

ANNEX VIb

FINAL NARRATIVE REPORT

1. Description

- 1.1. Name of beneficiary of grant contract: Ministries of the Environment and of Waters & Forests, Romania
- 1.2. Name and title of the Contact person: Broyde Zinoviy/Chief Scientist
- 1.3. Name of partner in the Action: Centre “EcoResource” - PP8
- 1.4. Title of the Action: The prevention and protection against floods in the upper Siret and Prut River Basins, through the implementation of a modern monitoring system with automatic stations – EAST AVERT
- 1.5. Contract number: 966
- 1.6. Start date and end date of the Action: 29 November, 2013 – 31/December, 2017
- 1.7. Target country(ies) or region(s): Upper Prut and Siret River Basins in Chernivtsi & Ivano-Frankivsk Oblasts in Ukraine
- 1.8. Final beneficiaries &/or target groups¹:

By the initial Contract as Final beneficiaries were foreseen:

- 1) the stakeholders and users of water bodies (city halls, prefecture, county council) placed in cross border area that will be informed about the flood monitoring and flood risk management systems;
- 2) the members of PIAC (Principal International Alert Centre) implicated in the waters’ protection against the extreme environmental conditions (floods, droughts, accidental pollution by chemical and radioactive substances);
- 3) the EU community that will be informed by the project web site and several publications on water management conferences.

After crucial changes both accordingly to EU-UA Association Agreement and decentralization reform in Ukraine through East Avert duration this set of Final beneficiaries should be corrected in the following way:

- 1) Amalgamated Territorial Communities (ATC) and Municipalities, which became mainly responsible both for Water Management in whole and for Flood Prevention activities on their territories, which should prepare their local flood prevention plans and actions. Establishment and activities of these new structures is mainly under supervision of the Ministry of Regional Development, Construction and Housing together with Regional State Administration (RSA), which (accordingly to actual UA legislation) is determined as main final beneficiary of East Avert project;
- 2) Regional Departments & Services of Emergency Situations, on Housing & of Communal Economy, on Water Resource Management, of Environment Protection & Natural Resources which have to prepare Complex Regional Program of countermeasures to damage of waters and accidental pollutions caused by flood hazards on the territory of Oblast. All mentioned bodies are or directly parts of RSA or coordinated in their activity by this main territorial institution the executive power.

The similar corrections are also in target groups (besides water management bodies in river basins)

- 2) ***representatives of environmental protection institutions*** (local and regional Environmental Protection Agencies, Non Governmental Organizations);
- 3) the ***political authorities***, from the Ministry of Environment and Climate Change and the Ministry of Health, from Romania and Ukraine and Republic of Moldavia, which are implicated in the flood risk management, prevention of natural or manmade disasters, real time information dissemination;

¹ “Target groups” are the groups/entities who will be directly positively affected by the project at the Project Purpose level, and “final beneficiaries” are those who will benefit from the project in the long term at the level of the society or sector at large.

Through the project time subordination of regional Environmental Protection Agencies was changed from the Ministry of Environment (to which still subordinated State Water Agency as supervisor of PP6) to RSAs, which manages their activity together with other mentioned bodies.

In parallel former Ministry of Emergency was transformed into State Emergency Service (which also includes State Hydrometeoservice as supervisor of PP7) subordinated now to the Ministry of Interior and under legal changes through East Avert duration became responsible for Directive 2007/60 EC implementation in Ukraine.

1.9. Country (ies) in which the activities take place (if different from 1.7):

2. Assessment of implementation of Action activities

2.1. Executive summary of the Action

Please give a global overview of the Action's implementation for the whole duration of the project

Systems Protection & Use of Transboundary Watercourses, grounded on modern monitoring, forecasting & Geo-spatial IT (GIS) mapping of inundations & hazards with risks assessments for floods & accidental pollutions prevention planning was the topic of East Avert Feasibility Study, EIA, project design performance and further its implementation platform establishment, agreed between appropriate Romanian, Ukrainian & Moldavian governmental & regional structures for project contracting;

For agreed monitoring, forecasting, warning, planning systems & their legal, IT, professional & social facilitation in general framework of Flood Risk Management 2007/60/EC (FD) Directive & other Acquis Communautaire acts, project foreseen system of key objects construction/modernization, proper equipping and GIS ICT applying with wide range of concerted stakeholders, target groups & final beneficiaries.

To promote systems implementation of HIS & EWS, as well as of FD requirements for project's Activities outputs immediate efficient utilization & its results further embodiment, were developed initial questionnaires, completed by digital photo/video records analysis for proper floodmarking've used for better calibration & mutual verification of monitoring & forecasting modelling with elaboration of local inundation & hazards scenarios of floodplain & flashflood events, and their utilization both for concerned risks assessment and for prevention & in situ emergency planning,

Were prepared & organized focal Workshops in local centres of basins zones for wide discussions of developments & outputs with key stakeholders, as well as scientific & other specialized East Avert events, provided by special brochures & other participants materials, which contained information on the project, its methodology, achievements (floodmarkings, GIS mapping, modelling), & by appropriate presentations.

Further flexible balanced HIS, EWS & FD requirements realization through Activities 2 & 3 was aimed to improve sustainability of project's implementation and its professional & public support under crucial changes in main "outer & interior" environment of East Avert embodiment. In result of HIS & EWS feedback with initial information from inundation zones on concerned hazards, as well as for monitoring & forecasting modeling data completion & verification with knowledge from "bottom" level, e.g. "referent points" in settlements & new Amalgamated Territorial Communities (ATCs);

Maintenance & equipping of PP8 specialized office allowed provide all kinds of cameral & distance interactive trainings, video-events and thematic professional communications with information exchange between different PPs, subcontractors & all types of stakeholders. As well as it makes available further interactive work with them, using workstations to fix all necessary information on data collection & mapping, to demonstrate & make simulations with cameral & remote recipients. It's necessary for common activities & mutual data exchange in ordinary regime (prevention measures), in the cases of potential danger of flood and of concerned risk, as well as for planning of hazards minimization in situ through real emergency situations and for their consequences liquidation, using for this goal UA State System of Standards on Urban Design;

Agreed with Romanian leaders unitary floodmarking methodology, its implementation for local historic floodplain events & proposals elaboration for further flashfloods emergency forecasting, using HEC-RAS & GIS advantages, as well as possibility to integrate them with macro-forecasting modeling, allowed to initiate on the State level utilization of East Avert implementation process FD facilitation for pilot embodiment in Ukraine accordingly to prescriptions of EU-UA Association Agreement and for further reporting to EC on FD implementation progress;

Prior experience of local inundations reveal, mapping & modeling, as well as of "weak points" detection & concerned risks preliminary assessments've made in Chernivtsi city, allowed to detect further zones of

flashfloods (Stormwater) hazards generation immediately in both basins border areas: Prut (Mamaliga - Radauti) & Siret (Cherepkivtsi –Siret), which needs more detailed investigations accordingly to East Avert Activity 3 objectives. After acquaintance with RO reporting to EC on FD progress on 05.07.2017 UA partners sent on 14.07.2017⁷⁶ & on 25.07.2017⁷⁷ appropriate requests to LP, JTS & PP4 (INHGA) on these works agreement & for necessary data providing. Without them only in Mamaliga ATC were started such investigations, which should become the first UA-RO “docking device” for common planning & preparing integrated products at Danube Basin level accordingly to FD.

To promote improvement of bilateral Agreements for floods cases framework by East Avert PPs, appropriate initiatives were reflected in UA-RO Intergovernmental Commission Protocols in 2012 & 2017, elucidated through special meetings with appointed representatives of UA & RO Ministries and reflected in UA Parliament Ordinance in 2016. As well as it was provided special appeal from UA Vice-primer to his RO colleague – head of JMA for relevant expert discussion of transfrontier cooperation improvement issue, and appropriate proposals were handed to UA & RO Ministers of Foreign Affairs.

To provide East Avert Activities transparency, they were reflected in more than 30 presentations & interventions for different aims (e.g. Workshops, INGHA & INBO Conferences, EUSDR, Carpathian Convention forums etc), by UA-RO & UA-EN booklets, in special bulletins, by banners & through press-realizes for involved mass-media & NGOs, which transmitted this information into numerous Internet, local newspapers, TV & broadcast announcements, as well as were provided special mass-media events. Special PP8 web-site is aimed, on one hand, to demonstrate the general approach to systems transfrontier cooperation projects (such as East Avert) promotion under the common aegis of EU-UA Association Agreement, EUSDR, Carpathian convention, EU-NATO collaboration and other tools of European & Euro-Atlantic integration. On the other hand, it stimulates implementation of nowadays ICT geo-spatial information & distributed DBs as a key toolkit for regional & local Sustainable Socio-Economic & Spatial Development, as it foreseen by FD & other AC acts. But still legal & political framework for both these platforms is in development, pilot version of web pages operate for core East Avert information layout <http://ecoresource.ddns.net:8080/map/index.html> & for interested stakeholders specialists interactive works.

East Avert management activity was performed on the level of PP8 through weekly (an ad hoc) discussions and through necessary contacting with PPs (since 2014 – mainly with PP6 & PP7 subcontractors) & with JTS. On the regional level with CRSA, which as core final beneficiary under UA legislation provided coordination in a way of special Expert-monitoring group establishment, & also – with Governmental structures, e.g. for objectives nominated in Activity 4. To provide better utilization of East Avert outcomes, together with CRSA Departments of Housing & of Environment was initiated development of Complex Regional Program on counteraction to deleterious effect of waters & pollutions concerning floods, as well as CRSA issued special Orders for East Avert results embodiment.

Activity 1:

Title of the activity: *Design of the hydrological information, forecasting and early warning system for reducing the environmental, economic and social vulnerability*

Topics/activities covered:

Feasibility and EIA Studies elaboration and the technical design projects preparation.

Convention on the **Protection and Use of Transboundary Watercourses** and International Lakes was defined as one of the basic acts for Euroregion “Upper Prut” establishment in 2000, Therefore Guidelines on Sustainable Flood Prevention (approved by II Conference of this Convention Parties)² became a benchmark through further Feasibility and EIA Studies for transfrontier projects development in this Euroregion. Basing on the experience of former Chair of Environmental Engineering & Resource Conservation in University of Chernivtsi and of previous projects in concerned fields (which foreseen *inter alia* **usage of Geo-spatial IT (GIS)³ for floods & accidental pollutions prevention** as systemic issues revealed under the aegis of ICPDR⁴ in Danube & also Dnister/Nistru basins), Centre “EcoResource” (PP8) developed initial Ukrainian version of East Avert Concept accordingly to Order of 19.11.2009 Nr 731-p issued by Chernivtsi RSA as main final beneficiary of this project under UA Legislation. This Concept of Large Scale Project (LSP) used the experience of 2 previous common applications attempts (in 2007 & 2009), which needs, both on works &

² <http://www.unece.org/fileadmin/DAM/env/water/publications/documents/guidelinesfloode.pdf>

³ <http://ecoresource.ddns.net:8080/1996%20Technogenic-Envir%20Safety%20in%20river%20basins.pdf>

⁴ http://www.icpdr.org/main/sites/default/files/UA_NATIONAL_PLANNING_WORKSHOP.pdf

investment were in disparity with the frames of previous ordinary Calls of EU JOPs.

Core ideas of this Concert were grounded on EU approach, which was formulated in the ENPI Eastern Regional Program Strategy Paper 2007– 2013: “seems that the most successful projects have been those which from the outset have benefited from a sustained high level political support provided from a regional institutional framework. By contrast, projects that have been implemented through a bottom-up approach, i.e. as a result of demand from individual partner countries, rather than within a well defined political multi-lateral framework, have tended to remain isolated, even when successful, and in general have not succeeded in fostering a genuine regional spin-off”⁵. At the same time project development was also directed to embodiment of nowadays approach of **integrated security in transfrontier cooperation**⁶.

This Concept was represented by PP8 & discussed already on EUSDR launching Conference in Vienna-Bratislava in April 2010 & on the meeting of the Council of Euroregion “Upper Prut”⁷ on 29.05.2010 with participation of UA, RO & MD Governmental VIPs. Environmental & technogenic safety aspects of this project were in details examined on 21.12.2010 by the Commission of Euroregion on Environmental Safety (which includes representatives from all main regions in 3 countries, involved into East Avert). Agreed UA Concept⁸, represented on 26.07.2010 in the Ministry of Economy (as UA part of JMA) foreseen enhancement also to Reni-Galați-Giurgiulești Lower Prut area, but later this part of the initial concept was cancelled. After discussions in Autumn 2010 with UA Government and by JMA WG of JOP “RO-UA-MD 2007-2013” in Iași, Ukrainian Concept was merged with Romanian one⁹ into common RO-UA-MD LSP East Avert with General Objective “Protection of the border areas in the upper Siret and Prut River Basins against the flood risk, other natural dangerous hazards of water cycle and accidental pollutions and reducing the environmental, economic and social vulnerability of targeted localities from the border region against flood risk”.

From the very beginning this common initiative was focused mainly on the consequences of last (at that moment) catastrophic floodplain disaster of 2008 (reflected in Application accordingly to Ukrainian State Program for complex floods protection in the basins of Dniester, Prut and Siret rivers, (approved by the Order of Ukrainian Government of 07.12.2008, Nr 1151). But after provoked by climate change more complicated Flood-2010, through further East Avert Contract developments in 2011-2013, common Application was **completed by whole set of Flood Directive 2007/60/EC requirements for river floods, flash floods & urban floods**, which also were reflected in new UA State Program, approved by UA Law in 2012. For this aim, after special discussions in Spring 2011, LP completed project by more wide GIS mapping & modelling works (as a part of spatial planning foreseen by the Protocol of UA-RO Intergovernmental Commission of 11.04.2012) with appropriate increase of UA part of EU grant till €3.98 Mio.

