



Water Contingency Management in the Sava River Basin

Transnational best management practices catalogue

Deliverable D.T4.1.3

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| Version | Draft |
| Date | 28.10.2022 |

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1 Introduction

One of main tasks of the WACOM project was to prepare a Transnational best management practice catalogue for improved preparedness and transboundary coordination and interoperability of emergency response in the case of floods and accidental pollution as well as situational awareness.

The purpose of this task was to prepare an overview of Water Management and Civil Protection best management practices. The measures were compiled by project partners which are experts in the field of Water Management as well as in the Civil Protection. In this way, all partners from different fields of work and countries contributed to a thorough analysis of emergency response to flooding and accidental pollution and to situational awareness.

2 Transnational best management practice catalogue

The WACOM catalogue of measures was developed through a multi-stage, multi-stakeholder process. A comprehensive list of measures was developed, harmonized, and prioritized for all countries involved: Slovenia, Croatia, Bosnia and Hercegovina and Serbia.

The development of the harmonized catalogue of measures was a basic prerequisite to map the status of key measures for the reduction of flood risks and accidental pollution risk reduction measures in all countries of the Sava River Basin in a harmonized and thus comparable way, to identify common experiences with these measures, but also to identify differences between countries with respect to the same measure.

It is important to reiterate that the measures are project specific, identified during the development of the WACOM project, focusing in particular on the contingency measures (contingency planning and response). They are specifically related to the measures identified in the national planning documents in the field of flood management (i.e.: flood risk reduction planning documents).

Transnational best management practice catalogue includes 94 measures divided into 14 Key intervention areas. The intervention areas were recognised as priority areas for emergency response and planning in the Sava River Basin (i.e.: Education, Finance, Human resources, Infrastructure, Logistics, Organizational, Planning, etc.)

To identify the differences between the countries of the Sava River Basin on the same measure. The catalogue was used as a questionnaire with several categories to capture further similarities and differences. The evaluation of the Transnational best management practice catalogue was performed in two rounds. In both rounds the evaluaters were project partners and associated project partners.

2.1 First round of evaluation of WACOM catalogue of measures

The development of the harmonized catalogue of measures including key flood risk reduction measures and accidental pollution risk reduction measures in all countries of the Sava River Basin.

The evaluation of the Transnational best management practice catalogue was evaluated by project partners from each of the involved country: Slovenia, Croatia, Bosnia and Hercegovina and Serbia.

Categories:

- 1) ID
- 2) KEY INTERVENTION AREA
- 3) TITLE
- 4) DESCRIPTION
- 5) REFERENCE (legislation, guidelines, ppts,...)
- 6) ASSESSMENT OF IMPLEMENTATION in the country
- 7) LEVEL (nac/reg/lok/all) - level of implementation of the measure
- 8) COST CRITERIA (expensive - 1, relatively inexpensive - 5)
- 9) COMPLEXITY OF ORGANIZATION FOR THE IMPLEMENTATION OF THE MEASURE (complex - 1, not complex/straightforward - 5)
- 10) TIME CRITERIA (takes a lot of time for implementation - 1, relatively rapid implementation possible - 5)
- 11) COMMENTS

