Serbian
National Disaster Risk Management Program

1. Background

As a result of extraordinary rains in May 2014, Serbia was affected by the most severe flooding in 120 years. The disaster affected more than 1.6 million people (22 percent of the total population) in 38 municipalities in central and western Serbia. This caused significant economic hardship and disproportionally affected the poor and vulnerable. On May 20, the Government of Serbia proclaimed three days of national mourning.

In the immediate aftermath of the disaster, the Government conducted a post disaster needs assessment with support from the European Union, United Nations, and The World Bank Group. This assessment focused on estimating the damages and losses caused by the event, as well as the financial needs related to recovery and reconstruction. According to the assessment the total effects of the disaster in 24 affected municipalities selected for the assessment amounted to EUR 1,525 million, of which EUR 885 million (57% of the total effects) represented the value of destroyed physical assets, and EUR 640 million (43% of the total) refer to losses in production. When considering all the 38 affected municipalities, the total value of disaster effects rose to EUR 1.7 billion or over 4 percent of GDP. The most affected sector was mining/energy (32 percent of the total), followed by housing, agriculture and trade, each accounting for around 15 percent.

Approximately 51,800 people temporarily lost their job due to the interruption of productive activities and household incomes declined proportionally. It was estimated that since the floods, 125,000 individuals have fallen below the poverty line, resulting in an increase of nearly 7 percent points over last year's poverty level. These negative impacts on livelihoods and employment were more acute in vulnerable groups and among the rural population (the rural poverty rate in Serbia is 9.4 percent, twice as high as the urban poverty rate). Overall, the Human Development Index (HDI) was expected to decline in 2014 reversing approximately two years' worth of growth.

In September, four months after the event, the country was affected again by another disaster. Severe flooding, flash floods and landslides resulted in an emergency situation in three municipalities in the Bor District in the eastern part of the country. This event serves as another reminder that Serbia is likely to be confronted with more frequent and intense flood events in the future. Without risk-informed planning and investments, Serbia will become even more vulnerable to such adverse events.

2. Objectives

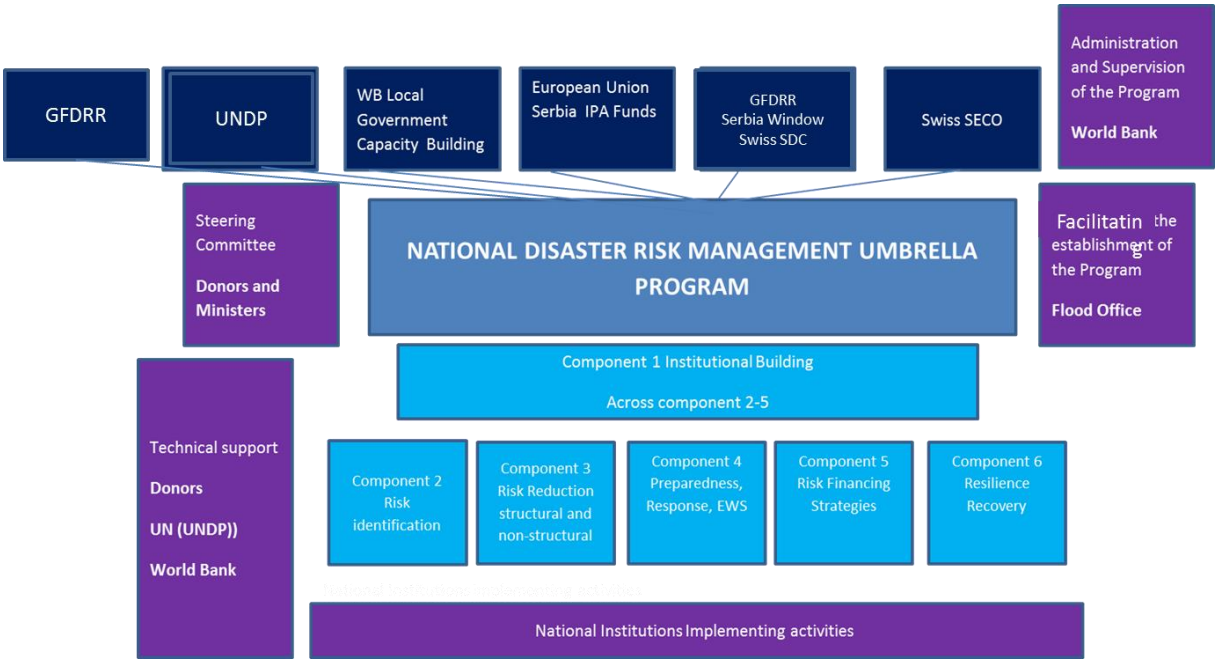
The objective of the National Disaster Risk Management Program (NDRMP) is to support the Government of Serbia to build a comprehensive program for disaster resilience. This program will be used as an umbrella framework to coordinate, channel funds, and implement activities related to reducing and managing risks in Serbia.

