

Environment and Climate Regional Accession Network (ECRAN)

Report on Expert Training on Risk and Vulnerability Assessment and Adaptation Planning – Urban Planning and Development

23-24 February 2015, Podgorica

ENVIRONMENTAL AND CLIMA REGIONAL NETWORK FOR ACCESSION - ECRAN

WORKSHOP REPORT

Activity No 4.1B

EXPERT TRAINING ON RISK AND VULNERABILITY ASSESSMENT AND ADAPTATION PLANNING – URBAN PLANNING AND DEVELOPMENT

23-24 FEBRUARY 2015, PODGORICA, MONTENEGRO



This Project is funded by the European Union



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LIST OF ABREV	VIATIONS
DG	Directorate General
EC	European Commission
EIA	Environmental impact Assessment
EPI	Economic Policy Instrument
EU	European Union
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
ICLEI	International Council for Local Environmental Initiatives
ICZM	Integrated Coastal Zone Management
IPPC	Integrated Pollution Prevention and Control
IWRM	Integrated Water Resources Management
NAS	National Adaptation Strategy
SEE/CCFAP	South East European Climate Change Framework Plan
SEIA	Strategic Environmental Impact Assessment
SSP	Spatial Structure Plan for Flanders
U-AST	Urban Adaptation Support Tool
UHI	Urban Heat Island
UMZ	Urban Morphological Zones
UNFCCC	United Nation Framework Convention on Climate Change
WEI	Water Exploitation Index
WFD	Water Framework Directive





I. Background/Rationale

General

Today, all countries recognise the reality and the challenges caused by global warming and its effects. Two subsequent World Bank 'Turn Down the Heat' Reports confirm climate change as a fundamental threat to development.

Many countries are already affected by climate change including the Western Balkans and Turkey. These countries are considered to be highly vulnerable and expected to experience the effects of rising temperatures and disruption to their precipitation regimes, along with more extreme events, including droughts, floods, heat waves, windstorms and forest fires. Water availability and quality will be affected, energy supply disturbed, food production will come under pressure and food prices will rise while biodiversity will decline.

Not in the least climate change affects urban areas. Floods, water supply and waste water issues or wildfires disturb or destroy urban infrastructure and private property; affect energy supply and increasingly put the health of citizens at risk; affect social cohesion and call for intensive disaster risk management. Worldwide, climate change problems have started to impact severely on the lives of hundreds of millions of people in urban areas and on their economic, health and social situation.

This makes it a must to manoeuvre economic, environmental and social interests and costs to safe havens through adaptation measures. Adaptation in urban areas means anticipating the adverse effects of climate change and taking the appropriate action in order to prevent or minimise the damage that climate effects can cause, or taking advantage of opportunities that may arise. Identification of vulnerabilities and risks is at the forefront of adaptation action.

Climate Change vulnerability

There are different ways in which vulnerability and risk can be defined and analysed. Vulnerability is often defined as a function of the character, magnitude, and rate of climate variation and change to which a system is exposed, together with its sensitivity and adaptive capacity. Humans can increase their vulnerability by e.g. urbanisation of coastal flood plains, by canalisation of rivers, deforestation of hill slopes or by constructing buildings in risk-prone areas.

In the framework of the UNFCCC seven criteria are distinguished to identify key vulnerabilities:

- magnitude of impacts;
- timing of impacts;
- persistence and reversibility of impacts;
- likelihood (estimates of uncertainty) of impacts and vulnerabilities and confidence in those estimates;
- potential for adaptation;
- distributional aspects of impacts and vulnerabilities;
- importance of the system(s) at risk.





Key vulnerabilities are associated with many climate-sensitive systems, including food supply, infrastructure, health, water resources, coastal systems, ecosystems, global biogeochemical cycles, ice sheets and modes of oceanic and atmospheric circulation.

During the regional ECRAN Adapt Seminar in Skopje in July 2014, the ECRAN beneficiaries (Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Kosovo¹, Serbia, and Turkey) have identified the sectors in the Western Balkans and Turkey that are most vulnerable to climate change. Urban areas represent points where the effects of (cumulative) changes in most of these systems are felt.

Measures have been proposed for vulnerability mitigation. However, the key to adaptation to climate change is the integration of the issue of climate change in sectoral strategic, planning and programme documents both at national and regional levels as well as the local level. This includes the area of urban planning and development.

The EU's Adaptation Strategy provides a framework for a more climate-resilient Europe by enhancing the preparedness and capacity to respond to the impacts of climate change at local, regional, national and EU levels. The Strategy consists of three priorities: (1) Promoting action by Member States, (2) Better Informed Decision making and (3) Climate proofing EU Action?.