| ID | Key Intervention area | Title | Description | REFERENCE (legislation, guidelines, ppts,...) | ASSESSMENT OF IMPLEMENTATION in the country | LEVEL (nac/reg/lok/all) - level of implementation of the measure | COST CRITERIA (expensive - 1, relatively inexpensive - 5) | COMPLEXITY OF ORGANIZATION FOR THE IMPLEMENTATION OF THE MEASURE (complex - 1, not complex/straightforward - 5) | TIME CRITERIA (takes a lot of time for implementation - 1, relatively rapid implementation possible - 5) | Comments |
|----|-----------------------|---|---|--|---|---|---|---|--|--|
| | | | | Provide links to the legislation, documents, articles | provide grade (1-not really implemented, missing; 5-fully implemented, excellent) | describe which is the key implementation level of the measure (nac/reg/lok/all) | Assessment (1 bad-5 good) | | | |
| 1 | Educational | Education on all levels | Education on all levels and functions (expert level, governance level, ...) | Zakon o sustavu civilne zaštite: https://civilna-zastita.gov.hr/zakoni/349 | 3 | national | 3 | 4 | 2 | These are rough estimates based on publicly available data |
| 2 | Educational | Social, educational and awareness work with the youth | Work with the youth, educational, awareness, career guidance | Zakon o sustavu civilne zaštite: https://civilna-zastita.gov.hr/zakoni/349 | 2 | national | 2 | 2 | 2 | These are rough estimates based on publicly available data |
| 3 | Educational | Education of general public | Education of general public (schools, general public, different groups) | | 2 | national | 2 | 1 | 2 | These are rough estimates based on publicly available data |
| 4 | Educational | ICS 100 | ICS 100 - basic education of all key personell | | 1 | national | 2 | 2 | 2 | These are rough estimates based on publicly available data |
| 5 | Educational | Microcredits and continuous education | Microcredits and continuous education of all structures, and on all levels | Zakon o sustavu civilne zaštite: https://civilna-zastita.gov.hr/zakoni/349 | 1 | national | 1 | 1 | 1 | These are rough estimates based on publicly available data |
| 6 | Educational | Education of special ICS functions (IC, Safety officer, PR, Operations) | Focused education for specific functions in the incident response | Zakon o sustavu civilne zaštite: https://civilna-zastita.gov.hr/zakoni/349 | 4 | national | 3 | 2 | 2 | These are rough estimates based on publicly available data |

Figure 1: First round of catalogue of measures, prepared for evaluation by project partners

2.2 Second round of evaluation of WACOM catalog of measures

During the first round of assessments, additional measures were identified, particularly in the area of flood management. After new measures were added to the catalogue, additional categories were also added to allow for a better and more thorough analysis:

- Available financial instruments in the country for the measure;
- Assessment of priority of the measure (short term) implemented in 6 years;
- Assessment of priority of the measure (long term) - implemented in approx. 20 years.

With the purpose of better understanding of the measures and easier communication of countries involved, partners added the:

- Translation of the measure title in national language;
- Translation of the measure description in the national language.

After the improvement of the questionnaire, the Transnational best management practice catalogue was sent again to the project partners and associated partners for the second round of evaluation.

Updated categories:

- 1) New ID
- 2) ID
- 3) KEY INTERVENTION AREA
- 4) TITLE
- 5) DESCRIPTION
- 6) TITLE (in national language)
- 7) DESCRIPTION (in national language)
- 8) REFERENCE (legislation, guidelines, ppts,...)
- 9) FINANCIAL INSTRUMENTS
- 10) ASSESSMENT OF IMPLEMENTATION in the country
- 11) COMMENTS (assessment of implementation)
- 12) LEVEL (nac/reg/lok/all) - level of implementation of the measure
- 13) COST CRITERIA (expensive - 1, relatively inexpensive - 5)
- 14) COMPLEXITY OF ORGANIZATION FOR THE IMPLEMENTATION OF THE MEASURE (complex - 1, not complex/straightforward - 5)
- 15) TIME CRITERIA (takes a lot of time for implementation - 1, relatively rapid implementation possible - 5)
- 16) COMMENTS ON THE ASSESSMENT OF COST/COMPLEXITY/TIME EVALUATION
- 17) ASSESSMENT OF PRIORITY OF THE MEASURE (short term) implemented in 6 years
- 18) ASSESSMENT OF PRIORITY OF THE MEASURE (long term) - implemented in approx. 20 years
- 19) COMMENT ON PRIORITY OF THE MEASURE (why the decision of the assessment)
- 20) GENERAL COMMENT
- 21) REPORTING INSTITUTION