This Program will be funded by different funding mechanisms including a Multi-donor Trust Fund specifically prepared for this purpose. One of the main specific purposes of the Program will be to build a

national disaster risk management system with the necessary capacity and clear responsibilities to reduce the existing risks, to avoid the creation of future risks, and respond more efficiently to disasters.
The Program will help mobilize international donor funding, facilitate coordination across donors and key stakeholders, and ensure that financing will be directed to prioritized investments.

3. Structure of the Program

The NDRMP will be built in a global framework to ensure that all activities related to disaster risk management are integrated. Initially, it will be funded by external funding mechanisms that will be administrated and supervised by the World Bank. The program will have a Steering Committee (SC) to oversee all the activities of the program, which will be compromised of the relevant Ministers of the country, donors, the United nations, and the World Bank. The Office for Flood Affected Areas Assistance and Rehabilitation (Flood Office) will be in charge of initiating the process and facilitating the program activities. The graphic below illustrate the program structure.



The SC will be composed of representatives of the Government, donors, United Nations, and the World Bank. The SC will validate the prioritization of activities and approve the annual work plan. In order to develop the work plan and an initial list of prioritized activities, there will be a workshop with the SC and other key stakeholders at the end of 2014.

Following the approval of the work plan, individual grants will be reviewed and approved through the existing Global Facility for Disaster Reduction and Recovery (GFDRR) grant approval process. Subsequently, these grants will be implemented using standard World Bank Group procedures. The Bank-executed activities will be carried out in accordance with World Bank corporate policies and procedures, including those related to audit, eligible expenditures, employment and supervision of consultants, and the procurement of goods and works. The recipient-executed activities—like all recipient-executed activities

financed by IDA/IBRD and trust funds such as GFDRR—will be subject to the Bank's operational policies and procedures. The preparation process will be guided by the World Bank Procedures for Small Recipient-Executed Trust Fund Grants, which sets out streamlined project-processing procedures applicable to small grants (below US$5 million) and micro grants (below US$500,000).

4. Funding Mechanisms

The Program will be funded by different funding sources. At the moment, the main sources identified are:

Multi-Donor Trust Fund (MDTF). The MDTF is the main fund that will provide the basis for the Program. It will be developed through GFDRR. The funds of the MDTF will be channeled through a special window for Serbia within the Track II for Risk Reduction. The implementing institutions of this Fund include country governments, United Nations agencies, IFIs, regional intergovernmental organizations or research organizations. All the grants approved under this MDTF, which will be administered by the World Bank, will follow World Bank guidelines, including fiduciary management and external auditing requirements, procurement guidelines, and safeguards.

Global Facility for Disaster Reduction and Recovery. The World Bank has submitted an application for GFDRR funds. This grant will help establishing the NDRMP in Serbia. These funds will focus specifically on Component 1 contributing to the processes for the design of the National Disaster Risk Management System through participatory approaches.

European Union (EU) Instrument for Pre-Accession Assistance (IPA) 2014. Resources from EU will also contribute to the Program, focusing most of the resources on Components 1, 2 and 4. Their contribution will be administered by the World Bank and the implementation will be done by national institutions and the Bank.