Mayors Adapt² (the Covenant of Mayors Initiative on Adaptation to Climate Change) informs, mobilises and supports local authorities to take action on adapting to climate impacts. Cities signing up to the initiative commit: 1) to contribute to a more climate-resilient Europe, 2) to develop local adaptation strategies within the first two years of signing, and 3) to review the outcomes on a biannual basis. By joining, local/regional authorities can benefit from the Mayors Adapt Helpdesk, from the Urban Adaptation technical Support Tool, from the exchange of best practices with other European cities as well as from information about funding opportunities. The initiative was launched in March 2014 and more than 100 European cities or provinces have already committed. The initiative is also open to local authorities from EU candidate countries (and it should soon be open to all Western Balkans countries).

Proper information about climate vulnerabilities is an important starting point for any form of adaptation action. Detailed understanding of vulnerable areas brings focus to the adaptation priorities and the tools to be used.

ECRAN Support

Within its Climate Component, ECRAN will promote 'climate-proofing' action by further encouraging adaptation in key vulnerable sectors ensuring that the infrastructure is made more resilient, and will support better informed decision-making by addressing gaps in knowledge about adaptation. ECRAN will address adaptation action by optimizing the coordination of adaptation activities with the European Climate Adaptation Platform (Climate-ADAPT) as the 'one-stop shop' for adaptation information in Europe.

In October 2014 the ECRAN Environment Ministers have been requested by the European Commission to nominate NATIONAL ECRAN ADAPTATION TEAMS which, with the assistance of EU Member States experts, will work together on the following:

² <u>http://mayors-adapt.eu</u>





¹ This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence

- Climate Adapt tool Prioritisation of Adaptation Needs
- Identification of Adaptation Options
- Prioritisation of Adaptation Options
- Policy and Legal Changes



Training and Workshops' Programme outline

General considerations

The ECRAN Adaptation Programme includes a series of workshops that will guide the National ECRAN Adaptation Teams through the different stages towards developing national climate adaptation policies and legislation (Activity 4.2). This will be combined with regional technical training sessions that support Beneficiary Countries' experts from selected technical areas to contribute to carrying out risk and vulnerability assessments and adaptation planning (Activity 4.1.b).

The programme envisages three regional technical training workshops, with each to last for up to two days. The three priority fields that have been selected by the beneficiary countries for the training are:

- Water Management;
- Urban Planning and Development;
- Energy.

Each of these fields relates to a large variety of other (non-)selected fields, calling for strong cooperation among stakeholders in general and public administration sectors more in particular. The overall theme for the training inevitably includes aspects of cooperation and collaboration, mainstreaming and inter linkages. These are aspects that are a key to successful (adaptation) responses to climate vulnerabilities in each of the selected (and other) fields. In this context there is a



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link with disaster risk management, as disaster risk reduction and climate change mitigation and adaptation share common goals. Both fields aim to reduce the vulnerability of communities and achieve sustainable development. The training will incorporate options for reducing disaster risks related to climate change.

The programme outline is as follows:

Step A	Climate Adapt Tool - Prioritisation of adaptation needs (Act. 4.2)	24-25 November 2014				
Technical experts that will contribute to the step-by-step process carried out by the NATIONAL ECRAN ADAPTATION TEAMS receive <u>specific technical training</u> after Step A. This will enhance Beneficiary Countries' adaptation skills securing a harmonised approach among all participants in the National Teams and thus contribute to adaptation practice coherence and effectiveness.						
3 regiona	I targeted technical training programmes on vulnerability	19-20 January 2015				
assessment	t and adaptation planning (Water Management, Urban Planning	23-24 February 2015				
una Deverc	pment, und Energy) are provided (Act. 4.1.6)	16-17 April 2015				
Step B	Report back workshop + Identification of adaptation options (Act. 4.2)	28-29 May 2015				
Step C	Report back workshop + Prioritisation of adaptation options (Act. 4.2)	15-16 October 2015				
Step D	Report back workshop + Introduction of Policy and legal changes (Act. 4.2)	14-15 January 2016				
Seminar	Final Report (Act. 4.2) at Regional Adaptation Seminar	28-29 July 2016				

As shown in the outline the National ECRAN Adaptation Teams' workshops and development actions will be supported through the regional targeted technical training on vulnerability assessment and adaptation planning for selected categories of technical experts (January to April 2015). The second of these three training sessions, on Urban Planning and Development, was held in Podgorica (Montenegro) on 23 and 24 February 2015.

ECRAN will assist the Beneficiary Countries in further enhancing their knowledge and understanding of their climate vulnerabilities and thus prepare them to take better adaptation actions³. The training will also draw on the EU Guidelines for National Adaptation Strategies and strengthen regional climate adaptation networking. The outline of the regional trainings is basically identical for all three training sessions. However, the technical area to be addressed differs per training.

National ECRAN Adaptation Teams Workshops (Sub-Task 4.2)

As indicated above the National ECRAN Adaptation Teams will, supported by EU Member States experts, carry out their activities in 4 steps (activity 4.2). These will be addressed in 4 consecutive workshops. The teams consist of representatives of public administration sectors that are relevant for

³ ECRAN Climate Work Programme, Activity 4.1.b



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climate change adaptation. Their composition differs per country depending on the most important adaptation aspects and current possibilities to mobilise sectors.