| New ID | Key Intervention area | Title | Description | Title (in national language) | Description (in national language) | REFERENCE SBB (legislation, guidelines, ppts,...) | FINANCIAL INSTRUMENTS | ASSESSMENT OF IMPLEMENTATION in the country | Comments | Assessment of implementation | LEVEL (naic/reg/lok/all) level of implementation of the measure | COST CRITERIA (responsive - 1, relatively inexpensive - 5) | COMPLEXITY OF ORGANIZATION FOR THE IMPLEMENTATION OF THE MEASURE (complex - 1, not complex/straightforward - 5) | TIME CRITERIA (takes a lot of time for implementation - 1, relatively rapid implementation possible - 5) | Comments of the assessment (cost/complexity/time) | Assessment of priority of the measure (short term) implemented in 6 years | Assessment of priority of the measure (long term) implemented in approx. 10 years | Comment on priority of the measure (why the decision of the assessment) | General comment | Reporting Institution | |
|--------|-----------------------|--|--|------------------------------|------------------------------------|---|--|---|--|------------------------------|--|--|---|--|---|---|---|---|----------------------------|--|--|
| | | | | | | Provide links to the legislation, | Please provide a short description of available financial instruments in your country for this measure | provide grade (1 not fully implemented, missing; 5 fully) | Please provide short explanation for your assessment, especially when assessment diverging | | describe which is the key implementation level of the measure (naic/reg/lok/all) | Assessment (1 bad-5 good) | | | Please provide comments on the criteria, especially | short term priority (0-10) (low) | Long term priority (high D), (low) | Please provide comments on the assessment of | Any comment on the measure | Please provide a name of the reporting | |
| 1 | Educational | Education on all levels and functions (expert level, governance level, ...) | Education on all levels and functions (expert level, governance level, ...) | | | - Zakon o civilnoj službi ("Sl. glasnik RS", br. 98/2009) - Zakon o vanrednim situacijama ("Sl. glasnik RS", broj ...) - Zakon o smanjenju rizika od katastrofa i poslova/Sektor za vanredne upravljanju vanrednim situacijama ("Sl. glasnik RS", broj ...) | - Ministarstvo unutrašnjih poslova/Sektor za vanredne situacije - Ministarstvo poljoprivrede Šumarstva i vodoprivrede | 3 | Implementacija je u toku | All | | 2 | 2 | 3 | | | 4 | 3 | | | |
| 2 | Educational | Social and educational awareness, work with career the youth guidance | Work with the educational awareness, work with career the youth guidance | | | - Zakon o smanjenju rizika od katastrofa i poslova/Sektor za vanredne upravljanju vanrednim situacijama ("Sl. glasnik RS", broj ...) | - Ministarstvo unutrašnjih poslova/Sektor za vanredne situacije - Ministarstvo zaštite životne sredine - Ministarstvo nauke i obrazovanja | 3 | Implementacija je u toku | All | | 3 | 4 | 3 | | | 3 | 3 | | | |
| 3 | Educational | Education of general public and schools, different activities (groups), raising public awareness | Education of general public and schools, different activities (groups), raising public awareness | | | - Zakon o vodama, ("Sl. glasnik RS", br. 30/2010, 93/2012, 95/2013) - Zakon o zaštiti prirode ("Sl. glasnik RS", br. 36/2009) | - Ministarstvo poljoprivrede, Šumarstva i vodoprivrede / Direkcija za vode - JKP "Srbijavode" - JKP "Vode Vojvodine" - Republički hidrometeorološki zavod | 3 | Implementacija je u toku | All | 2-3 | 2 | 2 | | | 3 | 4 | | | | |
| 4 | Educational | ICS 100 - basic incident command system on standard protocols in the case of emergencies. | ICS 100 - basic incident command system on standard protocols in the case of emergencies. | | | ICPDR, AEUVS test, PIAC staff | - Ministarstvo poljoprivrede, Šumarstva i vodoprivrede / Direkcija za vode | 1 | Implementacija započeta... | Nacionalni | | 3 | 3 | 4 | | | 2 | 3 | | | |
| 5 | Educational | Microcredits | Microcredits | | | N/A | | | | | | | | | | | | | | | |

Figure 2: Second round of catalogue of measures, prepared for evaluation by project partners

2.3 Final version of the WACOM catalog of measures

The Final version of the catalog of measures was prepared on the basis of key measures for the reduction of flood risks and accidental pollution risk reduction measures in all countries of the Sava River Basin in a harmonized and thus comparable way, to identify common experiences with these measures, but also to identify differences between countries with respect to the same measure.

With the classification of the proposed key measures for the efficient and effective response in the case of accidental pollution and floods, observed in the framework of disaster management cycle (preparedness, response, and recovery).