Swiss State Secretariat for Economic Affairs (SECO) Disaster Risk and Insurance. SECO contribution is part of a Swiss/World Bank program to improve Government capacities to improve their knowledge and financial tools to manage disaster contingent liabilities. The contribution will focus mainly on Component 1 and 5 of the Program.

World Bank - Austria Urban Partnership Program. This initiative aims to strengthen the capacity of local governments in South-East Europe. This fund will contribute to building disaster risk management capacity at municipal level and will focus its resources on Component 1.

United Nations Development Programme (UNDP). As part of its recovery support to the Floods Office UNDP is launching a project with regards to capacity development for disaster risk reduction. Over the medium to long term UNDP is planning to launch a programme of support to the Seriban government and communities. The UNDP support will focus upon strengthening capacities in Institutional Development, Risk Reduction, Disaster Preparedness (including early warning) and resilient recovery. In the immediate period UNDP is planning to contribute about 500,000 towards improving emergency response, early warning, municipal and community preparedness and studies about integration of DRR into development planning. Through UN- Resident Coordinator's Office, UNDP will also work to mobilize technical

support from other UN agencies for DRR capacity development in different sectors; e.g. education, health, agriculture, housing, water, industry etc.

5. Program Components

In the medium/long-term, Serbia would benefit from enhancing its capacity to resist, cope with, and recover from adverse natural events. This would require the country to elevate the disaster risk management (DRM) agenda which encompasses a wide range of activities and measures, ranging from traditional risk mitigation through structural engineering measures, such as floods protection systems, to preparedness through non-structural measures such as risk-informed spatial planning, enhanced weather forecasting and early warning, and disaster risk financing and insurance solutions.

Taking advantage of the opportunity to improve and systematize DRM in Serbia, the Program will advance the DRM agenda in the country by revisiting existing practices and introducing new approaches.
At the same time, the Program adopts a framework approach that will allow the country to build on existing activities and improve its national systems. In order to expedite short and medium term actions, some of the activities will build on Serbia's existing policies and administrative and technical procedures relating to water management and flood protection, while drawing in global best-practices. The Program will support the government's efforts to better comply with the EU acquits, notably the Water Framework Directive and the Flood Directive, Climate Change Directive related to adaptation to Climate Change, and the Civil Protection Directive. It will not only aim to foster solutions at local and/or national scale, but also help strengthen the regional platforms of cooperation and river basin management that are essential to manage water and floods that rise in the trans-boundary river basins of which Serbia controls only a part (Danube river, Sava, Drina, Tisza, etc.).

The main challenge under this Program is to build an appropriate and longstanding system for DRM in the country, where different institutions collaborate and work together to systematically reduce risks and respond more efficiently to disasters.

The Program lays out a framework with six components and will be implemented through annual work plans. The framework contains all activities that could be developed and financed by the funds from donors and development partners. The components are described below:

Component 1: Institutional building

Effective DRM requires collective action from a wide range of key stakeholders across ministries, departments, and agencies at all levels. This requires an institutional anchor and strong inter-sectoral coordination mechanism to ensure the sustainability of the action.

In recent years, Serbia has made progress in strengthening the legal and policy environment for emergency response and risk reduction. Key milestones include the adoption of the following: (i) the Law on Emergency Situations and Civil Protection (2009); (ii) the Law on Amendments to the Law on emergency situations to integrate the concept of risk reduction (2011); and (iii) the National Strategy in the field of emergency management and disaster risk reduction (2011). The National Strategy document called for the

development of a National Action Plan within 6 months after the adoption of the Strategy; however, the Action Plan has not been developed to date.

In alignment with international legislation and priorities, Serbia has enacted new legislations related to water and hydrometeorology which incorporate important elements of DRM. As a candidate country for membership in EU, Serbia has made efforts to harmonize its legislation with EU regulations. For example, the new Law on Water (2010) is largely consistent with the EU Water Framework Directive (EU WFD) as well as the EU Floods Directive (EFD). The EU WFD is a legal framework to protect and restore clean water and ensure its long-term and sustainable use, and requires member states to submit river basin management plans to achieve this objective. The EFD requires EU member states to establish flood risk management plans for river basin districts focused on prevention, protection and preparedness, including the development of flood hazard and risk maps. The Law on Meteorological and Hydrological activity (2010) has integrated strategic priorities of the World Meteorological Organizations (WMO). This Law provides the legal framework for weather forecasting, early warning, and the use of weather and climate related information for risk assessments.