Workshops in the framework of activity 4.2 accommodate up to 10 National Team members per country. The workshops programme builds on the Climate Adapt Tool to establish a common framework among climate adaptation practitioners in the region and will allow sufficient space until the next workshop for the teams to carry out the national policy development activities that are required in each phase of the process, while inter alia supported by country experts that attended the technical training programme.

The three regional technical training workshops (activity 4.1.b) that are delivered in period of January to March 2015 will provide knowledge and skills that feed into the policy development process as of the first phase of the policy development process.

Regional Technical Training programme in more detail (Sub-Task 4.1b)

Each of the Beneficiary Countries will be invited to delegate some 5 to 7 relevant staff members to each of the three trainings. Per workshop an overall number of 35 to 55 people may attend. Selection of participants with a reasonable level of working knowledge of the English language is advised to enhance training effectiveness and sustainability. Lack of English language skills of a participant is expected to limit the benefit that his/her country can draw from this training.

This January 2015 workshop is meant for staff coming from the urban planning and development sector. At least 60% of the training participants that are delegated by the beneficiary countries should be full-time employed in this sector.

Using the Climate Adapt Tool, as well as other available tools, the participants were guided through the framework and process of assessing climate-related risks and vulnerabilities in their own technical areas. They learned to understand and assess current and future hazards, identify sources of climate data and information, assess risks and impacts and assess a selection of societal components of risk and vulnerability.

In break-out sessions participants with proficiency in the English language learned to use online climate information and adaption support tools.

The Adaptation Planning part of the training covered a general introduction to this area. More detailed adaptation planning training activities will be carried out under Activity 4.2 of the Programme.





II. Objectives of the training

General objectives

To promote climate adaptation action in the Western Balkan countries and Turkey.

Specific objectives

To enhance the understanding about climate adaptation action in the urban planning and development sector among a core of Beneficiary countries' representatives, supporting the creation of national climate adaptation policies and planning as a basis for action.

Results/outputs

The expected results were:

- 1. Strengthened awareness and understanding of climate change adaptation needs and options among urban planning and development experts from Western Balkan countries and Turkey;
- 2. Improved understanding of applicability of tools (including the Climate Adapt Tool⁴) for risk and vulnerability assessment in the urban planning and development sector;
- 3. Foundation for improved cooperation and coordination among authorities in Western Balkan countries and Turkey in the area of climate adaptation action established;
- 4. Awareness of the need to speed up and enhance climate adaptation action planning in the Western Balkan countries and Turkey.

⁴ <u>http://climate-adapt.eea.europa.eu/</u>





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III. EU policy and legislation covered by the training

EU Adaptation Strategy

Extreme weather events like heavy rainfall, hail, violent storms and heat-waves are increasing in frequency and sea levels continue to rise – the effects of global warming and climate change are undeniable. Urban systems are highly vulnerable to these threats. Climate impacts vary significantly from region to region, and can fluctuate within definite geographical areas. Adaptation and resilience management is therefore required both on a regional and local scale to move towards resilient communities.

European Commission adopted an EU strategy in April 2013 on adaptation to climate change which has been welcomed by the EU Member States. The strategy aims to make Europe more climateresilient by taking a coherent approach and providing for improved coordination, enhancing the preparedness and capacity of all governance levels to respond to the impacts of climate change.

The EU Adaptation Strategy focuses on three key objectives:

- Promoting action by Member States: The Commission will encourage all Member States to adopt comprehensive adaptation strategies (currently 20 have strategies) and will provide funding to help them build up their adaptation capacities and take action. It will also support adaptation in cities through the Mayors Adapt initiative, a voluntary commitment within the framework of the Covenant of Mayors.
- 'Climate-proofing' action at EU level by further promoting adaptation in key vulnerable sectors such as agriculture, fisheries and cohesion policy, ensuring that Europe's infrastructure is made more resilient, and promoting the use of insurance against natural and man-made disasters.
- Better informed decision-making by addressing gaps in knowledge about adaptation and further developing the European climate adaptation platform (Climate-ADAPT) as the 'one-stop shop' for adaptation information in Europe.

EU adaptation actions include mainstreaming of climate change (mitigation and adaptation) into EU sector policies and funds, including marine and inland water issues, forestry, agriculture, biodiversity, infrastructure and buildings, but also migration and social issues.







IV. Highlights from the training workshop

Reference is made to Annex I for the agenda, and Annex III for the presentations. Hereunder an outline summary is presented of the presentations.