In the conclusions we are aggregating the listed measures to key selected areas of measures, which are grouped in order to address key groups of measures which could be communicated with wider audience during the national workshops and further dissemination of the project results.

Key intervention areas are:

1. Education
2. Finance
3. Governance
4. Human resources
5. Information and communication technologies
6. Supervision
7. Information
8. Infrastructure
9. Knowledge
10. Logistics
11. Organizational
12. Planning,
13. Navigation
14. Other

Within 14 key intervention areas of measures, 94 individual measures have been recognized.

In this phase of the evaluation process (internally by the WACOM project partners) within the WACOM project, we were able to see that several of the individual measures listed, as well as the aggregated measures considered, were assessed as already implemented or partially implemented, but with a considerable distance to the targeted implementations.

The WACOM Transnational best management practice catalogue:

| ID | Key intervention area | Title | Description |
|----|----------------------------|--|--|
| 1 | Educational | Education on all levels | Education on all levels and functions (expert level, governance level, ...) |
| 2 | Educational | Social, educational and awareness work with the youth | Work with the youth, educational, awareness, career guidance |
| 3 | Educational | Education of general public and promotion activities | Education of general public (schools, general public, different groups), raising public awareness, encouraging the public to take part in implementation of flood risk management plans. |
| 4 | Educational | ICS 100 - incident command system standardized framework protocols | ICS 100 - basic education of all key personell on standard protocols in the case of emergencies. |
| 5 | Educational | Microcredentials and continuous education | Microcredits and continuous education of all structures, and on all levels |
| 6 | Educational | Education of special ICS functions (IC, Safety officer, PR, Operations, Planning, Logistics, Administration/finance) | Focused education for specific functions in the incident response |
| 7 | Educational | Other education, research oriented | Other - research oriented and knowledge development, human resources - scholarships, media positioning of the profession |
| 8 | Educational | Supporting Flood and Accidental pollution emergencies | Supporting joint simulation exercises of response (flood and Accidental pollution emergencies) |
| 9 | Financial | Enforcing the polluter pays principle (compensations for the floods) | Enforcing the polluter-pays principle and compensations for the floods in case they are not natural phenomena |
| 10 | Financial | Securing public financial resources | Securing financial resources (various sources - national, direct compensation, EU funds, funds for climate change). |
| 11 | Financial | Improved insurance practices and stimulations for wider penetration of insurance for floods and accidental pollution | Improved insurance practices and stimulations for wider penetration of insurance for floods and accidental pollution |
| 12 | Financial | Individual understanding of financial responsibilities in the case of floods and accidental pollution (education) | Individual understanding of financial responsibilities in the case of floods and accidental pollution (education) |
| 13 | Financial | Education of water users (abstractions) on emergency procedures (floods, accidental pollution) | Integration of procedures in their contingency plans and abstraction permits |
| 14 | Governance | Elective representatives for long-term challenges after the accident | Elective representatives with clear commitment to resolve the long-term challenges related to flood management and accidental pollution management |
| 15 | Governance | Participatory decision making process - water democracy | Participatory decision making process - water democracy (on all levels) |
| 16 | Human Resources Management | Individual communication and indirect education | Coaching, team building, career development, internal communication |
| 17 | Human Resources Management | Employee satisfaction | Mechanisms for monitoring employee satisfaction, employee engagement sentiment, stimulation... |
| 18 | ICT | GIS based situational awareness | Availability of the GIS based situational awareness (eSPIN - SLO, NICS - CRO, BH, and similar), PETRA fleet tracking... |
| 19 | ICT | Communication equipment | Communication equipment (i.e. TETRA) for the secure communication during the emergencies |
| 20 | ICT | Nowcasting and forecasting systems | Development and upgrading of the new casting and forecasting systems (i.e. Sava GIS, Sava HIS and Sava FFWS) and support of linkages with early warning systems |
| 21 | ICT | Early identification of accidental pollution and alerting | Online sensors for the early identification of accidental pollution on key locations, other sensors and alerting software and hardware |
| 22 | ICT | Flood management centres | Establishment/Modernization of the flood management centres, integration of the flood management centers to IoT and smart concepts (4th industrial revolution) |