In addition, the revised EU civil protection legislation came into effect in the beginning of 2014, which now places greater emphasis on disaster prevention, risk management and preparedness, and requires the member states to refine their risk management planning.

Despite progress, however, Serbia's current legislation has limitations and implementation remains slow. For example, the new Law of Water has transferred the responsibilities of the majority of torrential floods to local municipalities (as they are responsible for "level 2" water courses). These municipalities, however, often lack the technical knowledge and the financial means to comply with the Law and take the necessary actions. This, in turn, contributes to the increase of flood risks, particularly in Serbia's mountainous regions. In terms of implementation of DRM related legislation, Serbia remains focused on emergency response, while the concept of preparedness and risk reduction remains to be operationalized.

The main focus of this component is to help the country to establish a national DRM system. The system will be established by initiating a process of consultation and dialogue among the different institutions that are related to DRM (tentative list of these entities is in Annex 1). The component will also support the Government in strengthening the institutions towards implementing the required actions in the relevant EU directives. The Program will work with the existing structures and legislations in the beginning, but may need to suggest changes to address the issues above. In the process, the already existing documents and analysis, (such as UNDP DRR Capacity Assessment conducted in Serbia in 2011) as well as other relevant sources might be revisited. Initially, the process will be facilitated by the Flood Office and in collaboration with the Ministry of Interior, Ministry of Agriculture, Ministry of Public Administration and Self Government, Minister of Finance, and the Minister of Infrastructure.

Table 1: Eligible Activities under Component 1

• Initiating a process and establishing a platform for consultation and dialogue among institution related to DRM • Identifying necessary actions to conform to EU directives and coordinating with relevant institutions for implementation • Assessment of existing institutional, legislative and financial framework of DRM and identify necessary adjustments or capacity building

Component 2: Disaster risk identification and monitoring

Risk information provides a critical foundation for reducing and managing disasters and flood risks. At the community level, an understanding of hazard events can inform and influence decisions on preparedness, the location of important facilities, and life-saving evacuation procedures. Moreover, robust risk analysis can inform planning, design and construction processes to ensure the resilience of infrastructure against disasters, including floods protection structures. Finally, sovereign risk financing and insurance will require a detailed understanding of annual average and probable maximum losses and analysis of uncertainty.

There is a need for generating more information on risk, including risk assessment methodology. While a number of geographic and hazard specific assessments have been conducted (for example, in the Danube river basin to abide by the EU Floods Directive), there has been no comprehensive national level risk assessment. In addition, these assessments have only focused on flooding of relatively large rivers, excluding the risk of flooding caused by torrents. Effective floods risk management will require a better understanding of the causes of different types of flooding, their probabilities of occurrence, and their expression in terms of extent, duration, depth, and velocity. In this context, it will also be essential to understand how flood risks will evolve over time given the changing climate.

Sharing and communicating risk information among stakeholders remains limited. Risk assessments are inherently multi-institutional, and no single agency can be solely responsible for generating, communicating, and using risk information. This will require strengthening Serbia's institutional mechanism and policies on sharing spatial data and other risk information among stakeholders.

Based on a very initial prioritization, activities that will be finance under this component are will finance studies, institutional strengthening, technical assistance and equipment to improve strategies for identification and reduction of flood risks. This will involve an analysis of hazards, vulnerabilities and risks created by high flood waters in Serbia's main rivers and tributaries and strengthen the technical capacity of the government agencies through improved systems and updated analysis assumptions and techniques. It will include a diagnostics of the recent catastrophic flood events, a review of hydrological characteristic of other recent events and an analysis of potential impacts associated with climate change, considering implications for structural and non-structural elements of the flood management plans (including review of design standards, assumptions, protection requirements and methods, etc.). At the same time, vulnerability assessments on prioritized regions and sectors will be eligible, due to the need to establish and improve exposure databases.