In Spring 2011 PP8 was appointed as co-executant¹⁰ of UA Public Corporation «Ukrvodproekt» to provide data collection, and prepare agreed initial information & documentation for FS and EIA¹¹ in Ukrainian part of East Avert area accordingly to requirements of national and EU legislation. These initial developments were represented on Public Hearing concerned Ukrainian participation in EUSDR (were this project is totally conform to the Priority Area 5). This event was organized by PP8 on 15.06.2011 in CRSA with involvement of all interested target parties & stakeholders,

In October 2012 common general vision of East Avert was represented & discussed by LP, PP4 & PP8 in Bucharest on the Conference of INHGA, as well as on Danube FloodRisk conclusive Conference as continuation of that EU project¹². And on 19.06.2013 LP & PP8 for the first time together represented future East Avert on the SEE-Interreg Conference in Bucharest as sequel of developments elaborated by that Program projects: Danube FloodRisk & STATUS “Strategic Territorial Agendas for “Small and Middle-sized Towns” Urban Systems”.

On the ground of this collaboration in Autumn 2013 PP8 with PP6 prepared generalized data for all UA key objects¹³ in the project’s area (submitted on 26.09.2013 to JMA by Chernivtsi & Ivano-Frankivsk RSAs), what allowed finalize in time East Avert contracting. This initial summarising allowed also finally determine

⁵ http://ec.europa.eu/regional_policy/archive/consultation/danube/doc/contrib/ua_ecoResource.pdf

⁶ <http://ecoresource.ddns.net/DocLib/NATOeng.pdf>

⁷ http://ecoresource.ddns.net/SiteAssets/SitePages/TFC/Agreement_Euroregion_UP.rtf

⁸ http://ecoresource.ddns.net/SiteAssets/SitePages/East_Avert_Short_Info/Protocol%20WGIII%20of%2021122010.pdf

⁹ <http://ecoresource.ddns.net/DocLib/Initial%20RO%20Preliminary%20Project%20Summary.doc>

¹⁰ http://ecoresource.ddns.net/SiteAssets/SitePages/East_Avert_Short_Info/Letter%20FS%20abd%20EIA%20designer.pdf

¹¹ http://ecoresource.ddns.net/SiteAssets/SitePages/East_Avert_Short_Info/EA_FS_extracts.pdf

¹² http://www.inhga.ro/conferinta-stiintifica/arhiva/-/document_library_display/mdeOEZJuGIpH/view/167089

¹³ http://ecoresource.ddns.net/SiteAssets/SitePages/East_Avert_Short_Info/East_Avert_objects_scope.pdf

the assemblage of all key components for HIS & further EU Directive 2007/60/EC (FD) network, as well as determined PP8 office¹⁴ as one of the core units for East Avert implementation.

Establishment of project implementation basis through special questionnaires and data bases, national and trilateral workshops, site visits, seminars, wide discussions, international presentations and leaflets publishing revealing the common project's platform and detailed action plan for the following project activities for a wider professional and public support

Since East Avert preparatory stage (accordingly to CRSA Order of 05.05.2010 Nr 258-p) PP8 in collaboration with other PPs, regional & governmental institutions started to establish multilevel platform for this project implementation. Both the general goal & objectives of the project and its important target actors were defined taking into consideration "Transboundary flood risk management (Experiences from the UNECE region)"¹⁵ complying with following criteria (which were discussed through 2010-2013 with LP & PP4).

Accordingly to principal aim, platform & content of project had unite establishment of agreed/joint monitoring, forecasting & warning system with its wide common legal, professional and social facilitation, which general framework've prescribed by Water 2000/60/EC and Flood Risk Management 2007/60/EC (further -FD) EU Directives. For these aim & objectives East Avert stakeholders, target groups & final beneficiaries were determined as: a) vulnerability to floods impact, and/or b) concerted appropriate decisions making, project due implementation embodiment & its activities further continuation, which embraced:

- appropriate districts of Chernivtsi & Ivano-Frankivsk Oblasts and territorial/municipal structures (communities);
- regional authorities and specialized institutions (first of all Environmental, Water, Emergency & Civil Defence management, Territorial Design Institutions etc);
- Governmental structures (Ministries, State Agencies & Services and Governmental Office on European & Euro-Atlantic integration), which are defined by Contract and Ukrainian legislation;
- inter-territorial association institutions (both interior and transfrontier), e.g. Euroregion;
- international inter-sectorial cooperation institutions, (e.g. PA5 of EUSDR, ICPDR, appropriate WGs of Carpathian Convention, CoE - CEMAT, NATO EADRCC etc) and also DG-Regio & DG-Environment;
- inter-States structures (mentioned Joint Presidents & Inter-governmental Commissions);
- concerned EU & Member States projects (e.g. of SEE Interreg, GIZ) etc;
- public & professional civil society and PR institutions for providing wider support to East Avert implementation and continuation activities.

Interaction with all these tiers was aimed at systems solutions of two core East Avert objectives: initial – to obtain maximally complete & mutually verified information about all important phenomena, concerned huge historic floods, to make best conditions for HIS, EWG and EU FD implementation, and prospective – to provide project outputs immediate efficient utilization for promotion following East Avert results embodiment, e.g. answering East Avert specific objective 6 "Increasing the reaction capacity by a better data and forecasts dissemination, public information about flood hazard and risk and a common exercise, testing the hydrological information system". Only such multilevel works could provide project's results sustainability under crucial changes in all involved stratum through East Avert implementation period. For instance, on cause of essential changes in projects implementation conditions, initial approach, based on surveying/questionnaires¹⁶, which were foreseen as main tool for both nominated tasks resolution, was substantially modified & completed by more efficient means.

From the very beginning of the project (in parallel to PP8 project team organization accordingly to Order of 29.11.2013 Nr 2) were elaborated initial proposals for project's detailed Actions Plan. They were preliminary agreed with CRSA and key District's State Administrations - to secure establishment of East Avert implementation platform under coordination of new Department on interior & transfrontier interregional cooperation, (which was created by CRSA Order of 14.02.2014 Nr 54-p). In parallel, key elements of mentioned multilevel approach were represented & discussed in context of regional development strategic planning on SEE-Interreg, Carpathian-Alpine and EaP UA-MD cooperation events in December 2013 and on Carpathian Convention Implementation Committee Meeting in February 2014¹⁷. After these proposals discussions both in UA Coordinate Centre of EUSDR & with President of EU CoR in January 2014, they

¹⁴ <http://ecoresource.ddns.net/SiteAssets/SitePages/Centre%20EcoResource/CER%20premises.pdf>

¹⁵ https://www.unece.org/fileadmin/DAM/publications/oes/Transboundary_Flood_Risk_Management_Final.pdf

¹⁶ http://ecoresource.ddns.net/SitePages/Projects_data_performance.aspx

¹⁷ <http://www.carpathianconvention.org/eventdetailccc/events/fifth-carpathian-convention-implementation-committee-meeting-188.html>

were represented, approved & included into project's Plans on Activities & Communications and projects Working Groups, established on the East Avert launching Conference in Iași on 29.01.2014..

Basing on this ground PP8 (in collaboration with PP7) developed 2 initial questionnaires for information collection on historic floods peculiarities from population & appropriate stakeholders (district's & local executive bodies), These 2 questionnaires were further completed by obtained from PP4 & adopted by PP8 questionnaire for communities, aimed to receive initial information¹² for further risks assessment, as it foreseen by FD.

Whereas at that time (since March-April 2014) already've started crucial changes in whole administrative system of Ukraine after "Revolution of Dignity" - to provide more wide "bottom" for the surveying process – PP8 involved for this aim school teachers & pupils in the flood vulnerable zones. After Vebinar with educational institutions in involved districts¹⁸, in April 2014 Department of CRSA provided them by special Instructive letter¹⁹ prepared by PP8. Mentioned questionnaires²⁰ were sent to all involved habitats & schools, and further were used both for preliminary and more detailed investigations. Through the implementation period representatives of PP8 visited for such investigations²⁰ more then 35 villages & cities in 6 districts of Chernivtsi Oblast and 7 villages & cities in 3 districts of Ivano-Frankivsk Oblast . Most important detailed investigations & communications with East Avert target groups were done in basins both of Prut & Siret rivers and of their tributaries through numerous visits²⁰ & office computations for the river basins sectors of Chernivtsi-Luzhany-Mamaevtsi-Magala, Storozhinets-Panka, Vyzhnitsa-Kuty, Vashkivtsi-Snjatyn, Verhni Petrivtsi, Novoselitsa-Mamaliga, Cherepkivtsi-Kamjanka & Kolomyja.

In parallel, methodological developments & first results of PP8 investigations were represented & discussed accordingly to Communication plan through number of meetings with key Ukrainian Governmental bodies, in involved regions, as well as twice – in all centres of regions in common area of EUSDR and JOP "RO-UA-MD 2007-2013" (Odessa²¹, Ivano-Frankivsk²², Uzhgorod) and on the core events of EUSDR²³ & Carpathian Convention^{24, 25}: for Climate Change mitigation²⁶, Green Growth²⁷ etc.

On this ground, under support of the Council of Euroregion "Upper Prut", Ukrainian & Romanian Embassies and RO Consulate General in Chernivtsi, core issues of East Avert implementation, as a seed for other systems win-win projects in principal EUSDR Priority areas, were discussed on the special meetings with key Romanian Ministries (of Regional Development, Environment, MFA etc.) in Bucharest on 15.05.2014 and on 10-12 & on 24 of November 2014.

At the same time through the number of discussions with governmental & regional structures these approaches were developed & agreed with Ukrainian side & reflected on UA PPs web-sites.

Initiation of East Avert Activities was made by interventions, organized by PP8 in Districts Councils: twice – in Storozhinets (2014 & 2016) and in Vyzhnitsa (2015), in District's State Administrations of Novoselitsa (2014), Snjatyn (2016), with City Halls of Chernivtsi, Storozhinets & with new ATCs in Hliboca, Mamaliga, Novoselitsa, Vashkivtsi, Vyzhnitsa, Storozhintets, Mamyevtsi-Luzhany etc²⁸ in 2015-2017, as well as through numerous investigation visits to nominated settlements and (further) to new ATCs.

Already after PP8 first round of initial visits & preliminary investigations in mentioned sites, as well as - discussions of those investigations – further vision of project implementation platform was especially "verified" in July-August 2014 with key figures in the first Ukrainian area of similar activities in the basin of Tisa in Transcarpathian Oblast of Ukraine and then through visit to Romanian part of Tisa & Someș basins. Then first obtained results were preliminary revised with UA PPs and subcontractors as integrated information input for East Avert Activities 2 & 3. Further these preliminary outputs were on 17.09.2014 represented & discussed by PP8 in Bucharest with East Avert Team Leader & PP4²⁹ and on 18.09.2014 – represented on EU CoR meeting in Jasi. After such "verification" by LP & PP4, as well as on 19.09.2014 – with new Team Leader Assistant & key representatives of JTS - this information was handed & once more

¹⁸ <https://www.youtube.com/watch?v=AjqBeq1LiwU>

¹⁹ http://ecoresource.ddns.net/SiteAssets/SitePages/Projects_data_performance/Letter%20Department%20education%20160414.doc

²⁰ http://ecoresource.ddns.net/SitePages/Projects_data_performance.aspx

²¹ <https://www.youtube.com/watch?v=nx1J2gmZZ1Y>

²² <http://www.crs.org.ua/ru/172.html>

²³ <http://www.carpathianconvention.org/eventdetailothers/events/workshop-shaping-the-carpathian-region-in-the-eu-strategy-for-the-danube-region.html>

²⁴ <http://www.carpathianconvention.org/eventdetailccc/events/fifth-carpathian-convention-implementation-committee-meeting-188.html>

²⁵ <http://www.carpathianconvention.org/eventdetailcop/events/cop4-fourth-meeting-of-the-conference-of-the-parties-to-the-carpathian-convention-copy.html>

²⁶ <http://www.carpathianconvention.org/eventdetailwg-124/events/third-meeting-of-the-carpathian-convention-working-group-on-adaptation-to-climate-change.html>

²⁷ <http://ru.calameo.com/read/001133349178f58a43e46> P.193

²⁸ http://ecoresource.ddns.net/SiteAssets/SitePages/Project_Providing/Sbor_upr_review.pdf

²⁹ http://ecoresource.ddns.net/SiteAssets/SitePages/Projects_data_performance/Preliminary%20areas%20for%20floodmarking%2017092014.doc

discussed on 22.09.2014 with key UA PPs subcontractors to become a bottom for further selection of East Avert investigation zones: for the first time – on 25.09.2014 and for their completion - in Autumn 2016. All these developments and discussions results were in details explained to representative of EU Monitoring Mission in February 2015 & through its results processing.

Through East Avert works in mentioned zones, performed in collaboration with above nominated target groups, were obtained first results, which, together with further steps, were also discussed & agreed with regional & local Emergency, Civil Defence, Housing, Environmental & other appropriate structures in Chernivtsi & Ivano-Frankivsk Oblasts, as well as with due Ministries and other Governmental offices in Kiev. Summarized opinion on further project activities and their continuation after East Avert finishing has been formulated through October 2014 in the letters to new East Avert Team Leader³⁰. Further these issues were especially discussed on 10-11 of November and once more on 24.11.2014 with new project Team Leader and LP Main Hydrologist. Clarified with LP vision was elucidated on the INHGA Conference³¹ and reflected after discussion on the INBO one³².