Day 1 – Podgorica, 23 February 2015

EU Adaptation Strategy and Role of ECRAN - Rob Bakx

- The workshop started with several examples of floods in the Balkans in the last five years. The city of Shkoder in Albania was completely flooded in 2010; a town of Sveti Nikole in the Former Yugoslav Republic of Macedonia in 2013 and a disastrous flood that occurred in Bosnia and Herzegovina, Croatia, and Serbia. May 2014 was the warmest month ever recorded, with 15.54 °C, which is 0.74 °C above the average mean of 20th Century.
- It is not necessary only to apply mitigation action in this case, but also to have a proper adaptation action that will implement and maintain the mitigation actions. Mitigation and adaptation are both necessary and complementary. For example, 1 euro invested in flood protection, saves up to 6 euros of damage costs. So far, 17 EU MS have adopted national Adaptation Strategies, several countries have developed Action Plans and vulnerability assessment, while the monitoring and evaluation is at starting point.
- The overall objective is to contribute to more climate-resilient Europe, having three priority issues that need to be developed:
 - Priority 1: Promoting Action by Member states:
 - Action 1: Encourage MS to adopt Adaptation Strategies and Action Plans Guideline needs to be provided on adaptation strategies, as well as adaptation preparedness scoreboard;
 - Action 2: LIFE funding, including adaptation priority areas It is important to develop cross-border floods and coastal management, urban environment, mountain and island areas, as well as drought-prone areas;
 - Action 3: Promoting action by cities along the Covenant of Mayor initiative The objective is to support local authorities in taking coherent action on both mitigation and adaptation as part of integrated approach.
 - Priority 2: Better informed decision-making:
 - Action 4: Knowledge-gap strategy It is important to identify and prioritise knowledge gaps and provide better policy interfaces. This can be included into Horizon 2020 program.
 - Action 5: Climate ADAPT Development of interfaces with other databases and climate services and inclusion of Copernicus climate services.
 - Priority 5: Climate proofing EU Action:
 - Action 6: Climate proofing the Common Agricultural Policy, Cohesion Policy, and the Common Fisheries Policy – Provision of guidance and capacity building.





- Action 7: Making infrastructure more resilient Mapping standards through CEN/CENELEC/ETSI and project development.
- Action 8: Promote products and services by insurance and finance markets Promotion of green paper insurance of disasters and stakeholders dialogue.
- The Environment and Climate Regional Accession Network (ECRAN) Climate Working Group was introduced. The kick-off was in October 2013, and presents a follow –up of the so-called RENA project, building Climate issues on RENA Climate results achieved. Active engagement of public sector expertise is organised through TAIEX for eight beneficiary countries. ECRAN Climate has four sub-groups:
 - Working Group 1: Climate Policy;
 - Working Group 2: GHG Inventories and MMR;
 - Working Group 3: Emission Trading System (ETS);
 - Working Group 4: Adaptation.
- The ECRAN activities in the period from 2013 to 2016 will focus more on information sharing through practical work. It is necessary to ensure that capacity is built truly at the beneficiaries, as well as to increase involvement from other sectors with direct relevance to climate work. Regarding Adaptation policies, the EU strategy on Adaptation to Climate Change was adopted in April 2013. Emphasis was put on adaptation options that are low cost, good for the economy and for climate resilience. All these considerations are transposed into ECRAN work plan for adaptation. The ECRAN Adaptation Seminar was held in Skopje in July 2014, and certain conclusion regarding further steps were brought, such as the need to develop public awareness, enhancing public administrations' knowledge and the need for enhanced cooperation and coordination with EU Member States and between ECRAN beneficiaries.

<u> The Climate Adapt Tool – Markus Leitner</u>

This presentation covered four topics:

- EU-Adapt Strategy Package EU Guidance for developing adaptation strategies and Mayors adapt
- Climate-Adapt, Adaptation support tool and the urban context
- FAMOUS experience
- Adaptation cases from Austrian cities
- EU Adaptation Strategy Package is providing a guideline on developing adaptation strategies, and can be found on the website of the European Commission (EC), and it was briefly presented, with all website features and opportunities. The Adaptation Support Tool was launched in March 2012, and it is aligned with EU Adaptation Strategy's Guidelines on developing adaptation strategies, and it has additional information on the use of the tool. The tool supports governmental decision makers to develop and/or implement climate change adaptation strategies, policies and actions.
 - A new EU initiative was launched in March 2014, "Mayors Adapt", supporting European cities in developing and implementing adaptation strategies. This framework provides direct



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support to cities and is also linked to LIFE funding, mostly focused on urban adaptation and urban adaptation strategies. In order to enhance city information, the first step is to include city adaptation strategies and actions, and then to develop new features such as searchable city profiles, city technical guidance, addition of case studies and a reporting form to the Mayors Adapt Initiative.

