorological services needs to be trained in order to use the developed software.

Component 2 – Reconstruction of River Sava Basin flood-protecting structure

A set of activities will be implemented to re/construct facilities for protection from high-risk floods of the Sava River Basin, specifically the rivers Sava, Bosna and Janja on critical locations. The lack and/or inadequacy of these facilities caused the hugest damages during the catastrophic floods of May 2014.

The locations are in the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District. The locations concerned are situated on three rivers:

1. **Sava River:**
   - **Odzacka Posavina**: river banks from km 22+272 to 27+117 (4.8 km); Reconstruction of the existing embankment of the Svilaj-Potocani channel km 0+000,00 to km 1+600,00 (3.2 km)
   - **Srednja Posavina**: Sava River banks: from km 2+878.03 to 3+014.07 and from km 3+215.19 to 4+646.13 (1.56 km);
   - Sava river banks from km 4+646.13 to 6+138.33 (1.5 km);
   - Sava river banks from km 6+138.33 to 7+328.54 and from km 7+879.95 km to 8+129.16 (1.44 km);

- Sava river banks:the Kopanice-Vidovice section from km 9+650 to km 15+196 (5.5 km); from km 26+856 to km 29+370 (2.5 km);
- Sava river banks from km 8+129.16 to km 9+660.22 (1.5 km);
- Reconstruction of the Sava river embankment in the urban area of the Samac town, from the Bosna-Sava delta down the Sava River to the Samac port (1.5 km)

2. **Bosna River:** reconstruction of the embankment on the right bank of Bosna river in the urban area of the Samac town for 1.35 km; embankments around the Dobor town for 5 km;
3. **Janja River:** flow regulation for 7 km.

Complementarity and coherence with regional IPA programmes and other investments in the field of flood and water management will be necessary in order to avoid possible overlapping and increase the synergy effect with other actions.

3. IMPLEMENTATION ARRANGEMENTS

ROLES AND RESPONSIBILITIES

- Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina (MoFTER);
- Government of Brčko District Bosnia and Herzegovina;
- Ministry of Agriculture, Forestry and Water Management of Republika Srpska;
- Federal Ministry of Agriculture, Water Management and Forestry;
- Public Institution – Vode Srpske;
- Sava River Watershed Agency Sarajevo, Federation of Bosnia and Herzegovina;
- Agency for Watershed of Adriatic Sea in Mostar, Federation of Bosnia and Herzegovina;
- Republic Hydro-meteorological Service of Republika Srpska;
- Federal Hydro-meteorological Institute.

IMPLEMENTATION METHOD(S) AND TYPE(S) OF FINANCING

The Action will be implemented under Direct Management by the EU Delegation to Bosnia and Herzegovina. The Action will be implemented through the following contracts:

- –Component 1 – Hydrological forecasting system for Sava River Basin in Bosnia and Herzegovina (Phase 1. Bosna River Basin including sub-basins of the Ukrina, Tinja and Brka rivers): Supply contract(s) for the equipment and Service contract for the development of the hydrological forecasting system
- Component 2 – Reconstruction of flood-protecting structure on the river banks of Sava, Bosna and Janja rivers: Work contract(s) + Service contract for TA/supervision of works activities.

No co-financing requirements for the 'special measures' package.

4. PERFORMANCE MEASUREMENT

METHODOLOGY FOR MONITORING (AND EVALUATION)

Each component should be monitored separately as it will include more than one contract.

However, a Project Steering Committee(s) shall be set up to monitor progress of these assignments, facilitate the access to the relevant institutions, assure their timely and sufficient inputs were required, provide guidance on project implementation and ensure compliance with applicable legislation, regulations and standards. The Steering Committee(s) shall have only a consultative role. Indicatively, it shall comprise of the representatives to represent:

- The Delegation of the European Union to Bosnia and Herzegovina.
- Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina (MoFTER);
- Government of Brčko District Bosnia and Herzegovina;
- Ministry of Agriculture, Forestry and Water Management of Republika Srpska;
- Federal Ministry of Agriculture, Water Management and Forestry;
- Public Institution – Vode Srpske;
- Sava River Watershed Agency Sarajevo, Federation of Bosnia and Herzegovina;
- Agency for Watershed of Adriatic Sea in Mostar, Federation of Bosnia and Herzegovina;
- Republic Hydro-meteorological Service of Republika Srpska;
- Federal Hydro-meteorological Institute.