The **focal points of Activity 1 became 5 Workshops**³³ in local centres of UA project implementation basins zones, aimed at East Avert achievements presentation & wide discussions for more close collaboration with key stakeholders. Four of them were mainly prepared, organized & provided by materials for participants by PP8 under support of PP6 (in Novoselitsa, Vyzhitsa, Chernivtsi & Snjatyn). The fifth - in Storozhinets on 03.11.2016 was only participated by representative of PP8, whereas East Avert works in Siret basin, which should be discussed there, weren't comprehensively embodied at that time³⁴. Each of prepared by PP8 Workshops³³, as well as scientific and other specialized East Avert events, was provided by special brochure for participants with detailed information on the project & its achievements, its methodical developments (surveying, digital photo/video records, floodmarkings, examples of GIS mapping and modelling results), as well as by appropriate presentations.

Developments for East Avert Activities implementation, after mentioned special discussions in July-August 2014 in Tisa river basin, were continued in Spring 2015 in Ivano-Frankivsk Oblast - with key UA specialists of Water Management Plan development project for Prut river basin & with team of project PPRD East 2 "Prevention, Preparedness and Response to Natural and Manmade Disasters in EaP Countries"³⁵. On the basis of these developments & discussions PP8 together with project Team Leader represented & discussed East Avert approaches & achievements in context of EcoEuroRegion paradigm on IX meeting of EUSDR PA 5 Steering Group in Budapest on 28.04.2015³⁶. These common steps were aimed to provide support to East Avert & to following projects in wide EUSDR framework, taking into consideration that only Prut & Siret basins in whole Danube area still haven't both Water Management & Flood Prevention plans.

All these aspects of Activity 1've demonstrated **real interest to them from all target groups** (besides information from Monitoring System and EWS), which desire was to have, **as concrete East Avert outcomes, actual GIS-maps, as a ground for establishment of their own distributed data bases**, as well as common DBs with appropriate authorities & other facilities to elaborate **local inundation & hazards scenarios for probable floodplain & flashflood** events (mainly on better knowledge about 2008 & 2010 floods). Accordingly to FD provisions, namely these project outputs³⁷ will make possible **to plan prevention & defence actions**, as well as – to provide **in situ interaction with Emergency & Civil Defence structures** as core East Avert results. Such planning is necessary for **investments involvement**, appropriate **infrastructure reconstruction**, volunteers teams of communities trainings & **evacuation plans preparation** for general East Avert goal sustainable achievement.

To provide better coordination of East Avert implementation and of its outputs & further results utilisation, CRSA (as main UA final beneficiary) established special Expert-Monitoring Group (EMG) by Order of 13.03.2017 Nr.171-p. On 09.06.2017 key representatives of EMG together with Governor had multi-aspect discussion with all East Avert UA PPs and their subcontractors³⁸. On the ground of this and following meetings of PPs with Governor and EMG members, on 13.09.2017 CRSA made an Order Nr.773-p "On

³⁰ http://ecoresource.ddns.net/SiteAssets/SitePages/Projects_data_performance/On%20Methology%20discussion.pdf

³¹ http://www.inhga.ro/conferinta-stiintifica/arhiva/-/document_library_display/mdeOEZJuGIpH/view/167081

³² <http://www.inbo-news.org/events/12-15-novembre-2014-bucarest/communications-comunicaciones/workshop-on-the-europe-region/?lang=en>

³³ http://ecoresource.ddns.net/SiteAssets/SitePages/Events_and_meetings.aspx

³⁴ http://ecoresource.ddns.net/SiteAssets/SitePages/Events_and_meetings/Letter_on_VEA_Workshop.pdf

³⁵ http://pprdeast2.eu/wp-content/uploads/2015/04/PPRDEast2_1st_NAG_UA_draft_LoP_ENG.pdf

³⁶ <http://www.danubeenvironmentalrisks.eu/files/directory/84>

³⁷ http://ecoresource.ddns.net/SitePages/Maping_Planing.aspx

³⁸ <http://east-avert.org/?p=2078>

implementation of the System for Spatial Data utilization and exchange in State executive authorities activity with local self-governmental bodies³⁹, which foreseen further utilization of all East Avert UA PPs means. Utilisation of these outputs from East Avert Activities 2& 3 met interest from Ukrainian stakeholders, whereas they're totally conform to prescriptions of the Art. 448 of EU-UA Association Agreement, which additionally to proclamation of comprehensive inter-sectorial role of transfrontier cooperation, especially proclaimed: "In particular, the Parties shall encourage the development of cross-border cooperation in regard to modernisation, equipping and co-ordination of emergency services", what should promote further embodiment of project's results.

Therefore, to provide more favourable conditions for East Avert & concerned projects implementation, as well as for more efficient embodiment of the Activity 4 objectives, PP8 proclaimed on the Parliamentary Hearing on 08.06.2016⁴⁰ and formulated in Parliamentary Ordinance of 21.09.2016 Nr 1537⁴¹ necessary legal & normative prescriptions for better coordination of these objectives embodiment and of existent bottlenecks overcoming.

In parallel mentioned activities were in details discusses with regional structures of Emergency & Civil Defence in both Ukrainian regions⁴². And on the basis of these discussions results, in collaboration with State Emergency Service (as National Coordinator of EU FD implementation), were formulated 2 errands of UA Vice-primer of 25.11.2016 and of 16.01.2017 concerned **utilisation of East Avert activities, outputs & final results to accelerate implementation of the FD and other concerned Acquis Communautaire acts in Ukraine accordingly to EU-UA Association Agreement**. In the same time similar steps were done with key executive body of FD implementation – Ministry of Environment & Natural Resources. E.g. on 07.04.2017 to Minister were handed proposals on East Avert developments implementation in context both of EU-UA Association Agreement Implementation Plan & of mentioned Parliament Ordinance of 21.09.2016 Nr 1537⁴¹. To realize these opportunities in mentioned context of bilateral UA-RO Presidents & Intergovernmental Joint Commissions activation, PP8 initiated through CRSA & Government the appeal from Vice-primer of Ukraine to Vice-primer – Minister of JMA of 25.04.2017⁴³ for urgent arrangement of joint Working Group meeting on regional development & transfrontier cooperation, which is staying without reply. On this matter PP8 initiated relevant appeals from CRSA & Romanian regional partners to appropriate UA & RO Ministries and EU structures.

To overcome difficulties've faced through East Avert implementation, PP8 agreed through contacts of CRSA & in the framework of Euroregion "Upper Prut" with neighbouring RO Counties to provide direct interactions between just established new UA Amalgamated Territorial Communities (ATCs) in boundary zones, which were involved into East Avert since 2016, with their neighbour Romanian & Moldavian communities in Prut & Siret basins (RO Botosani & Suceava Counties and MD Briceni District) to provide their further collaboration in joint projects grounded on East Avert developments, which are reflected in UA-EN⁴⁴ & UA-RO⁴⁵ East Avert booklets.

The reasons for planned activities modifications, since the very beginning of East Avert, were based on the following "synergic" groups of systems problems.

1. Inconvenient disparity between technical & financial requirements and their misinterpret through project's activity providing – beginning from PRAG & UA legislation discrepancy, till non-flexibility for simplest formal changes in budgetary documentation, which became intolerable in result of UAH/€ exchange rate jumping and following banking conditions changes.
2. Already mentioned crucial changes in UA legislation & in interactions with EU: since total centralization of power and denouncement of EU-UA Association Agreement at the moment of East Avert Contracting – till Constitutional "reconquista", Association Agreement dramatic ratification & entry into force, as well as total decentralization process. For East Avert implementation platform most important "legal frame" became amendments on the end of 2016 (e.g. new Article 107¹ in Water Code) and UA obligations both in Implementation Plan for EU-UA Association Agreement and in Flood Risk Management Plan for the Danube River Basin District.

³⁹ https://www.bukoda.gov.ua/sites/default/files/photos/773-r_vid_13_09_2017.pdf

⁴⁰ <http://comeuroint.rada.gov.ua/uploads/documents/29230.rtf>

⁴¹ <http://zakon2.rada.gov.ua/laws/show/1537-19>

⁴² http://ecoresource.ddns.net/SiteAssets/SitePages/Projects_data_performance/Appeal%20to%20IFR%20Emergency.pdf

⁴³ http://ecoresource.ddns.net/SiteAssets/SitePages/Project_Providing/Appeal%20to%20RO%30Vice%20primer.pps

⁴⁴ http://ecoresource.ddns.net/Shared%20Documents/Buklet_EAST_AVERT_EN-UA.pdf

⁴⁵ http://ecoresource.ddns.net/Shared%20Documents/Buklet_EAST_AVERT_RO-UA.pdf

3. Multilevel “overpatching” in whole East Avert “Management Environment” in Ukraine (of 3 times replacements of main final beneficiary – Heads & key staff of CRSA, as well as in all mentioned Ministries, Departments, Districts, on other managing levels and their re-institutionalization), which was also multiplied by 3 time changes both of project LP status and of Team Leader persons, as well as of key officers in JMS.

These preconditions superposition had essential influence on providing works for Activity 1 by PP8, as well as for other East Avert Activities. Permanent necessary modifications concerned both the character of works and financing issues. E.g. all PP8 plans foreseen prompt maintenance works in PP8 office not later then in Spring 2014. They were aimed to bring PP8 premises in conformity to East Avert needs and proper ICT equipping to provide since Summer 2014 all due conditions for in office and distance active works with all UA PPs & their subcontractors, with LP, PP4 & with all target groups & stakeholders. As well as it should ensure full involvement of complete PP8 team (chief scientist, chief hydrologist, main specialists for GIS and on technogenic factors, web-designer, system administrator and PR specialist together with external experts) into all foreseen works and interactions with PPs and target groups. But (after in contracting process LP merged budget lines of current monthly PP8 office payments and maintenance works) JTS informed PP8 that any payment from this budget line more then €500 per month willn’t be eligible till approval of Notification, which should only change in budget line words “per month” to “per project”. (The same took place also for core Workshops³³ providing). In result office usage, as well as normal ICT support for project activities implementation became available for PP8 only since March 2015, with great financial & time losses.

Consequences of such delay & other obstacles compelled PP8 to change permanently the character both of its works, which were mach longer concentrated mainly “in field” without possibility for their “cameral” computing finalisation, and of interaction with wide range of project’s actors in all East Avert activities (e.g. in the process of key Workshops³³ preparing). Practically, normal operation started only since beginning of 2016, after demonstration of PP8 real capacity through PPs scientific meeting on 03.02.2016⁴⁶ & further collaboration with PPs and, especially, with all involved authorities, specialized institutions and communities. Therefore the first stage of all PP8 project’s works (2014) in the fields of Activities 1- 3 and 5-6 (data bases, surveying, mapping using special Workstation, planning, trainings preparing, PR providing etc) were carried out mainly in verbal & paper form without adequate computing comprehension.

Taking into consideration mentioned problems, the results obtained by PP8 in Activity 1 (East Avert implementation platform establishment) can be grouped into following “sets”, aimed to provide holistic implementation of project Activities 1-3, as well as this process coordinated promotion by Activities 4-6, both through East Avert implementation period and after it was finished:

1. Collaboration under “old”- centralized system of district’s territorial management & separate with settlements, using *inter alia* surveying with developed questionnaires (accordingly to decisions of East Avert Conferences in Iasi & Chisinau in 2014). It allowed to investigate project’s area and prepare for PPs & subcontractors preliminary data, necessary for zoning²⁹. to provide Activities 2 & 3.
2. Preparation & maintenance of the specialised office with training room and its equipping by GIS & Web servers and workstations, what allows to provide all kinds of cameral & distance interactive trainings, video-events and thematic professional meetings between different PPs, subcontractors & all groups of stakeholders.
3. Proposed & prepared by PP8 (in collaboration with PP4 and with subcontractors of PP6 & PP7) meeting in Kiev on 08.04.2015 (in spite of key RO PPs absence) allowed to bring closer UA team vision on East Avert implementation platform, which was reflected in draft Minutes (prepared by PP8 but not signed by other PPs) and finally focused in East Avert booklets⁴⁴ &⁴⁵, bulletins⁴⁷ &⁴⁸ and in numerous presentations accordingly to Communications plan. As well as these developments gave opportunity to provide further steps (e.g. reflected in Governmental & CRSA orders) for East Avert platform integration into mainstream of EU FD & other concerned AC acts implementation in general context of EU-UA Association Agreement & EUSDR, which came into force for Ukraine.
4. Through the system of Workshops³³, prepared by PP8 on the base of numerous “in field” investigations, methodical developments, professional discussions and computing works, were formed most prospective means (grounded on nowadays ICT) for interaction with new ATCs⁴⁹, both for their win-win collaboration with HIS & EWS (which were generated by East Avert), and as an efficient facility for new ATCs sustainable

⁴⁶ http://ecoresource.ddns.net/DocLib/III_EA_Workshop_CV_Review_Photo.pdf

⁴⁷ <http://ecoresource.ddns.net/Shared%20Documents/Buletin1.pdf>

⁴⁸ <http://ecoresource.ddns.net/Shared%20Documents/Buletin2.pdf>

⁴⁹ <http://dcsf.danubestrategy.eu/sites/default/files/Media/Zinoviy%20Broyde%20EUSDR%20multilevel%20facility.pdf>

socio-economic & spatial development and transfrontier cooperation. These principal means, which are necessary for East Avert developments further sustainable augmentation, were proclaimed by CRSA Order of 13.09.2017 & by special regional development project, which was submitted on 27.09.2017 to the Ministry of Regional Development of Ukraine⁵⁰, as well as in Summer 2017 was initiated preparation of the **Complex Regional Program of countermeasures to damage of waters and accidental pollutions caused by flood hazards on the territory of Chernivtsi Oblast**.