- The available handbook for provinces, regions and cities is Methods and Tools for Adaptation to Climate Change, made by the Environmental Agency of Austria. Austria's National Adaptation Strategy (NAS) and Action Plan was adopted in 2012. It includes recommendations for adaptation at provincial, regional and local level. However, the problem that occurs here is that most provinces, regions and cities have not started with the adaptation process yet. Thus, the objective is to facilitate the adaptation process to climate change in Austrian provinces, regions and cities.
- The Handbook is based on a synthesis of existing guidelines for adaptation to climate change. Over 30 manuals and guides were analysed and evaluated with regard to their transferability to the conditions in Austria. The second essential step in the development of the Handbook involved collaboration with actors from the target group. The handbook on adaptation consists of three toolkits/phases that address the steps of the policy cycle:
 - Creating a foundation for Adaptation supporting the agenda of setting the stage of policy making;
 - Identifying risks and finding solutions prioritisation of main impacts, selection of adaptation options, mainstreaming, etc.;
 - Implementing and monitoring actions support in monitoring/evaluation.
- This workshop is about Urban Climate Change Adaptation, but what is Urban Climate? For example, in Austria, residential areas cover more than one thirds of the country's territory, and two thirds of the population is concentrated in cities. So, the generally accepted definition is that "Urban Climate" are the changes in climate and air quality in urban city centres caused by human activities. These changes arise from various influences of construction, soil sealing, transportation, waste, heat and emissions. Concrete outcomes of these influences are highly dependent on the type and degree of building development, urban structure, and interaction between urbanised areas and the surrounding environment.
- Based on experience of the Austrian research project FAMOUS (Factory for Adaptation Measures Operated by Users at different Scales), a Handbook on Methods and Tools for Adaptation to Climate Change - PROVINCES, REGIONS AND CITIES⁵ was developed. The following items must be "checked-off" in order to lay down the foundations for adaptation process, as part of phase I, creating a foundation for adaptation:
 - Political commitment to adaptation;
 - Established Adaptation Core Team, and that there is accountability for coordination within the administration;
 - Ongoing awareness raising campaign;

⁵ http://www.klimawandelanpassung.at/fileadmin/inhalte/kwa/pdfs/HANDBUCH_EN.pdf





- Relevant actors in the administration are regularly involved in the process;
- Additional stakeholders are involved in the process.
- Phase II Identifying risks and finding solutions must satisfy the following conditions in order to be sure that the most important challenges arising from climate change have been identified and that appropriate solutions are available:
 - Past and present weather and climate related events in the planning have been completed and documented;
 - Identified future events of climate change;
 - o Identified and specified adaptation measures in details;
 - Having existing instruments in which adaptation measures can be integrated;
 - Developed new instruments for adaptation;
 - Have a Strategy and an Action plan;
 - Politically approved the Strategy and the Action plan.
- Implementing and monitoring actions (phase III) has been initiated when completing the following activities:
 - Initiated steps towards the implementation of the Strategy and the Action plan;
 - o Determined timelines for achieving implementation goals;
 - Clearly defined objectives of monitoring and evaluation;
 - Determined an updating Schedule for the Strategy and the Action plan;
 - Active communication to the general public regarding issues of climate change and adaptation.
- Steps in the adaptation process have been described in detail with the division of five intensity steps. This tool can also be used to evaluate the current state of adaptation in specific sector. The steps are shown on the following picture:







Intensity step	Climate change impacts	Research	Adaptation measures
Step 1	Current and future climate change- related impacts are not yet being systematically assessed	No usable research findings on the impacts of climate change or adaptation needs are available	No measures have been identified
Step 2	Current and future climate change- related impacts are being systematically assessed in individual sectors/for a few regions	First usable research findings on the impacts of climate change and adaptation needs are available	Isolated measures have been identified, or certain existing measures relevant to adaptation have been partially integrated into sector- or region-specific strategies/action plans
Step 3	Current and future climate change-related impacts are being systematically assessed in all essential sectors and for the planning area	Relevant research findings on the impacts of climate change and adaptation needs are available	Potential measures have been identified, described in detail, and integrated into overall strategies/action plans
Step 4	The greatest current and future challenges of climate change and additional stress factors are being systematically assessed (by sector, but also cross-sectorally, based on the planning area)	Further targeted research has been commissioned on open questions	Measures have been identified and documented in strategies and action plans, and some are in the implementation process
Step 5	The greatest current and future challenges of climate change and additional stress factors are being systematically assessed (by sector, but also cross-sectorally, based on the planning area) and are reviewed and updated on an ongoing basis	Further targeted research has been commissioned on open questions, and the results are being integrated into strategies and action plans on an ongoing basis	Measures listed in strategies and action plans have largely been implemented and are regularly monitored with regard to their effectiveness or adapted to address changing challenges

Based on:

Ministry of Agriculture and Forestry Finland, 2009

• A good example was presented of the City of Graz, in Austria. City authorities have put a lot of effort in the urban climate adaptation process, especially with regards to the green areas. The city constructed a whole green network. Every available area was used for greening.

<u>Mayor's Adapt – Linda Romanovska</u>

- The EU Adaptation Strategy was adopted in April 2013, and it sets a framework for strengthening EU's preparedness for current and future impacts. It sets three major priorities:
 - Priority 1: Promoting action by Member States
 - Priority 2: Better informed decision-making;
 - Priority 3: Promoting action in key vulnerable sectors.