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|----|-----------------|---|---|
| 23 | Information | Improved data integration | Improved data/information integration with the public service providers/companies |
| 24 | Information | Improved supervision and control over the transport of pollutants | Information on the movement/transport of pollutants in the territory of specific country jurisdiction |
| 25 | Information | Improved supervision and control over the production, use and storage of pollutants | Information on the production, use and storage of pollutants in the territory of specific country jurisdiction |
| 26 | Information | Registry of water uses (abstractions) | Development of the registry of the key water uses/abstractions potentially under threat of accidental pollution |
| 27 | Information | Floods situational awareness system | Floods - situational awareness information, sharing of on-field status of floods among different activated institutions and units (i.e. information to hydrometeorological services and other from the responders) |
| 28 | Information | Mutual notifying about hazards, disasters, manners of border crossing | Support to procedures for mutual notifying about hazards, data exchange about hazards, manners of border crossing, occurrence of natural and other disasters in border zones (AEWS, PIAC). |
| 29 | Infrastructural | Safe river access locations (rescue) | Development of safe access locations along the key rivers enabling access for the water rescue operations |
| 30 | Infrastructural | Safe river access locations (booms) | Development of safe access locations along the key rivers enabling access for the accidental pollution mitigation measures, including anchorage of booms and staging area for the emergencies |
| 31 | Infrastructural | To add from the Sava flood risk management plan (structural measures, non-structural measures) | To add from the Sava flood risk management plan (structural measures, non-structural measures), encompassing all measures |
| 32 | Infrastructural | Other emergency management related structural measures | Other structural measures related to efficient and effective response during emergencies |
| 33 | Infrastructural | Waterways | Maintenance of waterways |
| 34 | Infrastructural | Reception facilities | Establishment of a sufficiently dense network of reception facilities on the waterway for waste collection. |
| 35 | Knowledge | National and international (EN) standards | Development of national and implementation of international (EN) standards and guidelines |
| 36 | Knowledge | Knowledge base of the polluters | Knowledge base of the polluters, different sources: SEVESO, industrial facilities, traffic, accident risk spots (ARS ICPDR) |
| 37 | Knowledge | Knowledge base of the pollutants and procedures | Knowledge base of the pollutants, their characteristics and procedures in the case of emergencies |
| 38 | Logistics | Availability of the emergency equipment (pollution) | Availability of the equipment necessary for the response in the case of accidental pollution emergencies |
| 39 | Logistics | Availability of the emergency equipment (floods) | Availability of the equipment necessary for the response in the case of floods |
| 40 | Logistics | Rescue tools and resources availability | Necessary tools and resources for the rescue and relief operations (trucks, booms, skimmers, pumps, reservoirs). |
| 41 | Logistics | Identification of service providers for emergency response | Identification of service providers (contracting framework with the service providers) - specialized companies for the emergency response in the case of accidental pollution and floods |
| 42 | Logistics | Costing units supporting administration and finance processes | Costing process - cost monitoring, escalation... |
| 43 | Logistics | Identification of service providers (short listing), contracts with the service providers (companies) supporting the emergencies with their specific services | Identification and contracts with the service providers for the final treatment of polluted materials (earth, skimmers, floating debris...) |
| 44 | Organizational | UN protocols | UN protocols - Barcelona Convention, UNECE |
| 45 | Organizational | PIAC centres and AEWS | Ensuring functioning of PIAC centres in all countries/entities 24/7, functioning of AEWS information platform |
| 46 | Organizational | Clear positioning of the MACS (Multi Agency Coordination System) being in the core of complex response | Clear introduction of MACS (Headquarters) and single institution HQ concept |
| 47 | Organizational | Improved communication in response framework | Improved communication on all levels (institutional, personal) among the key personnel in any response framework. Support establishment of operational centres with a comprehensive overview of contacts for mutual communication between parties and regular updating thereof. |
| 48 | Organizational | International, bilateral and multilateral agreements | Development and maintenance of international bilateral and multilateral agreements (water management based, civil protection based) and mutual assistance |