5. Established of permanent interaction with all target groups, as well as with professional⁵¹ and civil society⁵² support in general context of EU-UA Association Agreement & EUSDR taking into operation to provide their integration with East Avert implementation, following activities & for further projects embodiment support through the parallel processes of decentralization and interregional integration both in Ukrainian and Romanian⁵³ regions, as well as for their further transfrontier cooperation.

Activity 2

Title of the activity: Modernization of the hydrological information (HIS), forecasting and early warning system (EWS) in Prut and Siret Basins for flood prevention.

Accordingly to prescription of East Avert contracting documentation this Activity “getting further modernization activities, will be needed inputs form Activity 1, regarding the stakeholders needs”. At the same time as main outputs from Activity 2 “**Flood protection measures are in real time**, linked by the HIS and EWS - Flood protection Plan for the River basins Prut and Siret, as well as **on long time**, linked by **flood hazard and risk mapping and Flood Risk management Plans at the basin level**. Activity 3 Group links tasks for long term planning **for a sustainable development of the border region**, as Flood Directive requirements. **Both activities are inter-linked, offering data and information to each other**”. Therefore PP8 works’re “polarized” for such “synergy” of Activities 1-4, which should provide not only concrete outputs, but also following embodiment of all 6 main project’s results foreseen by Contract documentation. At the same time, through 8 years of East Avert preparation and implementation (2009-2017) was crucially changed understanding of **Global Climate Change impact on these project’s results embodiment**, as well as on the necessity to provide synergic implementation of technologic facilities & means, developed by East Avert, under mentioned climate changes¹⁷.

Banding of HIS and EWS development with Flood Protection planning had to be provided in the project through inundation & hazards mapping and risks assessment for maximal satisfaction of stakeholders interests and for their stronger involvement into implementation of East Avert results⁴⁹.

For this aim the following works were “triggered” by PP8 through Activity 2:

Topics/activities covered:

Training of specialists in processing and communication of primary data, and in designed dispatch and cartographical applications

PP8 work on this topic was provided accordingly to the tasks established by the contracting documentation:

All partners will collaborate for installing software application at the Dispatch Centres and Flood Protection Services for mapping.

All partners’ representatives will participate for designing the different applications and for the implementation of the studied procedures and will take part in the training program, for strengthening the professional capacity.

For these tasks from the very beginning were foreseen different levels of separate (in UA) & common trainings for project’s HIS-EWS staff (both on local & international levels), as well as for more wide interaction with regional & local stakeholders, involved into project’s Activities 1- 3. Owing to above mentioned problems, which’ve faced through project implementation period, part of foreseen training objectives was “convoluted” into only brief discussions through core Workshops (including preparation & consequent stages of each event).

For this aim already in 2014 PP8 prepared special training topics aimed to integrate modules from HIS dispatching system (primary data processing and communication) + cartographical applications with information from the “reference points” in concrete flood impacting zones. This synergy of HIS and FD

⁵⁰ http://www.minregion.gov.ua/wp-content/uploads/2017/09/11_ZS_CHrvn.pdf

⁵¹ http://bukoda.gov.ua/sites/default/files/Z/171-r_vid_13_03_2017.pdf

⁵² <http://ecoresource.ddns.net/DocLib/Forms/DispForm.aspx?ID=13>

⁵³ <http://www.presidency.ro/ro/media/discursuri/locutiunea-presedintelui-romaniei-domnul-klaus-ihannis-si-transcrierea-dezbaterei-din-cadnul-evenimentului-modernizare-dezvoltare-descentralizare-administratia-locala-vorbeste>

facilitation accordingly to contracting documents had had to be further précised in collaboration with main developers of dispatching, HIS, GIS and modelling systems for utilization through further East Avert Activities for Monitoring System testing, calibration & Emergency Planning accordingly to FD prescriptions (in Activity 3), as well as for further Water Management Plans development accordingly to Water Framework Directive.

To provide further seminars/workshops, both for mentioned trainings & for permanent methodological coordination between dispatching, GIS mapping, modelling & local/communal “reference points” and “feedback” structures, to perform their systems functioning, PP 8 through East Avert implementation:

- brought specialized rooms of CER office¹⁴ in conformity to requirements for trainings/seminars/workshops, as well as for distance learning, & provided their equipping (finalized in 2015 because of appropriate budget Notification delay for 9 months), which capability was demonstrated on wide meeting & discussion of all key project PPs 03.02.2016;
- organised elaboration and field testing of the special pilot Workstation, which allows both to fix all necessary information for data collection and mapping in the vulnerable zones and to demonstrate & simulate these activities for mentioned structures through the cameral groups and remote leaning trainings/seminars to clarify with all stakeholders how they should coordinate their activity and provide mutual data exchange in ordinary regime (prevention measures), in the cases of potential danger of flood and of concerned risk, as well as for hazards mitigation in situ through real emergency situation and for its consequences liquidation;
- bought & putted into operation since 2015 the necessary equipment to embody the above nominated activity, as well as to provide its methodological web-support.

In the framework of collaboration on installing software application at Flood Protection Services for mapping, PP8 with involved experts from National University of Chernivtsi, tested **possibility of HEC-RAS software utilization for local (first of all flashflood) historic inundations mapping, forecasting modeling, hazards maps & probable floods scenarios development in settlements, municipalities & new ATCs, as a “bottom” for risk assessment.** These developments were directed **for comprehensive planning both of flood prevention measures & emergency in-situ activities as a core element of ATCs Sustainable Socio-Economic & Spatial Development.** As it was agreed on project’s Conference in Chisinau (April 2014), though floodmarking methodology this East Avert application for project Activity 3 can be combined **with large basins modeling** (provided by PP6 subcontractors through Activities 1 & 2 on the basis of system HYDROS). And on the UA PPs meeting with key beneficiaries on 09.06.2017 necessity of such collaboration was confirmed by all involved parties. At the same time through collaboration with Chernivtsi National University accordingly to Agreement of 05.02.2016 PP8 also’ve continued preparation of appropriate training modules.

The absence of access to appropriate GIS (DEM and vector maps, which accordingly to Contract and PP6 Technical Requirements of 28.04.2014 should be provided from PP6 server for all East Avert PPs), didn’t allowed to finalize & apply these modules “in corpore” for trainings of HIS maintenance staff, for Flood Protection Services (Emergency, Civil Defense) & for other stakeholders To provide these agreed works in the framework of East Avert Activity 3 implementation all UA PPs signed on 14.07.2017 common appeal⁷⁶ to JTS and LP..

Without finally agreed GIS platform for PP8 were available only DEM, given by PP4 on 24.02.2015, and “pieces” unofficially received from PP6 subcontractors in draft versions on 11.10.2014 and in some more complete variants, obtained on 10.07.2015 and on the beginning of 2016. Under such conditions PP8’ve developed and demonstrated on the Workshops & II East Avert Conference methodology of cartographical & graphical toolkits for historic floods mapping, further selected settlements territories inundations level calculation & verification. As well as all these developments allowed to improve concerned flood risk management works & to make them “synergic” for all interested target groups of East Avert. These training applications also were developed and tested in some ATCs (Mamaliga, Mamaevtsi-Luzhany, Vaskivtsi-Snjatyn) and in Chernivtsi to become **integrated with other appropriate projects** (under the aegis of EUSDR & new Danube Transnational Program, Carpathian Convention, ENPI & EaP tools for 2014-2020, INBO and also for regional development – EU U-LEAD Program etc), as well as for strengthening the professional capacity and to have maximally wide public support.

Absence of LP & JTS clear replies on UA PPs common request of 14.07.2017⁷⁶ don’t allowed PP8 in collaboration with PP4, PP6 & PP7 approve thoroughly this approach in selected zones of Chernivtsi, Mamaliga & Cherepkivtsi, to fulfill Contract requirements mentioned on the beginning of this topic.

Data processing and data communication – designing the trilateral informational system for water and emergency situations management

Mutual interconnections between HIS and FD small scale infrastructure creation on the local level in zones of inundation & concerned risks assessment should make both of them more efficient & flexible. It's principal for object-orientated data collection, processing & transmission for ordinary activity, as well as for cases of force majeure (drought, floods, and accidental pollution events). Discussions of this approach on East Avert Workshops³³ with stakeholders've met mutual interest in river basins sectors to dependable sources of précised information utilization for mapping, modeling & risks assessment developments. In the same way such approach **provides further interaction for appropriate activities planning, risks interpretation & for joint actions based on identified scenarios, detailed peculiarities & specific features of each flood risk area.** In the same time these works've proposed by PP8 for plans developments better integration both on the national & transfrontier basins level, including integration with Romanian Flood Protection Plans, from counties level to the basin level.

Therefore, accordingly to initiatives elucidated on few East Avert scientific meetings, which were **directed for synergic geo-spatial data exchange** – PP8 efforts were focused both on better data format for exchange (e.g. through shape-files) & on exchange protocols between different distributed DBs (e.g. between UA PPs and core target groups – SES & Civil Defense, regional & municipal Housing & Environmental departments, other appropriate city services, ATCs, settlements etc).

Basing on the necessity to provide in such way data processing & communication for emergency situations management (and taking into consideration Romanian experience of EU Flood Directive implementation (which was demonstrated to UA PPs in Iași on 4-5 July 2017), PP8 developments were aimed **to involve all appropriate stakeholders into data collection, processing and transmission/exchange.** These developments were directed **both for ordinary functioning and for cases of force majeure** (drought, floods & accidental pollution events). These targets were formulated on bilateral meetings with local stakeholders, in collaboration with CRSA Expert-monitoring group, e.g. with State Emergency Service and with appropriate structure in UA Cabinet of Ministers. On mentioned meetings of PPs & subcontractors with CRSA & key stakeholders on 09.06.2017³⁸, 16.06.2017, 05.09.2017 & 15.11.2017 and through discussions between Chernivtsi Oblast leaders and Suceava & Botosani Counties heads were demonstrated revealed hazards, which need urgent means, as well as prospective benefits from this approach utilization.

Accordingly to East Avert objectives this first hand task has to facilitate analysis & interpretation of the information & corresponded risk phenomena, as well as on flood protection & evacuation planning for emergency situations, concerted with joint actions, based on probable scenarios (interventions plans), identification for particular situations providing, as a key toolkit for whole Euroregion “Upper Prut” sustainable development & spatial planning.

The modernization of the information and hydrological forecast system

Accordingly to Contract requirements, HIS & forecasting system, created through East Avert implementation, should provide general monitoring & modelling result of the project, reflected *inner alia* in the Final Atlas. At the same time these project's results have to become the main initial “ground floor” for further activities've foreseen by FD: **inundation mapping, hazards revealing, flood scenarios simulation, risks preliminary evaluation & further assessment**, what allows **to elaborate prevention means and plans for actions in situ of emergency & for flood consequences liquidation.**

These aspects of East Avert were especially discussed with PP4 & LP since 2011 till last project events in Ivano-Frankivsk on 27.11.2017. Initial discussion of 3 Ukrainian PPs together with key subcontractor, and further – with all PPs, was “catalyzed” by PP8 through common participation in project's Conference in Chisinau on 6-9 of April 2014. Further this topic discussion was continued through common events in Tisa basin in August (after preliminary PP8 investigations in Transcarpathian Oblast in July). Their detailed canvasses took place with key UA PP's subcontractors in August –September and through mentioned PP8 visits to Bucharest in September & November 2014, which results were reflected in Bucharest on 10-12 of November 2014 on the INHGA Conference³¹ and in the INBO presentation³².

The following PP8 works concerned surveying & floodmarking developments¹⁶ and their results testing were provided as intermediate means for both activities:

- in Activity 2 - for verification and calibration of HIS developments and forecasting modelling by subcontractors of PP6 & PP7 and by PP4,, as well as for core element of above mentioned trainings preparation:
- as a **link between HYDROS macro-modelling results and local inundations/hazards mapping and probable scenarios development for better risks assessment & emergency planning** for Activity 3³⁷..

Already mentioned most important impacts on East Avert implementation in Ukraine (changes in EU and also Euro-Atlantic integration processes, State power & regional reforms, including total decentralization processes,

and urgent need in “technologic synergy” with Global Climate Change etc.) markedly effected character of HIS information circulation in Monitoring System & with stakeholders, as well as - meaning content and functioning of the hydrological forecast system.

Therefore **HIS and FD information synergic utilization** in East Avert was permanently in discussion both “inside” of the project team and through all “external” communications. For the last time this issue was commonly discussed on 08.12.2017 with key representative of UA PPs sub-contractor and represented⁵⁴ on the Conference of Ukrainian universities involvement into EUSDR⁵⁵

To provide correct content & format of revealed/collected data, their comprehensive classification & codification for unproblematic exchange by them were comparatively investigated from the points of view of both EU INSPIRE & CORINE rules and appropriate Ukrainian developments. The first direction was promoted by PP4, and PP8 also took into consideration appropriate UA plans of correspondent Acquis Communautaire elements implementation. But, taking into account this information targeting for territorial structures-stakeholders (regional, municipal, new ATCs, settlements etc.) – both Authorities & specialized institutions (Emergency, Civil Defence, Environmental and so on) – PP8’ve studied opportunities for these data treatment in mainstream of territorial development toolkits (as it foreseen by East Avert).