This component will build upon on-going activities and work to accelerate efforts and address key capacity constraints and identified needs. Furthermore, the component will fund the strengthening of the forecasting and response system to ensure that accurate forecasting is translated to real-time dissemination of reliable and complete information to the authorities that are assigned to take disaster preparedness and response decisions. In parallel, the flood forecasting capability will be tailored to allow planners and designers of protective infrastructure and response programs to use the models to run scenarios of different flood events.

At the same time, activities to better understand landslides will be developed by reviewing historical databases and developing hazard and susceptibility maps for landslides. These inputs as well as the flood

maps will allow government institutions and municipalities to develop risk reduction measures as well as inform ongoing reconstruction efforts.

Table 2: Eligible Activities under Component 2

• Generation of data and models for hazards and exposure • Improvement of hydro and meteorological information • Regional, national, and municipal hazard assessments • Data collection on exposure and vulnerability analysis for priority areas and sectors • Risk assessment at Regional, National and Municipal level for priority areas and sectors • Improvement of monitoring and forecasting systems including software, equipment and capacity building. • Information systems for sharing and disseminating risk information

Component 3: Structural and nonstructural risk reduction

Strong institutions, policies, and regulations provide an essential framework for integrating risk reduction considerations into land use planning and sector investment programs. While Serbia has made progress in establishing an enabling policy and legal environment, the institutional capacity to facilitate risk reduction needs to be strengthened. Specific activities to achieve this objective will include: (i) convening Government and across ministries and agencies to reach consensus on level of risk; (ii) facilitating partnerships between Government and scientific and research institutions; (iii) supporting national and local governments to effectively undertake its oversight and regulatory mandates, and (iv) enhancing monitoring and evaluation of public infrastructure projects.

Serbia would benefit from developing strategies to integrate risk considerations into sector investments. The objective of these strategies should be to avoid the creation of new risks and reduce existing risks to which the sectors are exposed. Examples of activities include: (i) conducting portfolio analysis of vulnerable sector-specific building stock; (ii) supporting the use of hazard/risk assessments to guide the selection of suitable site locations and prioritization of infrastructure at risk; and (iii) conducting cost-benefit analysis of potential risk reduction interventions, while considering their social and environmental impacts.

Preparation of priority investments based on the risk assessments will support the Government institutions, municipalities, and especially the Directorate for Water Management and Public Water Management Companies to translate the flood risk and flood management plans into prioritized investment frameworks. This component will involve a review of recommendations presented in the flood management plans and detailed feasibility studies to select the appropriate structural and non-structural solutions, considering key technical, economic, environmental and social factors. The feasibility studies will be translated into investments packages for subsequent financing and implementation.

These activities will also fund the National Flood Structures Inspection to review safety and categorize existing structures into classes that need different level of improvement.

Activities under this component will mitigate the risk of flooding in critical and vulnerable areas, through investments in high priority flood protection measures, including infrastructure and institutional

interventions. In addition, nonstructural measures, such as incorporating risk dimension into land use plans and urban planning as well as improvement of building codes and construction practices, are envisaged,.

The Component will finance goods, works and services for improved flood prevention and protection, based on the prioritized investment frameworks and results from the National Flood Structures Inspection and other hazard risk assessments.

Table 3: Eligible Activities under Component 3

Structural measures: • Re-construction, rehabilitation and modernization of existing structures • New structures in line with Flood Directives and flood management plans • Passive flood protection structures, notably dikes; river training works to enhance the flood carrying capacity • Active flood prevention investments, notably flood overflow areas and temporary water retention areas and wet and dry reservoirs • Stabilization of prioritized landslides sites • Equipment for monitoring and operational management and maintenance of infrastructure. Nonstructural measures: • Incorporation of systems for systematically include risk aspects into new public investments • Including risk dimension on land use planning and urban planning at national and municipal levels • Revision and improvement of building codes and building practices • Strengthening risk information sharing and dissemination mechanism

Component 4: Early warning systems and preparedness.