The exact composition of the Steering Committee is to be decided before the commencement of the activities.

Evaluation: the Action will be subject to interim and ex-post evaluation in line with the General principles of evaluation of IPA II Assistance.

INDICATOR MEASUREMENT

Indicator	Description	Baseline (2010)	Last available	Milestone 2017	Target 2020	Source of information
Overall objective	**Outcome/impact**					
Progress made in harmonisation with the EU Floods Directive	Assessment of the progress made in the perspective of alignment with the EU Floods Directive as assessed in DG Enlargement Progress reports (qualitative assessment)	Year: 2010 Status: a large amount of legislation transposing the *Acquis* is not in place. There is a lack of harmonised implementation of water laws, monitoring and river basin planning between the Entities. Flood management remains key challenges.	Year: 2013 Status: no efforts made to ensure a consistent and harmonised approach to water management at State-level, including implementation of the water laws, monitoring and river-basin management plans. The Federation adopted implementing legislation on determining ecologically acceptable flow for surface water bodies. Steps were taken towards developing relevant strategies in the Entities and of river basin management plans for the rivers Neretva, Trebisnjica and Sava.	Alignment with the EU Floods Directive partially achieved	Alignment with the EU Floods Directive totally achieved	EC Progress Reports
Specific objective	**Outcome indicator(s)**					
Measures in the Action Plan implemented with the support of the Action	Assessment of the progress made in the implementation of the Action Plan for flood protection and water management prepared for Bosnia and Herzegovina, with a	Not applicable	Not applicable	100% of the measures concerned and planned by 2017 in the Action Plan	100% of the measures concerned and planned by 2020 in the Action Plan	EC Progress Reports Competent institutions` reports on the implementation of the Action Plan for Flood

Indicator	Description	Baseline (2010)	Last available	Milestone 2017	Target 2020	Source of information
	focus on the measures that are expected to be implemented with the direct support of the Action					Protection and Water Management Annual and final reports on implementation of the Action
Result 1	**Immediate results indicator**					
Number of new and operational stations in meteorological and hydrological observational network within the Bosna River Basin, including sub-basins of the Ukrina, Tinja and Brka rivers	Number of stations in the meteorological and hydrological observational network provided during the Action and made fully operational with the support provided during the Action	Not applicable	Not applicable	Number of stations anticipated by 2017 in the Action Plan for flood protection and water management prepared for Bosnia and Herzegovina	Number of stations anticipated by 2020 for flood protection and water management prepared for Bosnia and Herzegovina	Supply handover reports
Number of cross sections of Bosna River Basin and its main tributaries with the quantitative predictions of flow rates and water levels	Number of cross sections of BRB and main tributaries for which the Action made quantitative predictions of flow rates and water levels available.	Not applicable	Not applicable	Forecasts for the selected cross sections with satisfactory efficiency of the model for Bosna river catchment	Routine hydrological forecasting with satisfactory efficiency of the model for the Bosna river catchment	Hydrological forecasting reports
Result 2	**Immediate results indicator**					
Hectares of industrial, agricultural and	Hectares of industrial, agricultural and residential land	Not applicable	Not applicable	16.000,00	30.000,00	Competent institutions` reports on the

Indicator	Description	Baseline (2010)	Last available	Milestone 2017	Target 2020	Source of information
residential land protected in the case of floods of magnitude Q1/100 (one – hundred – year flood)	protected in the case of floods of magnitude Q1/100 (one – hundred – year flood)					implementation of the Action Plan for Flood Protection and Water Management Project Reports
Length of Flood protection structure on the respective rivers' banks	Number of kilometres of flood protection structure built during the Action on the rivers' banks of Sava, Bosna and Janja.	Not applicable	Not applicable	Sava: 23.5 km Bosna: 6.35 km Janja: 7 km	Sava: 23.5 km Bosna: 6.35 km Janja: 7 km	Provisional and final acceptance of works

5. CROSS-CUTTING ISSUES

ENVIRONMENT AND CLIMATE CHANGE (AND IF RELEVANT DISASTER RESILIENCE)

The current Action specifically targets the improvement of environment in the specific area of floods protection/prevention and water management.

The investments considered within the Action will mainly focus on water management. All investments shall be carried out in compliance with the relevant Community environmental legislation.

The procedures for environmental impact assessment as set down in the Environmental Impact Assessment (EIA) directive[13] fully apply to all investments financed under IPA II. If the EIA directive has not yet been fully transposed, the procedures should be similar to the ones established in the directive.