For this aim since beginning of project PP8 provided permanent consultations with all actors involved into FD implementation in Ukraine: State Emergency Service, Ministry of the Environment & Natural Resources and Ministry of Regional Development, Construction & Housing (besides only State Water Agency, which was already fully involved into project as a “holder” of mentioned National Program approved by the Law of 2012). Whereas many of actions, foreseen by mentioned UA-EU Association plans, still weren’t finalized – **as core “carrier” for HIS-FD information implementation into general process of territorial sustainable socio-economic development & spatial planning were defined State System of Standards for Urban Design** (e.g. ДБН Б.1.1-5:2007 on engineering-technical actions for Civil Defence, ДБН Б.1.1-13:2012 on Planning documentation at the National and regional levels etc.) These Normative acts gave the general frame for inundations & hazards GIS mapping. Continuing investigations in this direction, PP8 also studied draft of new Standard on “Composition and Content of Planning Scheme Territory, on which the power of village, settlement, city councils are exercised”. This act was approved as ДБН Б.1.1-21:2017 by the Order of the Ministry of Regional Development of 27.12.2017 Nr 343 and provides practically the whole set of rules answering main EU norms.

On the other hand (accordingly to presentation, debates & decisions of first East Avert Conference in Iasi in January 2014), besides above mentioned conformity of data content & format, PP8 also elaborated mutual links between East Activities 2 & 3 with key developments on Water Framework Directive & FD implementation in Ukraine accordingly to appropriate changes in National Legislation, e.g. in Chapters 3 and 21 of Water Code. For this aim in collaboration with main UA bodies: Ministry of Environment and State Emergency Service in 2014-2017 have been provided consultations, which outputs were represented, discussed & reflected in conclusive documents of specialized meetings, e.g. in the Ministry on 04.02.2014⁵⁶ and 23.10.2014, as well as with State Emergency Service since April 2015⁵⁷ together with representative of PP6 subcontractor. Whereas these East Avert developments weren’t carried through level of planning, as it foreseen by both EU Directives – they were only fragmentary reflected in draft Water Management Plan for Prut river. More complete are draft Order of Inundation Risks Management Plans development and Methodic Inundation Danger and Risks maps development. Accordingly to EU-UA Association Agreements implementation plans they should be approved by respectively Governmental Ordinance and by Order of Interior Ministry. But, owing to not enough experience of their preliminary testing, these acts approval was postponed to 2018.

Proposed by PP8 interlink between operation dispatching system (primary data processing and communication) and cartographical applications integration with the information obtaining from the “reference points” in concrete flood risk zones and for feedback to them. This initiative foreseen further précising through collaboration with main developers of dispatching, HIS, GIS and modelling systems.

Such “reference” & “feedback” interconnections elaboration in pilot areas & in city of Chernivtsi through process of historical floods & concerned risks information revealing and mapping has been represented, discussed & met interest on all levels, nominated on the beginning in Activity 1 description.

⁵⁴ <http://ecoresource.ddns.net/DocLib/Broyde%20-%20EUSDR%20Confrence%20Univesity%20Chernivtsi.pdf>

⁵⁵ <https://www.danubeknowledgesociety.eu/news/the-role-and-opportunities-for-universities-in-the-european-strategy-for-the-danube-region-8-9-december-2017-in-chernivtsi>

⁵⁶ <http://old.menr.gov.ua/press-center/news/150-news28/2244-yakisnii-pytanii-vodi-v-ukraini-buty>

⁵⁷ <http://uk.x-pdf.ru/5raznoe/2329469-1-praci-miznarodnoi-naukovo-praktichnoi-konferencii-aktualni-problemi-modelyuvannya-rizikiv-zagroz-viniknennya-nadz.php>

The interim results of this initiative embodiment, as well as technical possibility for its implementation has been tested through site visits with mobile Workstation & discussed with regional emergency & civil defence structures, as well as with numerous local stakeholders. Such approbation've demonstrated real opportunity to integrate it for Floods Scenarios & Action Plans elaboration, as it was demonstrated & discussed on the meeting in Kiev with all UA PPs & subcontractors on 08.04.2015⁷⁸, after PP8 appeals to LP in October³⁰ & discussions in Bucharest in November 2014, as well as through first PPs scientific meeting in Suceava on 05.02.2015.

The **“bottom level” information from basins sectors** (which should be collected, mapped and adopted for distributed DB integrated with GIS through Activity 3) **becomes additional “income” for modelling process & further verification/calibration of prognoses**. Using experience from Tisa basin, it was foreseen step-by-step elaboration & adjustment of recommendations for **each basin’s sector/settlement**, which **should allow work-out** by them (or for them) **their own protection & long term planning actions for sustainable development** in border region, as well as **to involve investments or provide by own resources appropriate protecting measures, bringing together plans/activities** which are recommended by HIS and those, which are **on their own community interests**.

At the same time proposed East Avert implementation mechanisms on bottom level allow also better utilize already existent small scale infrastructure (communication and protection equipment + skills), e.g. created for floods damage mitigation in Novoselitsa district sector of Prut basin through the previous project of JOP “RO-UA-MD” 2007-2013, MIS-ETC Code 751.

The generalised scheme of available East Avert implementation results shown in the Table⁴⁴,

GENERAL AVAILABLE RESULTS OF EAST AVERT	
MONITORING	FORECASTING
Level and water flow discharge in riverbed	Weather & precipitation forecast
Measurements in the control points	Modeling
Data processing and transfer	Data & Modeling verification
Peaks of floods, freshets passing	Peaks passing calculation (maximal levels, discharges) between checking points
Situation adjustment	Following target setting
Decision making	Scenario selection
Objectives for local structures	Informational interaction
Fulfilment verifying	Corrections amendment
Providing elimination of the consequences	Action plans amendment
MAIN RESULTS FOR TARGET GROUPS OF THE PROJECT	
POPULATION	GOVERNING BODIES
Self-governmental structures	Specialized structures
Volunteers troops	Response forces
Available resources	Manoeuvrable means
Informational preparedness	Action plans, trainings, interaction
Warning	Data exchange
Feedback	Actions following scenario
Announcement on situation change	Scenario changes
Agreed actions	Action plans changes
GIS AND MODELING PRINCIPAL OBJECTIVES	
RIVES AND FORESHORE STRIPS	BASINS AREAS
Basic digitalized surface chart (actual geometry of river bed, flood and risk plains)	INSPIRE layers
Inundation areas adjustment	Technogenic factors, which make danger of pollutions jams, relief & river beds change
River bed and banks profiles	Engineering-protective constructions & systems
Historic events data	Zones and objects of risks
Waters edge lines and inundation depths	Calculations of water stream discharge – inundation through flood scenarios
Areas of backwater, jams, evacuation	Overflow and evacuation modeling as additional factors
Level jumps in the main river bed	Calculations for separate zones
Definition of inundation planes	Extrapolation on flood peaks

Elaboration of mentioned forecasting products, as an input into further East Avert activities, as well as for Forecasting System Design Report and Operation Concept Guideline, should **allow all involved actors to combine forecasting modeling & data inputs** (linking with all other outputs from internal group of activities). To provide continuous monitoring data for precipitations & river water levels as direct inputs to forecasting modeling and delivering prognosis/forecasts, PP8've proposed to unite both above mentioned approaches (macro-basin & local forecasting modeling for floodplain & flashflood inundations of 2008 & 2010 events). Thus, first of all, can be provided most **close interaction between** already established **HIS & EWS and flood hazards & risk mapping for Floor Risk management Planning**. In such way, through Activity 3 group linked tasks, **should be constrained long term planning for sustainable development in the border region** accordingly to EU FD requirements

To bring these works & outputs maximally close to actual Romanian results've achieved through preparing Flood Directive reporting in 2015 – after these results elucidation by PP4 in Iasi on 4-5 July 2017 – PP7 & PP8 (in addition to mentioned UA PPs common appeal of 14.07.2017⁷⁶) requested also PP4 on 25.07.2017⁷⁷ for the following information providing:

1/ To select from 39 main & 570 local flood events (which was reflected in Romanian Flood Directive reporting of 2015), only those, which are direct concerned to Prut & Siret inundation waves, which crossed UA-RO border, whereas these data are necessary to continue common implementation of Flood Directive requirements.
2/ For the events, which should be selected accordingly to item 1/, Ukrainian PPs should be provided by the complete information (data on precipitations and of water flow levels & discharges in Prut & Siret basins) from the boundary Romanian monitoring stations:

- on Prut river: from Orofteana and Radauti-Prut –between which situated ATC “Mamaliga”,
- in Siret basin – from mun. Siret – whereas mentioned last Ukrainian settlement Cherepkivtsi in ATC “Hliboca” situated between UA monitoring station in Storozhinets and Romanian - in Siret.

These requested data obtaining & processing by Ukrainian PPs, could open for all East Avert PPs new opportunities on **further perfection of information and hydrological forecast system, as well as for more complete development of common Forecasting System Design Report and Operation Concept Guideline for forecasting modeling and data inputs, both into prognosis/forecasts for early warning system and for long term planning, as an element of the border region sustainable development, as FD requires.**

Activity 3

Title of the activity: *Preparing the Flood Directive (2007/60/EC) reporting for the Preliminary Flood Risk Assessment and Flood Hazard and Risk Mapping along the Prut Floodplain and in Siret Basin, upstream Romania.*

Comprehensive providing of Ukrainian integration into EU FD implementation process, with purpose of effective common floods prevention, cooperation in situ & for their consequences mitigation, is one of EU-UA Association Agreement objectives, as well as of EU-NATO cooperation priorities've determined through 2015-2017. As a ground for this process embodiment “from the bottom level” PP8 developed proposals for **unitary methods in order to carry-out mapping of historical floods in local sectors of river basins with possibility of these maps further step-by-step adjustments** (including also data of following floods), **as well as common appropriate analysis to produce and utilize cartographic materials & probable flood scenarios in Siret & Prut basins**. In result namely this direction of East Avert implementation has **to provide appropriate planning both for prevention measures, in-situ emergency interventions and for liquidation consequences of floods and concerned hazards**. Proposed mapping procedures were initially foreseen as a part of needed information composition accordingly to FD requirements, to become integrated in LP reporting to EC. These UA outcomes should perfect identification of the significant historical floods in Siret and Prut river basins, as key support means for Flood Risks Management accordingly to FD, as well as models for HIS and probable scenarios calibration, providing detailed hazards mapping & forecasting activity, to promote *inter alia* preparation of the institutions, involved into project & responsible for flood protection and to achieve the future reports of flooding in accordance with the requirements of FD.

Taking into consideration, that core EU Directives (2000/60/EC establishing a framework for Community action in the field of water policy and of FD 2007/60/EC measures on assessment & management of flood risks, as well as also 2008/1/EC on integrated pollution prevention and

control), are stilln't valid in Ukraine (and also in RM), but their step-by-step implementation is already foreseen by Agreements of Association – PP8've performed the following works:

- comparatively investigated common/similar requirements of mentioned EU Directives and of Ukrainian legislation (which preliminary conclusions were demonstrated through Conference in Iasi on 28-29.01.2014 and on Kick-of Meeting in Chisinau 7-8.04.2014). These requirements should serve as “pointers” for this project activity further implementation, as well as to make its results more available for utilization, e.g. though project Activity 4;

For this purpose, mentioned issues were permanently discussed in Ministries of Environment & Regional Development, Construction & Housing, as well as with core specialists of State Water Agency and Hydrometeo Service, as part of State Emergency Service, which coordinates FD implementation in Ukraine since 2015.

On this ground PP8 developed & sent to relevant structures in Chernivtsi & Ivano-Frankivsk Oblasts and through CRSA - to appropriate governmental bodies - official proposals for EU Directives elements advanced implementation through East Avert developments accordingly to EU-UA Association Agreement & also to aims of pilot Euroregion “Upper Prut” (e.g. on decisions of Euroregion Council of 14.05.2014).

In parallel through 2014 CRSA submitted 2 appeals to Administration of the President of Ukraine on utilisation East Avert “occasion” to accelerate debugging & further implementation of FD & other associated AC acts under the common aegis of Association Agreement & EUSDR, on which was issued special Governmental errand of 16.12.2014. Further were issued two errands of Vice-primer in 2016-2017 for these proposals embodiment. For this aim PP8 represented East Avert developments on Parliamentary Hearings on 08.06.2016, as well as further their essential outputs were summarized in Parliamentary Ordinance of 21.09.2016 Nr 1537⁴¹.

Not being in details informed on FD reporting process in Romania, PP8 also provided “offline” information revealing, aimed to perfect unified system for historic floods (2008, 2010 and also partly 1969) mapping. As next step was foreseen its consequent bringing into mutual conformity with macro-modelling data to provide synergy with inundation & concerned risk maps in certain settlements for monitoring & modelling results integration with emergency planning (preventive, for actions in situ and for flood consequences elimination). For these developments continuation were foreseen new projects (e.g. proposed in the letter of Chernivtsi Regional Department of State Emergency Service of 08.04.2016), aimed to **integrate East Avert developments into more wide plans of territorial communities development in EUSDR area.**

Since 2016, the embodiment of all these East Avert objectives, aimed promote FD & concerned AC acts implementation in Ukraine (and also in Moldova), was the main task for PP8, taking into consideration decentralization processes, which demands to new “redistribution” of competence between appropriate central & regional stakeholders & new ATCs. These works were directed to providing more conform planning mechanism, which is foreseen by FD for flood prevention, activities in situ and consequences elimination, as well as for inundations & hazards mapping and risks assessments.