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- However, adaptation is possible only with the participation of local authorities, since local authorities are vulnerable to the various impacts of climate change in all socio-economic situations and geographical locations. The magnitude of extreme weather events has a high impact on population, infrastructure and possible cascade failures. Thus, local authorities are key drivers in the implementation of adaptation actions, improving the overall resilience of local territories.
- Mayors Adapt is a first pan-European initiative to support cities in leading the way on adaptation to climate change. It was launched in March 2014 and it currently has 95 full signatories and 27 cities in pre-signatory stage. Key objectives of the initiative are:
 - to inspire cities, regions and local governments to show leadership on climate change adaptation;
 - o to support them in developing strategies for concrete action;
 - to translate and accelerate action on adaptation to improve local resilience to climate impacts.
- Mayor Adapt is also linked to other EU climate initiatives. It follows the model of the Covenant
 of Mayors initiative, as a parallel exercise for adaptation. The objective is to support local
 authorities in taking coherent action on both mitigation and adaptation, promoting in such
 way an integrated approach. Mayors Adapt is also linked to Climate Adapt tool which serves
 as a supporting tool to the initiative. Other linked initiatives include EU Urban Agenda, EU
 Research Programme, LIFE funds, EIB financing, Global Initiatives, etc.
- What mayor Adapt offers to its signatories are:
 - Practical support offered by a dedicated Helpdesk for operational questions (in the English language currently, to be expanded to other languages in 2015)
 - Knowledge support via Urban Adaptation Support Tool hosted on Climate-ADAPT web-based guidance and knowledge database
 - Information on available funding and financing sources, via Urban Adaptation Support Tool and quick reference guide on funding (upcoming)
 - Possibilities of networking and peer-to-peer learning through workshops and twinning events, best practice database and city profiles
 - Visibility and communication on cities' commitment to adaptation via personalised profiles on the Mayors Adapt website, press and media communication materials provided by Mayors Adapt: flyers, presentations, banners, press release texts, etc.
- Joining Mayor Adapt is voluntary, but by joining, the authorities are obliged with certain commitments. Local authorities commit to translate EU Adaptation Strategy into concrete and effective local adaptation, by either developing a comprehensive local adaptation strategy, or integrating adaptation to climate change into relevant existing plans. Applicants from EU candidate or EU potential candidate countries will be evaluated on a case-by-case basis and will require an approval from the EC. Mayor Adapt joining procedure for EU countries however, consist of three steps:
 - Present and discuss the commitment document provided by the initiative in their municipal council (or equivalent decision-making body);
 - Complete and sign the commitment document;
 - Send the signed commitment to Mayors Adapt.



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Potential Vulnerabilities in the Area of Urban Planning and Development – Rob Swart

- According to the International Council for Local Environmental Initiatives (ICLEI), an international association of local governments and national and regional local government organisations with a commitment to sustainable development, cities in Europe is "where a good quality of life is expected and can be offered". Around 75% of Europe's population live in cities. There are more than 1,600 urban areas with more than 50,000 inhabitants.
- Mitigation and adaptation connection was graphically shown, as on the picture below, and described in details:



The key concepts in this relationship present four issues in the middle: exposure, sensitivity, coping capacity and adaptive capacity. It is also important to remember that terminology between climate adaptation and disaster risk management may differ. For example, in risk-hazardous case studies we can find "a set of earthquake intensity scenarios", while in climate change case studies this would be defined as "a set of global-change scenarios".

Climatic exposures such as heat, floods, water scarcity/droughts, are consequences of susceptibility of the population, economic assets and external services, as well as biodiversity and water bodies. Response capacity in this case depends on the institutional capacity, area green infrastructure and financial resources, but also on education, which is a crucial instrument for future generations to completely implement climate adaptation strategies. There are large regional differences in climate change exposure across Europe. The annual mean temperature in the whole of Europe is increasing, where South-central Europe and the Mediterranean areas are expected to have the highest increase. But also, in the Mediterranean area a decrease in annual mean number of days with rainfall has been recorded, while the same number of days has increased in Northern Europe. It is a similar situation in Western Balkans, the temperature is increasing, water resources are decreasing, but regarding greenhouse gas (GHG) emissions and precipitation, the numbers vary within the region, as shown in below picture:



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	ALBANIA'	BOSNIA AND HERZEGOVINA	CROATIA	THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA	MONTENEGRO	SERBIA
Air temperature change (last half century)	1	† *	1	1	1	1
Precipitation change (last half century)		+		.	\leftrightarrow	\leftrightarrow
Extreme weather events and climate-related hazards (1990–2009)	1	1	. 🔻	1	1	1
Water resources availability in the future (forecast period until 2100)		.	.			+
Health infectious and vector-borne diseases ^e	1	1	1	1	1	1
Greenhouse gas emissions (in CO ₂ eq) for period observed		n.a.'	. 💌			+
Policy instruments, actions and awareness	1	- P * -	1	1	1	1
Climate observation and weather services (1990-2009)			1			1
increase, enhancement decrease, reduction	mostly increasing,	improving varia	ible			

• The average temperature is rising in Europe, and first one to feel it are urban cities. The number of tropical nights per year up to 1990 in the Western Balkans was somewhere between 6 and 22, but it is predicted that by 2050, it will be between 10 and 38. The urban heat island effect was briefly explained and the example of Budapest was shown. An Urban Heat Island (UHI) is an effect where the metropolitan area in a city is significantly warmer than its surrounding areas due to human activity.