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| 49 | Organizational | River basin management plans and flood management plans | Development and maintenance of river basin management plans/flood management plans - country/entity level; transnational RBMPs |
| 50 | Organizational | Institutional bilateral and multilateral agreements | Development and maintenance of bilateral and multilateral agreements among institutions in any country/entity |
| 51 | Organizational | EU Civil Protection Mechanism | Participation in the EU Civil Protection Mechanism |
| 52 | Organizational | Restoration measures | Preparation, planning of the restoration measures which follow the incident (floods, AP) response stage |
| 53 | Organizational | Protocols enabling involvement of insurance companies | Development of the protocols enabling improved involvement of insurance companies at all levels, engaging the knowledge and procedures of the insurance companies |
| 54 | Organizational | Strategic crisis communication | Strategic development of the crisis communication (learning, programs in plans, analysis...), preparation of the crisis communication protocols, TTX for the crisis communication |
| 55 | Organizational | Improved integration of the levels of MACS | Improved integration of the levels of MACS - state - region - municipality, and institution level HQ |
| 56 | Organizational | Control the of legislation implementation and enforcement | Improved control over the legislation implementation and enforcement (inspectorate) |
| 57 | Organizational | Water management information systems | Development and upgrading of the water management information systems |
| 58 | Organizational | Improved documentation process of the incidents | Improved documentation (national and transnational) process of the incidents, enabling long term storage of quality information on past incidents |
| 59 | Organizational | Improved communication in response framework (companies) | Improved communication with the (contractual) companies being involved in the response framework |
| 60 | Organizational | Communication with navigation community | Improved communication with the navigation community |
| 61 | Organizational | Improved communication and role of the police in case of the incident | Improved communication and role of the police enabling their support to the incident (property protection, traffic...) and prosecution of the criminal activities and wrong doings (carefully). |
| 62 | Organizational | EU whistle blower directive | Implementation of the EU whistle blower directive in the domain of civil protection, water management |
| 63 | Organizational | Certification process for risk management (ISO 33000 family) | Certification process for risk management (ISO 33000 family...) |
| 64 | Organizational | Certification process for asset management (ISO 55000 family) | Certification process for asset management (ISO 55000 family) |
| 65 | Organizational | Certification process for continuous operation management (ISO 22300 family) | Certification process for continuous operation management (ISO 22300 family), especially ISO 22301 |
| 66 | Organizational | Use of EU Civil Protection Mechanisms | Use of the available information resources set at disposal at EU Civil Protection Mechanisms |
| 67 | Organizational | Disaster forensics after the accident | Disaster forensics, aiming at development of learning experiences after the accident (and liabilities, responsibilities). Regular reports on significant flood events, preparation of a study/guide for data and information collection during flood events. |
| 68 | Organizational | Focused flood management for the people with disabilities | Focused flood management for the people with disabilities |
| 69 | Organizational | Focused flood management in relation to cultural heretage | Focused flood management in relation to cultural heretage |
| 70 | Organizational | Bilge water closing valve | Sealing of the closing valve on the pipeline for direct discharge of the bilge water in the closed position. Bilge water must be delivered to the reception facilities. |
| 71 | Organizational | Prohibition of burning waste on board | It shall be prohibited to burn household refuse, sludge, slops and special waste on board. |
| 72 | Organizational | Standard procedures for the response in the case of of acidental pollution | Development and implementation of best available techniques and other measures for control of spills (accidental pollution) in order to idenitfy the technical facilities required for the response. |
| 73 | Organizational | Improved cooperation between relevant bodies | Promotion and organization of national and regional multi-stakeholder round tables (and other forms of mutual activities) for planning the civil protection actions in emergencies with the aim of clarifying procedures, responsibilities and means at disposal of all relevant bodies (public and private). |
| 74 | Organizational | Information exchange | Exchange of information between parties (measures, contingency plans, experience with accidents, development of BAT, emergency preparedness, ...). Creation of an online application for information exchange between stakeholders involved in emergency flood defence as well as for informing the public. |