Topics/activities covered:

The identification of the historical flooded areas and mapping of historical flood events and determining the prevention measures for the identified flood risk areas

For unitary methods applying in order to carry-out mapping of historical floods in certain sectors of river basins, as well as to deliver historical & forecasted flood risks analysis and cartographic products for territories of Siret & Prut basins, it's necessary to have agreed GIS platform, data formats & their exchange protocols. Developed unitary methodology for PFRA, hazard & risk mapping had had to be agreed with modeling mechanisms to provide further flood concerned activities planning, bringing together these actions & information from automatic stations + dispatching systems, local & regional stakeholders + population & Emergency + Civil Defense forces. Also PP8've proposed additionally to define special “reference points” in vulnerable settlements for their further including into system of monitoring – modeling - verification – calibration – mapping and emergency planning data exchange to augment measures for flood risks management in areas with registered significant historical floods.

Already on 28-29.05.2014 PP8 made first experimental identification of historical flooded areas in 2 settlements of the selected Storozhinets district in Siret river basin for preliminary mapping the data on those flood events¹⁶ & on prevention measures, using the pilot variant of special Workstation. For this & following similar site-visits PP8 prepared draft computer maps, which allowed to fix coordinates from surveying & of photo/video recorded places. To make available following perfection/précising of these coordinates (what can't be provided by PP8 ourselves), as a rule, revealed floodmarks're tied to concrete objects (buildings walls, edges of roads embankment etc)⁵⁸ which can be identified with necessary accuracy on appropriate vector maps.

After further preliminary preparations, representatives of PP8 visited all initially selected places, together with local land managers and/or school teachers, for collection of available data & fixed them from recipients, using questionnaires, GPS & photo/video equipment¹⁶. It allowed also step-by-step reveal some potential "reference points", as well as peculiarities of historical floods & concerned hazards together with associated information detection. This information mapping allowed to perform floodmarks in appropriate data format¹⁶, as well as provide these data necessary exchange & adjustment mechanism. Developed facilities were unified also through further odd discussions with PP4 & UA PPs and through project activities on HIS, GIS, modeling, with stakeholders, incl. interested authorities.

Without opportunity for permanent discussions with LP & PP4 on the details of unitary methodology definition for historic floods mapping in river basins conformably to the EC technical papers and results of different EC projects on vulnerable/inundation/hazards/ risks zones map-making, PP8 tested developed facilities in different polygons of settlements & in cities (for which was found at least minimal GIS basis)¹⁶. Obtained results were demonstrated on Conferences in Chernivtsi & Bucharest in 2016. But huge discussions about further status of these works and their continuation in the framework of the Activity 3, which had started on the scientific meeting after appropriate presentations in PP8 office on 03.02.2016, and were continued in Suceava on 19-20 of May 2016 and on the project's events in Bucharest in Autumn 2016 after 3 PP8 appeals to LP & PP4 supported by CRSA appeals of 22.08.2016 & of 19.10.2016 for this issue wider discussion, didn't allow find agreed solution.

Only after acquaintance with PP4 presentation in Iasi on 05.07.2017 it became possible to compare preliminary & clarify needs for further precision and agreement of these works status, as well as - methodology details, e.g:

1. From RO side mapping polygons are "classically" linked to rivers talweg selected points. In UA case, taking into consideration crucial alterations in river beds & also often meander changes (as well as difficulties of frequent profilometric measurements), PP8 tried to use low stage levels. On one hand it more close concerned immediate GIS basis creation, on the other – it quite easier (and cheaper) for measurements & gives more flexibility for modelling.

2. One of very important peculiarities, revealed since first site visits in Bukovinian (formed Austrian) part of Chernivtsi Oblast (as well as in Ivano-Frankivsk and, especially, in Transcarpathian Oblasts), was the huge system of drainage channels made on the end of XIX – XX centuries. Some of them were interpreted by inhabitants as natural small rivers and only special investigations shown their real origin. Main part of them (nominated by population as "foses") make essential impact on the local character of floods.

For further inundation vulnerability/hazards/risks mapping, it's necessary to agree with developers & users of GIS-mapping eligible for them protocols for primary data format, these data processing & mechanism of exchange between workstation, high-resolution spatial maps & basic DBs. At the same time such

inundation/hazards/potential risks mapping've foreseen from the very beginning also to be suitable for simultaneous revealing of the technogenic sources of danger, which in combination with floods and concerned risks of "water nature" can generate following additional perilous factors:

- infrastructural, industrial, agricultural & municipality engineering objects (e.g. bridges, lakes with dams, channels etc.) which can have crucial influence on the character of floods;
- substances-pollutions on the territories, which can become accidental sources of water contamination;
- wastes accumulations or littery areas, as well as not ordered felling (cutting) places, which can provoke water flows raft blocking with not foreseen prompt water accumulations & further volleys.

⁵⁸ http://ecoresource.ddns.net/SiteAssets/SitePages/Quest%20East%20Avert/Transf_result_quest+floodmarks.pdf

Being elements of economic & social activities in river basins all of them also should be included into hazards revealing & mapping process, as it foreseen by all 3 mentioned EU Directives, using *inter alia* both previous PP8 and other PPs developments & obtained co-financing.

3. Already on that stage became obvious **crucial preference of digital photo/video fixation of flood events¹⁶ (together with accompanying hazards & risks³⁷) in comparison with any other methods of surveying**. It **provides simultaneously floodmarks precise binding to exact place, time and (the main) real level of water together with other important additional details**. At the same time this information is quite more eligible for immediate utilization in modeling & verification processes in comparison with any verbal information. But proper utilization of this approach requires more precise GIS (DEM & vector maps), which were foreseen by PP6 Technical Requirements of 28.04.2014

For these aims achievement, even without comprehensive GIS-basis, which was foreseen by the project, PP8 investigated **new Quantum GIS (QGIS) & some other facilities as universal “carrier” for necessary data collection & transferring in different ICT systems to provide interaction between them**.

In parallel was finally agreed with Chernivtsi Regional Council & City Council additional works on **revealing & mapping of technogenic hazards sources in inundation vulnerability zones for further inclusion into mentioned GIS mapping, following risk assessments & prevention and for actions planning**.

PP8 investigations for “junction” of hydraulic & hydrologic aspects of East Avert allowed **accelerate actualization of data, received from different actors involved into process of hazards detection & modeling, as well as for future risks minimization planning & management**. First of all it's important for mutual **verification of initial modeling data** from PP6 & PP7 & from their subcontractors **in comparison with historical floodmarks** revealed by PP8³⁷. This outcome was **proposed as core interaction element between automatized monitoring system and main part of East Avert target groups on different levels**. (Such synergy is directly foreseen by above mentioned EU Directives).

For active phase of emergency planning PP8 also foreseen how to include **anthropogenic pollutions sources, concerning floods** risks mapping & evaluation, taking into account specific peculiarities of **urban conditions**, river beds & inundated zones. E.g. in main Prut tributary - Cheremosh & in other smaller Prut & Siret first tributaries basins such anthropogenic factors **can become causes for water blocking** with additional inundations **& other risks provocation**. As well as it should be taken into account probable construction of new objects in floodplain areas, e.g. small hydropower stations in the area of check point in Holoshina village of Ivano-Frankivsk Oblast on White Cheremosh river.

In some cases (e.g. small rivers in Chernivtsi city and in village Verhni Petrivtsi), starting from historical floodmarks & pollution hazards, were found systems preconditions for following crucial impacts in East Avert field of activities. On the III Workshop in Chernivtsi were examined revealed “weak” points concerned small rivers Klokuchka, Potit (Shubranets) etc. and especially – of Molnitsa. As well as in Siret basin for V Workshop was foreseen to discuss problems of **village Verhni Petrivtsi, where 4 tributaries comes together before Malyi Siret outfall into Siret** only some more then 20 km **before entering Romanian territory**. This settlement was preliminary investigated by PP8, later - excluded from the list of modeling zones and returned back only in 2017. And after PP8 request to PP4 - INGHA estimated that the **amount of flood waters accumulated in this area can be 40-50% of total Siret discharge to Romania**. On the other hand, Malyi Siret river bed has a loop in centre of this village near bridge, which threatens now to destroy finally the main road, which connects number of settlements should soon become united into new ATC. There already were destroyed some habitats and it will be continued attack the nearest (and further – area of future ATC Council building).

These **hazards**, as well as **vulnerability/risk mapping need proper DEM and vector maps** (GIS facility) with DBs, **completed accordingly to INSPIRE & CORINE**, how it was foreseen by initial Technical Requirements for UA GIS development of 28.04.2014. As well as it was prescribed by PP4 in instructions sent to Ukrainian PPs and to their subcontractors both in February 2015 & in February 2016. (These requirements to East Avert GIS facility was also confirmed by Protocols of CRSA Expert Group meetings of 29.12.2015 & of 29.01.2016).

PP8 also've initiated in 2016 **Internet networking with settlements & communities/municipalities in vulnerable zones** of Prut & Siret basins in Chernivtsi Oblast to provide further Activity 3 continuing. For this aim PP8 developed flexible toolkit for **step-by-step GIS facility adjustment** (even only partly using above mentioned East Avert GIS facilitation) through **permanent interaction with each concrete “unit” of target groups** (territorial communities, local authorities, Emergency & Civil Defense Services etc).

This instrument, proposed to mentioned East Avert target groups, was synthesized by PP8 from GIS elements've obtained from PP6 & PP7 subcontractors and from open Internet cartographic sources (Google MAP, OpenStreet, Geofabrik.de, State Land Cadastre etc). Appropriate sectors of digital maps've "constructed" in such way from different GIS components, which are open for limited access to appointed & simply trained representatives from each settlement (community, municipality), which has desire to improve existent East Avert basis for their purposes. Through especially developed easy facility for corrections (amendments, completion) they started to edit and/or complete incorrect (or absent) components. For this objective they were provided by simplest "library" of objects & data foreseen by East Avert, INSPIRE & CORINE, which are necessary for territorial unit needs/objectives, to be included into **inundations/ hazards/risks maps for sustainable socio-economic development planning**.

In parallel, through mentioned Chernivtsi City Hall Working Group for GIS support've started discussion on agreed fulfillment & further **utilization of common DEM & distributed geo-spatial DBs** with available access and exchange regimes for interested bodies.

Through testing of **PP8 pilot interactive web-pages with stakeholders, based on QGIS facility**, were proposed some synergic measures for necessary local geo-databases/distributed DBs establishment & their completion by accessible internet facility & information sources. They can be further goal-directed to step-by-step improvement. In parallel were provided CRSA appeals & appropriate errands of UA Government, initiated by PP8, for **Flood Directive elements pilot advance testing, using East Avert facility**. For this initiative consequent embodiment CRSA appealed on 30.12.2016 to heads of Ministry of Regional Development & of GIZ in Ukraine. On 12.09.2016 by Decision of City Hall & on 13.09.2016 by **CRSA Order** were initiated appropriate GIS systems & distributed DBs establishment, using mentioned East Avert outcomes and aimed its further results embodiment.

Through mentioned meetings with stakeholders (in particular through preparation & providing Workshop in Snyatyn on 29.06.2016) issues of mapping & planning were in details discussed & corrected. It was demonstrated that PP8 developments allow **accelerate actualization of data, received from different actors involved into process of hazards detection & modeling**.

These initial PP8 developments of floodmarking³⁷ & concerned works had unauthorized character without acquaintance with Romanian preparation of Flood Directive reporting in 2014-2015,. Only through last East Avert reporting period this activity obtained more sharp references through:

1/ comprehensive presentation by PP4 of Romanian reporting materials, which was for the first time shown to all UA PPs & simply discussed only on 4-5 of July 2017 in Iasi;

2/ UA legislation changes and draft Governmental Ordinances accordingly to the plans of EU-UA Association Agreement requirements embodiment.

In spite of delay - core elements of PP8 proposals became valid for East Avert Activity 3 implementation. First of all - it's **floodmarking methodology**³⁷ But the conditions for its **applying for flashfloods events mapping** (mainly to large one in 2010 and for local Stormwater - e.g. last year numerous disasters) are **quite differ from the works for floodplain event of 2008**, already made by PP8 in cooperation with subcontractors of PP6 & PP7 in 2014-2016.

Collected essential information on historical floods (e.g. their extents and consequences) allows improve understanding of these extreme events and through that - further flood management, what's mandatory for flood risk preparedness and planning of protection measures. But floods happening today tend to follow not only the same routes as similar ancient flows. Even 2008 disaster wasn't "pure" floodplain, Thanks to video-records analysis PP8 revealed there³⁷ flashflood elements, e.g. in the area of Chernivtsi left bank of Prut river in the zone of its tributary Moshkiv. Additional request to Hydro-meteo-service confirmed coincidence of local Stormwater with the first peak of the "main" flood in this area at night 25/26 of July 2008. But further **investigation of this phenomena by HEC-RAS** wasn't available, whereas even being inside of Chernivtsi city, this area wasn't embraced by appropriate DEM in the zone of East Avert interest.

Therefore the general issue is in principally other conditions for flashfloods inundation zones revealing. For floodplain waters it's enough to find few points for further floodmarks and calculations results mutual verification, whereas "mirror" of flood water makes them obvious, even if you use not very detailed DEM & vector maps.