Surface temperature of Budapest, 1 August 2005, 9:30 CET Temperature (°C) ≤ 15 16 19 22 25 28 31 34 35 36 37 40 43 ≥ 45





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- Due to a change in precipitation and soil sealing, the risk of urban flooding is increased, where impervious surfaces reduce the drainage of rain water. The mean percentage of soil sealing inside the Urban Morphological Zones (UMZ) in cities in EU is between 50% and 74%. An example was shown from 2011 in Copenhagen, where 150 mm of rain fell within a couple of hours causing major floods in the city. On the other hand, if rivers rise for only 1 meter in Europe, half of the cities on the river banks would be flooded with more than 40%.
- One of the indicators of climate change impacts is water stress, that serves as an indicator in the Water Exploitation Index (WEI) for the annual average on river basin level for the:
 - Baseline scenario;
 - "Economy comes first" 2050 scenario.
- Some cities such as Athens, Istanbul and Paris transport their water more than 200 kilometres, in order to have available water resources.
- When we consider the global impact on climate change, the most vulnerable people are the elderly. In the majority of EU countries, the proportion of the aged population older than 65 is between 14% and 20%. Even in the Balkans, the population is not growing. So far, mortality has been higher than natality in most of the Balkan countries. But this issue is important due to the city specific temperature threshold, an index of describing the relative discomfort due to combined heat and high humidity. An increase in mortality rate is reported when temperatures pass this threshold, mostly of senior citizens.
- However, awareness, ability, action and willingness to adopt are keys for coping and adaptive capacity. Awareness includes knowledge and equity, ability includes access to technology and infrastructure, while action is determined by economy, resources and institutions.

How to Identify Climate Vulnerabilities in the Urban Planning and Development Sector – Jan Rasmussen

- The Presentation started with several facts regarding the City of Copenhagen. The city itself has around 540,000 inhabitants, while the metropolitan area has approximately 1.5 million. Climate change consequences will contribute to more rain and sea level rise, which presents a high uncertainty in itself. There are several different scenarios of managing the impacts, but as presented, they will only mater in 50 years since until then, all the scenarios follows more or less the same path.
- Copenhagen has a Climate Adaptation Plan 2025 that was approved in 2011, after the devastating floods that occurred in 2010 and 2011. Also, in 2012, the City of Copenhagen adopted the Cloudburst Plan that will involve both existing and new infrastructure. It includes the construction of large tunnels, canals and green ditches to ensure Copenhagen against flooding from torrential rain in the next 100 years.
- There is a new process for municipal planning that includes the Municipal Climate Adaptation Plan. The interrelation framework was schematically presented and described, as on the following scheme:









- The urban heat island effect is one of the challenges of the City of Copenhagen. During the summer, the temperature of the surface area in the city can vary up to 20 degrees. However, the main challenge includes floods, both from heavy rain and from the sea. Thus, there is a risk map available, for both scenarios, and risk is calculated as probability times cost. Since the major floods in the city in 2011 and 2014, the risk map has been made, for flooding caused by both rain and sea to year 2110. From their experience, in order to make a change, it is important to implement four tasks:
 - Provide high political attention, both national and local;
 - Provide fast implementation;
 - Make a long-term Management Plan and a Cloudburst Management plan for 100 years;
 - Make changes in the legislation and determine new finance mechanisms to enable surface solutions.
- New infrastructure has been planned, according to the detailed analysis of watersheds in the city. The analysis includes:
 - Topography;
 - Build up structure in the city;
 - Where does the water run;
 - Problem areas;
 - o Amount of combining extreme rainfall with disconnecting measures;
 - Possible solutions including connection with blue and green structure.
- The Cloudburst Management Plan includes more than 300 projects with an estimated 20 years of construction. The plan covers the entire area of the city. Some of the measures were presented to the participants, such as Sankt Joergen's Lake, where the green area next to it serves as a cloudburst park during heavy rainfall.
- The main goal is to have green and blue city adapted to future climate change which can, in this way, provide more quality of life for the citizens of Copenhagen. Recreational areas can be increased making the inhabitants healthier. Adaptation will also influence the way of utilisation and planning of urban spaces. It is important to make sure that in the future water can be controlled and managed during the development of the city.