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| 75 | Organizational | Technology exchange, scientific and technological cooperation | Facilitation of exchange of technology between the parties for the prevention of, preparedness for and response to accidents. Cooperation between parties for research and development, including research into less hazardous processes aimed at limiting accidents and consequences. |
| 76 | Planning | Maintenance of contingency management plans on different levels | Development and verification, maintenance of contingency management plans on different levels (plans of joint action, protection and rescue plans) |
| 77 | Planning | Planning, execution and improvement of exercises | Planning, execution and improvement of exercises (operational, TTX, combined exercises) |
| 78 | Planning | Hazard identification, risk assessment | Identification of those hazardous activities which require special preventive measures and safety standards, risk analysis, action plan for the implementation of necessary measures |
| 79 | Supervision | Discharge/level monitoring | Maintenance and upgrade of the discharge/level monitoring network |
| 80 | Supervision | Regular monitoring of water quality, port areas and auditing of hazardous activities | Regular monitoring shall be performed by national monitoring authorities. |
| 81 | Supervision | Inspection of vessels | Carry out inspections of vessels to ensure that requirements for pollution prevention are complied with and to determine causes and situations of a discharge of cargo, waste or waste water. |
| 82 | Supervision | Real-time monitoring of water quality | Established real-time monitoring of key water quality parameters enabling rapid detection of accidental pollution |
| 83 | Navigation | Protocols with the key water uses/abstractions | Development of the protocols with the key water uses/abstractions potentially under threat of accidental pollution (also floods?) |
| 84 | Navigation | Improved integration of governmental sectors | Improved integration of different sectors of the government - civil protection - water management - navigation |
| 85 | Navigation | Notification of authorities | In the event of discharge or the threat of discharge, the boatmaster must notify the nearest competent authority without delay, indicating the position, quantity and the substances spilled. Any vessel that has caused pollution or has detected pollution must immediately report to the competent response authority and notify the vessels in the vicinity of the spill area. |
| 86 | Navigation | Used Oil Log | The boatmaster shall keep and regularly update the Used Oil Log and shall present it to the competent authorities upon request. |
| 87 | Navigation | Transport of hazardous substances | The boatmaster of a vessel transporting hazardous substances shall notify the competent authorities of the Party involved. The Party in question may organize an escort for the vessel on the territory under its jurisdiction. |
| 88 | Navigation | Prohibition of further navigation after a spill | After a spill, the competent authority shall immediately forbid further navigation or allow limited navigation for vessels presenting danger to the environment in order to minimize adverse effects. |
| 89 | Navigation | Implementation of measures for the protection of waters due to the impact of navigation | Implementation of measures for the protection of waters due to the impact of navigation (diary of consumed fuel, bilge water, disposal of waste and hazardous substances from the ship, prohibition of navigation in case of spillage of pollutants) |
| 90 | OTHER | Adaptation to climate change | Measures related to the adaptation to climate change (general) |
| 91 | OTHER | Demining of the Sava (and Drina) river | Mine problem - mine clearance - demining of the Sava (and Drina) river |
| 92 | OTHER | River bank maintenance | Cleaning the river bank - trees, branches and floating debris |
| 93 | OTHER | River corridor maintenance - floating debris and waste | Floating debris and waste (Drina) reduction and cleansing |
| 94 | OTHER | River corridor maintenance - vegetation, erosion | Objective status of river corridors (vegetation, sediments, erosion) following the requirements of WFD for the good ecological status |

3 Conclusions

The WACOM Transnational best management practice catalogue for improved preparedness and transboundary coordination and interoperability of emergency response in the case of floods and accidental pollution as well as situational awareness, was developed through a multi-stage, multi-stakeholder process. A comprehensive list of measures was developed, harmonized, and prioritized for all countries involved: Slovenia, Croatia, Bosnia and Hercegovina and Serbia.

The development of the harmonized catalogue of measures was a basic prerequisite to map the status of key measures for the reduction of flood risks and accidental pollution risk reduction measures in all countries of the Sava River Basin in a harmonized and thus comparable way, to identify common experiences with these measures, but also to identify differences between countries with respect to the same measure.

It is important to reiterate that the measures are project specific, identified during the development of the WACOM project, focusing in particular on the contingency measures (contingency planning and response). They are specifically related to the measures identified in the national planning documents in the field of flood management.