For flashfloods (Stormwater) inundations such "mirror" is absent. And only combing with HEC-RAS modeling on detailed local DEM & using more or less comprehensive vector maps you can verify information from inhabitants (which isn't always truthful). As well as it allows to take into consideration already made preventive works (or any other changes on the territory), as it was, for instance, faced in the communities Luzhany – Mamaevtsi and in Marshintsi.

Especially for these tasks, after preliminary discussions with LP & PP4 in Spring 2011, both in the project (and in its budget) and in PP6 Technical Requirements of 24.04.2014 were foreseen for **GIS (DEM & vector maps) additional adjustments of such areas for inundations scenarios, hazards mapping and précised risks assessments, directed to proper prevention measures and intervention actions planning**. But this facilitation wasn't available for PP8.

Mostly evident essential demand for taking into account **local flashfloods (Stormwater) peculiarities**'ve appeared through investigations in Chernivtsi (communal sewage pipe subway across Prut river, above mentioned inundations on its left bank, on small rivers, railway station impoundings etc), as well as in Kolomyja, Vashkivtsi, Kutu, areas of ATCs "Hliboca" & "Mamaliga" etc. E.g. revealed issue of **Chernivtsi sewage pipe subway brought together hazard of Prut huge accidental pollution in 35 km from UA-RO border and necessity to make more precise local modeling, clarifying influence on adjacent checkpoint "Chernivtsi" water discharge measurements**. Even preliminary usage of not-digitalized city map 1:500 tablets of this zone shown crucial necessary for above mentioned special mapping & modeling in addition to those, which were utilized in East Avert for 2008 floodplain investigations.

Therefore in common UA PPs request to JTS & LP of 14.07.2017⁷⁶ this area in Chernivtsi was nominated as a **"proving ground" for further correct applying of précised methodology in boundary zones of ATCs "Mamaliga" and "Hliboca"- Cherepkivtsi**.

Flood hazard mapping and the vulnerability/risk mapping using an adequate digital terrain model (DTM) and the high-resolution spatial data

On the ground of preliminary investigations and acquaintance with Romanian reporting on FD implementation, core proposals of UA PPs requests of 14.07.2017⁷⁶ & 25.07.2017⁷⁷ foreseen specific works to provide mapping for emergency planning (both preventive & in-situ) in new boundary ATCs "Mamaliga" & "Hliboca". Both of these areas were preliminary observed in 2014-2015 (only as single settlements of floodplain event 2008 for floodmarking) with further goal to prepare step-by-step comprehensive flood hazards and risks maps on the main rivers (Siret, Prut and first order tributaries).

Mapping/planning, proposed in mentioned appeals, had utilize first outputs experience've obtained in Chernivtsi (in Prut and its tributaries basins, areas of pipe subway & on the left bank etc). Mentioned appeals from UA PPs were directly aimed to provide **main output of the Activity 3 directed to "the main advantage Romania create the background for delivering the Prut and Siret basins preliminary analysis, hazard and risk mapping reports to EC and will assist the International Commission Protection for the Danube River (ICPDR) for preparing the integrated products at the Danube Basin level"**. And **proposed works in Mamaliga & Cherepkivtsi should be integrated with Romanian investigations in Radauți-Prut. Orafteana and Siret to serve as "docking devices" for this East Avert goal achievement**.

This topic discussions with ICPDR and other EU experts, both together with East Avert Team Leaders on the INHGA & Danube FloodRisk Conferences in October 2012¹² and on EUSDR PA5 Steering Group meeting in Budapest on 28.04.2015³⁶, as well as in VIC-Vienna (11.12.2013) and through the following EUSDR & Carpathian Convention key events, completely confirmed the necessity for such approach utilization.

Accordingly to beforehand obtained information (mentioned in PP8 interim NRs) from Chernivtsi (both in the focal points, mentioned in 1 & in basins of first Prut small tributaries: Klokuchka, Molnitsa & Potit) & also from Luzhany-Mamaevtsi, Vashkivtsi-Snjatyn, Vyzhnitsa-Kutu & Verhni Petrivtsi — **first tributaries of Prut & Siret can provide essential short time inputs both into water discharge and for accidental pollutions**. And under adverse coincidence (which examples were fixed as hazard **water rise** near bridge in Marshintsi **for 9 m** & further - in the area of Radauti- Lipcani bridge – **for 12 m**, making potential danger for Stanca-Costesti dam). These **temporary local flood "waves" can provoke additional discharge & hazards immediately before Prut & Siret entering territory of Romania & Moldova after all monitoring units in Ukraine**.

To all mentioned investigated areas were sent in Spring and Autumn of 2014 approved questionnaires (developed together with PP7 & PP4), which played a "trigger" role. Their further step-by-step adjustment and principal **completion by obtained digital photo-video materials, as well as comparison of revealed floodmarks with macro-modeling results** and own PP8 researches (e.g. using HEC-RAS) and data amendments through additional site visits), was aimed **to establish necessary background for further Flood Protection planning in Siret and Prut river basins, integrated at the border areas**.

On this ground was started preliminary investigation of probability for mapping of such additional "hazards potential" for whole territory of new established ATCs "Mamaliga" & "Hliboca" catchment basins. In both of them **were revealed additional zones** (e.g. – in the areas **along border with Moldova on Prut river** in the basins of small rivers Stalinești &, especially, Potik). In ATC "Hliboca" also were determined 2 similar

potential sources of **flashfloods inundation waves**: 1) from the area of settlement Hliboca **through drainage channels** (“foses”) system **and** 2) from the group of the villages concentrated along small river Kotovets (m.b. also former drainage channel) – **last small first tributary** entering Siret on the southern administrative dividing line of Cherepkivtsi **before Siret comes to territory of Romania**. In 2010 after Stormwater rains this flow inundated highway Chernivtsi – Porubne (E-85) in spite of huge hydrotechnical works made just before the flood.

These additional flashflood flows **can provoke a dangerous combinations with** previously revealed **inputs from small tributary of Siret** in Kamenka **and from zone** of settlement Verhni Perivtsi in the area **where Malyi Siret entering Siret**, which was obtained in 2015 together with PP4.

Therefore, even without clear LP, PP4 & JTS reaction on UA PPs requests of 14.07.2017⁷⁶ & 25.07.2017⁷⁷, on commission of CRSA, PP8've provided with ATC “Mamliga” experimental local mapping & modeling for flood inundations & concerned sources of accidental pollutions with binding to roads & streets network mapping & identification.

Works, which were proposed in the appeals & which partly embodiment've started in November 2017 with ATC “Mamliga”, were aimed to be **further integrated into preparing of Siret and Prut input into future report of the EC on Flood Directive implementation**. As well as they are directed to further models calibration for detailed hazard mapping, forecasting activity, **required measures and investments for territories protection against flood risks**.

Public debates of these project's activities, outputs and their synthesis for East Avert further results embodiment, beginning from mentioned first East Avert FS & EIA presentation in EUSDR context on 15.06.2011 and next events accordingly to Communication Plans, were especially **focused** both on core project's Workshops and materials disseminated through their participants, on scientific meetings and **numerous further huge discussions through specialized presentations of flood risk mapping on stakeholders meetings for maps content**, since 19-20 of May 2016 in Suceava till November 2017 in Ivano-Frankivsk, as well as for the last time – on the mentioned EUSDR Universities Conference in December 2017⁵⁴.

Activity 4

Title of the activity: Collaboration for improving the framework of the bilateral Agreements in case of floods.

From long time PP8 previous experience on bilateral & multilateral activities (both with Intergovernmental & Presidents Commissions and with especially authorized bodies for collaboration in river basins, as well as through international projects) in Prut, Siret & Dnister/Nistru basins, e.g.⁵⁹ and for Danube basin⁴, it was from the very beginning obvious, that **elaboration** by PP6 & PP7 together with Romanian and Moldavian PPs of the **amendments/changes to actual bilateral Agreements/Protocols will need promotion on the inter-ministerial, intergovernmental & international level for their approval**.

Taking into consideration that the most important Agreement between UA & RO Ministries of the Environment (which was directly foreseen by Art. 16 of the basic Treaty of 02.06.1997⁶⁰) is still not exists, already **on the first meeting of Comisiei mixte româno-ucrainene de cooperare economică, industrială și tehnico-științifică** in Kiev, in collaboration with Ministries of Environment, Regional Development, Infrastructure & Economy and with Romanian side were **included into Protocol** of 11.04.2012 **special items 3.6 Colaborarea în domeniul situațiilor de urgență** “S-a convenit ca, la data și locul agreat de către cele două părți, să aibă loc negocieri pentru finalizarea și pregătirea pentru semnare a textului proiectului Acordului între Guvernul României și Cabinetul de Miniștri al Ucrainei privind cooperarea în domeniul prevenirii, limitării și înlăturării consecințelor dezastrelor”, as well as 3.12.”**Colaborarea în domeniul informațiilor geo-spațiale**” which should promote *inter alia* the necessary amendments including into actual legislation and bilateral acts, as well as to **stimulate East Avert GIS platform and geo-spatial Data Bases establishment**. But 3 years delay of project beginning and mentioned changes both in governmental and local management systems in the concerned fields through projects implementation period brought this issue to other solutions.

As a result of the discussion with High Level Representative of Romanian Government M. Geoana on the specific East Avert role for UA-RO transfrontier cooperation improvement & common promotion EUSDR

⁵⁹ http://www.umweltbundesamt.de/sites/default/files/materialband_i_russisch.pdf

⁶⁰ http://zakon1.rada.gov.ua/laws/show/642_003

embodiment, which took place in Sighetu Marmăției on 14.04.2014 together with UA Ambassador in Romania and RO Consul General in Chernivtsi, on 15.05.2014 the **first sitting of the East Avert Steering Committee in JMA office was continued by the special meeting** of the representatives of CRSA, PP8 & UA Embassy in Romania, **with competent representatives of Romanian MFA, Ministries of Environment & of Transport for discussion on the agreed common promotion East Avert developments** and their further utilisation for above mentioned aim and agreed objectives achievement..

Proposals, which are directed to this aim embodiment, were **included** by PP8 into above mentioned **UA Parliament Ordinance of 21.09.2016**⁴¹. On the other hand on 07.04.2017 to **UA Minister of Environment was handed proposal to include this issue into** mentioned **inter-ministerial Agreement** foreseen by basic UA-RO Treaty. Negotiations on this issue should be initiated by mentioned **letter of UA Vice Prime Minister of 25.04.2017 to head of JMA** as “**consultations on the expert level to take stock of progress within common bilateral priorities**”, as well as in common appeal of Chernivtsi & Suceava regional leaders to EU Commissioner J.Hahn of 22.05.2017. In parallel, since Autumn 2016 to East Avert LP were submitted above mentioned appeals from PP8 and from CRSA **to unite project’s event on inundations/hazards & risks mapping debates with the meeting of the Council of Euroregion “Upper Prut”, which members are the key stakeholders of East Avert results**. It was proposed to use such sitting **with participation of 3 countries Governmental VIPs** (as it was done for East Avert initial promotion by above mentioned meeting on 29.05.2010) **for East Avert achievements embodiment promotion**. But this proposal wasn’t taken into consideration.

In spite of decision of **the second meeting of Comisiei mixte româno-ucrainene de cooperare economică, industrială și tehnico-științifică** in Bucharest to **establish common Grup de lucru (WG) pe cooperare regională și transfrontalieră** (Protocol of 11/07/2017, item 8) and few official Notes to Romanian Government - on 25.09.2017 State Secretary of the JMA informed, that the **issue of this WG meeting** still hasn’t decision.

Therefore it was prepared appropriate **proposal to the working meeting of the UA and RO Ministers of Foreign Affairs** in Chernivtsi on 11.01.2018, and after discussion with handing materials to both Ministries, on 22.01.2018 heads of Chernivtsi Oblast and Suceava County sent to them appropriate joint appeal. .

Activity 5

Title of the activity: *Transparency*

All **core events of** above mentioned **East Avert activities** were **provided by more than 30 appropriate presentations**, prepared by PP8 — since project initiation in 2010-2011 till above said EUSDR Conference in the University of Chernivtsi on 08.12.2017⁵⁴.