Serbia has made significant investments in hazard forecasting and hydrometeorological early warning systems. The Republic Hydrometeorological Service of Serbia (RHMSS) currently has a functional and relatively robust hydrometeorological monitoring network which includes: 66 surface weather stations, 97 climatological stations, 530 rainfall stations, 4 agro-meteorological stations, 1 upper air station, 2 modern weather radars, 77 surface reporting stations, 133 automatic and analog water level recording stations, 406 ground water stations, and 152 discharge measuring stations. This allows RHMSS to deliver real-time meteorological and hydrological data to the Sector for Emergency Management (SEM), including observations, various forecasts across short, medium and long timescales, and warnings.

The recent floods event shows that early warnings need to be more timely and accurate and properly reach local communities. Serbia will benefit from further strengthening current legal and regulatory framework to address any gaps related the dissemination of warnings of extreme meteorological and hydrological events. In addition, capacity assessment of the hydrometeorological services will be beneficial to better understand how they can be improved, including ways to issue alerts for short-term events and localize them more accurately. Furthermore, it would be important to improve operational procedures to ensure the preparedness of local communities. This will require investing in reliable information and communication technologies to strengthen last-mile warning dissemination mechanism.

Moving forward, there is also a need for additional investments in RHMSS's end-to-end production system. RHMSS has the organizational and technical capacity for providing high quality service, but will benefit

from further investments in the hydrometeorological observing networks, forecasting capabilities, and product delivery. This can include, for example, repairing damaged hydromet stations, improving national weather radar coverage, numerical weather prediction and data assimilation capacity, operational databases, telecommunications and high performance computational resources. Moreover, with many productive sectors exposed to weather and climate, Serbia's economy will benefit from optimized production informed by better hydrometeorological information. This can include investments in the climate watch system and the agro-meteorological observing network.

An effective end-to-end early warning system will not be possible without the participation of difference national agencies, municipal authorities and local population. That is why improving the system in all these levels is a must. In that sense, a diagnostic of this system will be developed in order to identify priority actions. Nevertheless, activities to improve municipal and local early warning will be developed.

Budget constraints and lack of investment in human capacity is curtailing the effective implementation of the Serbian emergency response system. Adequately trained and equipped protection and rescue personnel are essential to an effective emergency response. While the number of professional firefighters and rescue workers is still below internationally recognized minimum standards and they lack technical capacity, recent progress has been made. In 2013, the Government increased its roster of professional firefighters and rescue workers from 3,000 to 3,500 and established the National Emergency Training Centre to provide training for members of professional and voluntary firemen and rescue services, as well as citizens who take part in civilian protection. More investment, however, is needed to increase the number of personnel and to finance training and education.

Similarly, the lack of adequate investment in the operation and maintenance of existing equipment, as well as the replacement of old equipment, is posing a serious challenge. The current inventory features equipment, such as vehicles, boats, pumps and fire protection equipment, that is outdated and unreliable, leading to a slower and less effective emergency response. There is also a lack of specialized vehicles and equipment for responding to chemical accidents in road, rail and river transport. It is important to improve the personal equipment of the protection and rescue units, in particular those of the firefighting and rescue services.

A proper response capacity also needs to involve municipal and local authorities and the population Therefore, investments in improving community preparedness and response will be included under this component, which will include simulations and drills with the participation of national, municipal and local actors.

At the same time, communication strategies need to be developed to increase public awareness about the risk that the population is exposed to, in order to reassure as well that reconstruction efforts are taking risk into consideration and future risk are been reduced.

Table 4: Eligible Activities under Component 4

• Improving early warning systems at national, municipal and local levels,

- Improving communication mechanisms for more effective warnings at national and municipal level as well as at community levels
- Comprehensive activities on early warning on river-basins level
- Simulations and drill for evacuations
- Strengthening response and preparedness capacities at national, municipal, and local levels
- Support the National Plan for Protection and Rescue in Emergency Situations.
- Improve Information Management for Emergency Response at the National Emergency Management Headquarters (NEMH)
- Tailored DRR education at the local level targeting: (i) journalists, (ii) school children and teachers and (iii) municipality officials/civil protection trustees;
- Communication and awareness strategies and campaigns

Component 5: Risk financing strategies

Even with a robust DRM approach, Serbia could still be exposed to budget shocks caused by major disasters, which could erode its economic and fiscal position. A disaster risk financing strategy can help ensure that the Serbian Government, businesses, and people can access financial protection, such as adequate budget reserves and risk transfer solutions including insurance.