Further, the project proposal will take into due account the recommendations deriving from the 2009 UN report on Framework Convention on Climate Change (UNFCCC), "*Bosnia and Herzegovina is highly vulnerable to climate change… also has a high sensitivity to these threats because of the economic role of "climate-sensitive" sectors, such as agriculture and forestry (and the role of hydropower in the energy sector to a lesser extent), with significant secondary impacts …Finally, B Bosnia and Herzegovina has very limited adaptive capacity to address climate risks*". The present Action, will contribute to increase Bosnia and Herzegovina's capacity to address the challenges of climate change.

ENGAGEMENT WITH CIVIL SOCIETY (AND IF RELEVANT OTHER NON-STATE STAKEHOLDERS)

Civil society was involved in the first emergency assistance and obtained the most relevant information as to the scope of the floods disaster in May 2014 and particularly regarding the most vulnerable groups. As the current Action is a response to the complex causes and consequences of the recent floods, inputs from civil society deemed critical in a wide consultation process that took place within the Recovery Need Assessment of May – June 2014, which was conducted all over the flood-affected areas. The civil society was involved through participation of various networks and civil society organisations.

All relevant stakeholders from various levels of the governance in Bosnia and Herzegovina as well as non-state stakeholders have had a chance to take an active role in the consultation process aftermath of the floods of May 2014 and helped to prepare the priority list of flood-recovery measures.

EQUAL OPPORTUNITIES AND GENDER MAINSTREAMING

The Action is an intervention aiming at strengthening capacities (in terms of prevention, protection and preparedness) for integrated flood risk management in Bosnia and Herzegovina. The Action as such is gender-neutral. However, equal opportunity principles and practices in ensuring equitable gender participation and non-discrimination within the Action will be guaranteed.

MINORITIES AND VULNERABLE GROUPS

The Action is to develop a comprehensive and integrated approach in the area of flood protection and water management. The approach is a part of Bosnia and Herzegovina recovery framework addressing the causes and consequences of floods. Through this Action, Bosnia and Herzegovina will assist the rehabilitation of local communities with the most vulnerable groups, particularly in the Janja and Doboj/Modrica regions which are densely populated mostly by refugees and returnees.

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[13] Council Directive 85/337/EEC of 27 June 1985

The reconstruction of most urgent embankments in basin of river Sava will contribute to restoring normal living conditions and revitalising livelihood in the most flood-affected areas in Bosnia and Herzegovina.

Participation in the Action activities will be guaranteed on the basis of equal access regardless of racial or ethnic origin, religion or belief, disability, sex or sexual orientation.

6. SUSTAINABILITY

The high involvement of the key stakeholders in the Action design so far, and their firm commitment to the implementation manifested in the process of developing the comprehensive Action Plan for Flood Protection and Water Management for Bosnia and Herzegovina has already created a strong sense of ownership.

The two components of the Action present foundations and a model for future integrated flood risk management in Bosnia and Herzegovina. The Action will contribute to safety of lives and livelihood of thousands of households by reducing the risks of future potential flood disasters. The supply component will increase institutional sustainability and effectiveness of hydro-meteorological service providers. The infrastructure component will result in massive facilities built to protect and enable normal life and work.

7. COMMUNICATION AND VISIBILITY

Communication and visibility will be given high importance during the implementation of the Action.

All necessary measures will be taken to publicise the fact that the Action has received funding from the EU. Visibility and communication actions shall demonstrate how the intervention contributes to the agreed programme objectives, particularly flood-recovery special measures. Actions shall be aimed at strengthening general public awareness and support of interventions financed and the objectives pursued. The actions shall aim at highlighting to the relevant target audiences the added value and impact of the EU's interventions. Visibility actions should also promote transparency and accountability on the use of funds.

It is the responsibility of the implementer(s) of the respective contracts anticipated in the Action to keep the EU Delegation in Bosnia and Herzegovina fully informed of the planning and implementation of the appropriate visibility and communication activities relevant for work and supply contracts as well as technical assistance.

The planning and designing of visibility actions and tools particularly in this Action (infrastructure, provision of hydro-meteorological equipment and development of risk and hazards maps) will be fully aligned with the EU visibility guidelines "Communication and Visibility Manual for EU External Actions".

Report on visibility and communication actions will be included in the reports submitted to the IPA Monitoring Committee and the Sectorial Monitoring Committee.