Accordingly to main indexes of East Avert Activity 5 and East Avert Communications Plans these presentations had **specialized character for different aims**:

- summarized **comprehensive information on East Avert goal, objectives, works, developments, outputs and prospective results** - since the special input on the Environmental Section in Bratislava on the next day after first Ukrainian Contribution to EUSDR⁵ elucidation in Vienna in the framework of EUSDR launching Conference in April 2010, till the last intervention in Ivano-Frankivsk on 27.11.2017, including 3 mentioned INGHA Conferences in 2012-2016, combined with Danube FloodRisk and INBO events, as well as on the project’s Conferences and JOP “RO-UA-MD” events in Iasi, Chisinau, Bucharest, Chernivtsi etc;
- detailed **specialized explanations**, e.g. on the scientific East Avert meetings in Suceava 05.02.2015, in Kiev on 08.04.2015⁷⁸, in Chernivtsi on 03.02.2016 and on 20.10.2016, as well as on 4 mentioned key project’s Workshops³³ in Ukraine;
- demonstration of **East Avert role and input into EU and other international initiatives** implementation - first of all in the framework of **EUSDR & ICPDR** (e.g. on all Forums in 2014-2017 and on Steering Group of PA5³⁶), as well as of **ENPI-EaP, Carpathian Convention**⁶¹ and through investigations directed to EU Strategy for Carpathian Region development (e.g. **in EU Commission** on 25.11.2015, **for CoR** in Brussels⁶² & in Iasi on 18.09.2014), for **Vyshegrad Group** and also on Interreg-SEE & EaP events, e.g. in Balți, Chișinău, Vaduluy-Voda etc, and especially - on the core events of EUSDR implementation in the area of JOP “RO-UA-MD” (for 2 times in Ivano-Frankivsk⁶³, Odessa⁶⁴ & Uzhgorod)

⁶¹ <http://www.carpathianconvention.org/eventdetailcop/events/cop4-fourth-meeting-of-the-conference-of-the-parties-to-the-carpathian-convention-copy.html>

⁶² <http://www.carpathianconvention.org/eventdetailwg-spatial-planning/events/workshop-towards-a-eu-strategy-for-the-carpathian-region-148.html>

⁶³ <http://www.crs.org.ua/ru/172.html>

- to become a “seed” for appropriate **regional & sectorial development programs & politics**, e.g. on the mentioned meetings, provided by the UA Ministries of Environment, Regional Development, Economy, State Emergency Service etc. which outcomes were **generalized on UA Parliament hearing** on 08.06.2016⁶³;

- for **detailed combinations with objectives of concrete districts, municipalities & ATCs** through special visits in Chernivtsi, Storozhinets, Kolomyja, Vizhnitsa, Vashkivtsi, Snjatin, Novoselitsa City Halls and districts Councils/Administrations, as well as to Luzhany, Novoselitsa, Mamaliga and other settlements, which perspectives were generalized in presentation on last EUSDR Forum in Budapest⁴⁹ and in above mentioned project on regional development⁵⁰;

In simplified form this “information cloud” of East Avert was also **reflected in numerous press-realizes**, which accompanied each event, foreseen by the project. The main of them were included into sets of materials **for all participants of core Workshops**, as well as to provide **involved mass-media and NGOs** representatives by initial information, what became a ground for the “second wave” of **East Avert reflection in numerous Internet and local newspapers, TV & broadcast announcements**.

As well as all East Avert events in Ukraine were provided by **floor-standing and/or wall-type East Avert banner** developed & produced by PP8.

The “dualistic nature” of project’s goal, objectives and, especially, **synergy of East Avert Activity 2 (monitoring-dispatching system, HIS, forecast modeling & EWS) and Activity 3 (FD facilitation)**, as well as on performed developments, outcomes and prospective results together with **their impact on regional and local development planning & obtaining available “outside” support** etc, was **accumulated in** issued by PP8 **UA-EN⁴⁴ & UA-RO⁴⁵ East Avert booklets** (each in 100 copies) and **bulletins** Nr 1⁴⁷ & Nr 2⁴⁸ (each in 200 copies). It was also foreseen bulletin Nr 3 for reflection of the Activity 3 outputs, but both on technical & financial problems it wasn’t realized. UA-RO version of booklet was **disseminated** mainly **through the East Avert events** to their participants in Ukraine, Romania & also to Moldavians, for **members of Euroregion “Upper Prut”**, as well as to Romanian & Ukrainian **Ambassadors**, RO Consulate General in Chernivtsi, to Romanian and Moldavian **EUSDR NCs, Ministers** and - last examples - to **EU Commissioner C.Crețu** on VI EUSDR Forum in Budapest and to Romanian Minister T.Meleşcanu in Chernivtsi on 11.01.2018. UA-EN verion of booklet was mainly desiminated through participants and VIPs on the **EUSDR, Carpathian Convention, Vyshegrad Group events**, e.g. through **East Avert common presentation on EUSDR Forum** in Bratislava (2016) and also personally to **EU Commisioner J. Hahn** and VIPs from **DG-Regio, DG-NEAR**, to **President & vice-president of CoR** and to **Ministers & representatives of Ukrainian central bodies**, to all involved regional & districts heads & VIPs of the zone of project, as well as in other UA Oblasts in the common area of the JOP “RO-UA-MD” & EUSDR. **By project’s bulletins** Nr 1 & Nr 2 were **provided all project stakeholders (target groups, core beneficiaries)** including **all settlements, communities, cities & involved schools**, as well as all other Ukrainian bodies nominated above for booklet dissemination.

Besides professional publications (e.g. **materials of mentioned INHGA Conferences^{12, 31, 66}** and sets of materials for **Workshops³³**), more **generalized analysis both on East Avert & of its implementation peculiarities**, and, **in wider context of regional development & transfrontier cooperation** framework, was made **in number of TV and broadcast (mainly in Romanian) transmissions**. There had place both **special interviews & common discussions** together with other PPs and also with **answering on the questions**, were **East Avert activities serve as examples for other projects**, especially **for the actual issues of European & Euro-Atlantic integration**, as well as on **local problems resolution**. All of these informational means were **interesting to main part of such information recipients a) by very concrete project’s outcomes and/or b) for clear understanding, by which way and when proclaimed results of East Avert can be embodied**.

For such information elucidation by the project was foreseen **PP8 web-site**. Taking into consideration, that all issues concerning monitoring. HIS, forecasting macro-modeling & EWS, including concrete data on real & forecasted situations in river basins, should be reflected on web-sites of other East Avert PPs, and answering to Contract requirements & to approved Methodical Recommendation on IT implementation for the Transfrontier Co-operation Projects support⁶⁷, PP8 web-site **creation** has two aims (both **based on previous projects developments and nowadays ICT with using geo-spatial information & distributed DBs**):.

⁶⁴ <https://www.youtube.com/watch?v=nx1J2gmZZ1Y>

⁶⁵ http://comeuroint.rada.gov.ua/news/main_news/72732.html

⁶⁶ <http://ecoresource.ddns.net/DocLib/Abstracts%20%20presentation%20PP8%20Bucharest%20111116.pdf>

⁶⁷ <http://consultant.parus.ua/?doc=05MPXF0268>

General purpose – to regenerate **comprehensive information source on transfrontier collaboration potential for systems projects of East Avert type, as a key toolkit for regional & local Sustainable Socio-Economic & Spatial Development under the common aegis of EU-UA Association Agreement, EUSDR, Carpathian convention, EU-NATO collaboration and other tools of European & Euro-Atlantic integration.** Web-site www.transfront.cv.ua with such objectives already existed in 2006-2010, was developed by Centre “EcoResource”⁶⁸ **to promote embodiment of above mentioned provisions of ENPI Eastern Regional Program Strategy Paper 2007– 2013**⁶⁹ **on systems projects.** Objectives of this web-toolkit is **to support East Avert results further accomplishment** in the mentioned framework, as well as for **its implementation experience maximally utilization for other priority systems projects** (in particular – answering EUSDR PAs).

Special goal – to **provide interactive works (geo-spatial information collection, processing & utilization through distributed DBs and local modeling, trainings, grouping & individual cameral & remote learning & jobs) concerned FD** and other associated Acquis Communautaire acts facilitation **in accordance to UA legislation requirements.** These web-works are basing on the experience of previous developments & projects on Technogenic-Environmental Safety⁷⁰ & pollution prevention in Danube basin⁴. First experience of such former web-site <http://www.wastebat.ho.com.ua/> **with interactive facilitation** was achieved by PP8 in the projects with French Ministry of Environment & Sustainable Development⁷¹ and British DEFRA⁷².

Namely for these tasks **PP8 office was equipped** in the framework of East Avert **by two servers with workstations** directed to mentioned goals. For the general purpose achievement, in parallel to establishment of the Ukrainian official position by mentioned Parliament’s Ordinance of 21.09.2016⁴¹, it was **developed appropriate web-facilitation** for this site, some elements of which were demonstrated & discussed of EUSDR Conference⁷³, which followed common East Avert presentation on V EUSDR Forum. For the final determination of the core systems transfrontier projects frame of this web-facility, since the beginning of 2017 PP8 with CRSA initiated special errand of 16.03.2017 of Vice-primer – Minister of Regional Development (who is responsible for Regional Policy, Transfrontier Cooperation & EUSDR coordination). On this ground the issue was already on 31.03.2017 appointed to be discussed on the level of both UA-RO Intergovernmental and Joint Presidents Commissions⁷⁴ and on 25.04.2017 Vice-primer sent above mentioned letter to his colleague – head of JMA in Romania with proposal to organize experts discussion of this issue..

But in spite of the decision of the UA-RO Intergovernmental Commission of 11.07.2017 to establish special WG on Regional Development & Transfrontier Cooperation - the absence of clear reaction from Romanian side (elucidated in context of Activity 4) don’t allows continue this work.

For the special aim obtaining, since Spring 2016 PP8 provided **experimental facilitation & interactive collaboration with some settlements and communities**, which is still continuing with ATCs of Mamaliga and of Mamevtsi-Luzhany. The general vision of this toolkit capability was demonstrated on the VI EUSDR Forum⁴⁹.

But absence of clear solution of such works status (e.g. – answering to mentioned above UA PPs requests of 14.07.2017⁷⁶ & of 25.07.2017⁷⁷) also makes it impossible to open these web-site and geo-server capacity for wide utilization, except only few stakeholders specialists working with this facility.

Therefore PP8’s **web-site with East Avert specialized pages**⁷⁵ still staying open for operation as “release version” more then 2 years, **reflecting all necessary information about project.**

Activity 6

Title of the activity: *Management and coordination*

On the interior level PP8 by the Order of 29.11.2013 established project team, which activity details were personified in appropriate separated orders, contracting documentation and job instructions. From this team only Specialist in PR technologies was not contracted by reason of her death in 2014. PP8 project team was

⁶⁸ <http://ecoresource.ddns.net/DocLib/Brochure%20CEI-Bukovina%202006.pdf>

⁶⁹ <http://www.europarl.europa.eu/document/activities/cont/201306/20130603ATT67192/20130603ATT67192EN.pdf>

⁷⁰ <http://ecoresource.ddns.net/DocLib/Safety%201996.pdf>

⁷¹ <http://ekopro.biz/04101901E.pdf>

⁷² <http://ecoresource.ddns.net/DocLib/WasteBarSEPSBrochure.pdf>

⁷³ <http://ecoresource.ddns.net/DocLib/Forms/DispForm.aspx?ID=13>

⁷⁴ <http://www.president.gov.ua/en/news/prezident-ukrayini-zustrivsva-z-prezidentom-rumuniyi-40654>

⁷⁵ <http://ecoresource.ddns.net:8080/map/index.html>

formally completed by the Order of 17.04.2014 included into the project team also the first deputy Head of Chernivtsi Regional State Administration for participation in projects events as a representative of East Avert beneficiary under Ukrainian legislation.

All **East Avert activities** (above mentioned in previous chapters) were **regularly discussed every week** (and also ad hoc) **on PP8 staff meetings &/or through Skype-conferences**. In spite of numerous **PP8 proposals, such practices for regular coordination interactions with LP & PP4**, as well as with other PPs wasn't established

On the project's level regular coordination meetings of UA PPs (mainly in PP6 office) took place till Autumn 2014, whereas **main PP8 working contacts** were further continued **with PP6 & PP7 subcontractors** .

On the supervision level PP8've established **operative contacts** both **with appropriate officers and head of JTS and its Chernivtsi branch** for current issues resolution.

Accordingly to the East Avert Procurement plan and the budget were concluded contracts with private entrepreneurs for transporting, translation and office maintenance services, as well as further contracts for Workstation and expert's services.

On the regional level **CRSA, as core final UA beneficiary**, made few attempts to improve **coordination** from UA side **in a way of special Expert group establishment** by errand of 02.10.2015 Nr 194-K & **Expert-monitoring group** – by Governor's Order of 13.03.2017 Nr 171-p, which elaborated recommendations for PPs, concerned target groups & key stakeholders. East Avert achievements & problems were elucidated & discussed in details on the meeting 09.06.2017⁷⁶, where participated all UA PPs & subcontractors, with Governor & key representatives of Expert-monitoring group. On 11.06.2017 to PP4 (and then to LP) were sent agreed proposals for necessary measures/works to finalize East Avert Activity 3 accordingly to Contract provisions. After Management Meeting in Iasi on 4-5 July 2017 on 09.07.2017 PP8 **sent to LP** proposal to precise draft minutes, accordingly to which **UA PPs signed & sent above mentioned common requests of 14.07.2017⁷⁶ & of 25.07.2017⁷⁷**.

Coordination of projects activities, as well as some East Avert management issues on the State & International levels were in details elucidated in previous chapters of this NR, e.g. concerning Activity 4 support.

To **provide better utilization of East Avert outcomes & further results**, scientific - since the UA meeting of PPPs & subcontractors⁷⁸, and practical, PP8 together with CRSA Departments of Housing & Environment initiated **development of Comprehensive Regional Program on counteraction to deleterious effect of waters & pollutions concerning floods for 2018-2021**, as well as CRSA issued above mentioned Order of 13.09.2017 Nr 773-p³⁹.

Name of the contact person for the Action: Zinoviy Broyde

Signature: Location: Chernivtsi

Date report due: March 22, 2018 Date report sent April 20, 2018



⁷⁶ http://ecoresource.ddns.net/SiteAssets/SitePages/Project_Providing/Request%20for%20clarification.pdf

⁷⁷ http://ecoresource.ddns.net/SiteAssets/SitePages/Project_Providing/Request%20for%20data%20to%20PP4.jpg

⁷⁸ http://ecoresource.ddns.net/SiteAssets/SitePages/Mapping_Planing/draft%20Minutes%20of%20meeting%20in%20Kiev%2008%2004%202015.doc