Catastrophe insurance and weather risk coverage remains almost non-existent, but efforts are underway to change this. The problem of low penetration of catastrophe insurance is caused by a number of factors, including: the lack of understanding of the need for and the benefits of catastrophe insurance; the reluctance of local private insurers to offer this type insurance; the absence of reinsurance due to the high costs associated with risk modeling and the development of catastrophe insurance products; and limited technical capacity of local insurers to meet the high risk management requirements for catastrophe risk financing. In order to overcome these challenges, Serbia joined the South East Europe and Caucasus Catastrophe Risk Insurance Facility in 2012. Pilot sales of insurance policies have just started at end of September.

Moving forward, Serbia will also benefit from understanding its fiscal vulnerability and managing its contingent liability against adverse natural events. The country can consider including establishing a national disaster funds to ensure fast disbursement and execution of financial resources in the aftermath of a disaster in its risk financing strategy. Global experience shows that without appropriate post-disaster funding arrangements the adverse socioeconomic impact of disaster can be exacerbated. A dedicated financial mechanism will allow Serbia to conduct transparent and efficient post-disaster damages assessments of public infrastructure, mobilize immediate post-disaster funding, and execute the funds in close collaboration with relevant line ministries and public agencies. This, in turn, would enable Serbia to better manage the budget volatility potentially associated with disasters.

Activities related to this component are technical studies to understand contingency liabilities, capacity building for the Ministry of Finance, analyzing administrative, legislative and operational mechanisms in post-disaster phases, development of risk financing strategy that includes financial instruments for sovereign financial protection and further development of risk transfer mechanisms such as insurance.

Table 5: Eligible Activities under Component 5

• Developing a risk financing strategy • Promoting catastrophe insurance and improving penetration • Studies to understand contingent liabilities and fiscal impact • Studies to analyze the administrative, legislative and operational mechanisms in post-disaster phases • Capacity building for the Ministry of Finance on disaster risk financing

Component 6: Resilient Recovery

Serbia will benefit from promoting the use of Post-Disaster Needs Assessments (PDNAs) and Recovery Frameworks (RFs) to guide the recovery process. Building on the recent experience, Serbia should work on promoting the use of the PDNA methodology to guide recovery processes in the future. Serbia can focus on integrating the methodology into national and local governance systems. This will require building the capacity of national and local government staff, private sector, academia, and civil society in conducting PDNAs. Subsequently, Serbia could also expand from the PDNA methodology, including the human recovery needs aspects and the Recovery Framework methodology, which has been developed by the World Bank, UNDP, and the EU.

Serbia should consider adopting a comprehensive tracking system to monitor the flow of all public spending in response to disasters, including the source of related funding. Systematic tracking systems are essential in order to effectively manage disaster response efforts, identify gaps in funding, support accountability, and draw lessons learned for potential improvements in disaster risk financing arrangements.

Strengthening the coordination of recovery actors to avoid gaps and increase focus on resilient recovery interventions should be considered. This will first require Serbia to ensure that governance models for recovery that establish roles and responsibilities for all actors include mechanisms to hold all stakeholders accountable. Second, the Government should use the recovery planning process to align all actors behind its risk reduction agenda.

By improving resilient recovery efforts, Serbian Government has the unique opportunity to review and improve its national disaster risk management system. Activities within this component will provide technical assistance and capacity building to existing institutions, as well as develop a process for incorporating resilience against adverse natural events as a national system.

Table 6: Eligible Activities under Component 6

• Institutionalizing PDNAs and RFs at national and local levels • Establishing a tracking system to monitor funding flow for disaster response and recovery