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Exercise on Identification of Vulnerabilities in the Urban Planning and Development Sector

- The aim of the workshop was to identify vulnerabilities and potential climate threats regarding urban planning and development in the participants' countries. Participants were divided into four groups in order to brainstorm vulnerabilities in 1-5 sequence of importance. The groups were created out of participants from two countries as follows:
 - Albania and Croatia;
 - Montenegro and Serbia;
 - Kosovo and Turkey;
 - Bosnia and Herzegovina and former Yugoslav Republic of Macedonia.

Albania and Croatia

- This group had first identified the sources of information relevant for adaptation. The sources come from:
 - Ministry of Environment (Albania), Ministry of Environment and Nature protection (Croatia);
 - Ministry of Urban Development(Albania), Ministry of Maritime Affairs, Transport and Infrastructure (Croatia);
 - Ministry of Energy and Industry (Albania), Ministry of Economy (Croatia);
 - Ministry of Agriculture, Rural Development and Water Management (Albania), Ministry of Agriculture (Croatia);
 - o Municipalities;
 - \circ Donors;
 - NGOs;
 - National Databases;
 - o EU Databases.
- Key vulnerability areas for urban planning adaptation on a scale from 1 to 5 was as following:
 - 1. Critical infrastructure and flooding, Sea level rise, high precipitation and snow melting;
 - 2. Extreme weather events, such as thunderstorms and droughts;
 - 3. Heat islands and heat waves;
 - 4. Air quality;
 - 5. Eco compatibility.

Bosnia and Herzegovina and former Yugoslav Republic of Macedonia

- In these countries, relevant data can be obtained from:
 - Hydro-meteorological Institutes climate data, weather announcements, warnings, seismology data;
 - Directorate for Protection and Rescue and Crisis Situation Management Centre (Macedonia);
 - Civilian Protection available resources and analysis;
 - Water Management Agencies;
 - Statistical Institutes;



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- Geodetic/survey data;
- Public Healthcare Institutes;
- o Government and Public Administration authorities;
- Local and Regional Governments;
- Public Traffic Management Authorities.
- Key vulnerability areas in both of this countries were determined:
 - Informal settlements and illegal construction (mostly present in the flood endangered areas);
 - Problems with river basins casualties, destroyed infrastructure, etc.;
 - Droughts and fires especially in agricultural areas;
 - Green areas jeopardised habitats;
 - Chain of responsibilities in implementation of measures (Bosnia and Herzegovina), including education and public awareness in both countries.

Montenegro and Serbia

- There are not many differences between Serbia and Montenegro regarding information sources and public administration. This information can be obtained in the Ministries, municipalities, public companies and other stakeholders, and the important data include:
 - Statistical data;
 - Public health data;
 - Hydro-meteorological data;
 - Environmental quality data, including greenery data;
 - Protection services, at both local and state level water supply and sewage data, information obtained from Red Cross, data regarding earthquakes.
- In 2014, Serbia has faced one of the extreme impacts of climate change, devastating floods, so in the spring and autumn periods, there is a high risk of flooding. But Montenegro also has a high potential of flood risk, both from rain and snow melting and also sea level rise. Apart from flooding, the group has identified four more vulnerabilities: heat waves, droughts, storms and forest fires.

Kosovo^{*} and Turkey

- Turkey has five different climate zones and spreads on almost 800,000 km², thus it is important to emphasize that any national strategy or action plan is very extensive. However, the country has put a lot of effort to develop these strategies with obtaining the information from various local, regional and state authorities, and some of those include:
 - Climate Change National Communication Plan;
 - National Climate Change Adaptation;
 - National Climate Change Action Plan;
 - Disaster Risk Management on Climate Change;
 - Action Plan on Droughts;

^{*} This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.





- Land Development Plans, by municipalities;
- Spatial Strategy Plans.
- Even though that Turkey lies between three seas, water presents major vulnerability in the country. During droughts periods, pipelines in Turkey pump the water up to 500 km far in order to provide certain cities with drinking water. As for Kosovo*, water scarcity and drought are also one of the main problem. This is the reason why Kosovo* is drafting a Drought Strategy on Climate Change together with Urban Development Plans and Municipal Development Plans.
- Data on climate change and adaptation in these two countries is obtained from various sources:
 - Ministry of Internal Affairs (Department for Emergency in Kosovo), Ministry of Interior (Turkey);
 - Ministry of Environment and Spatial Planning (Kosovo), Ministry of Environment and City Planning (Turkey);
 - Ministry of Local Administration;
 - Ministry of Health;
 - Municipalities.

Spatial Planning Processes as a Tool to increase Resiliency – Kaat Smets

- The Spatial Policy Plan challenges were presented, with a focus on the Flanders region. The green paper was presented called "Flanders in 2050: Human scale in a metropolis". The region has a different structure than other regions in that part of Europe. There are many urban cores with fragments of open space in between. It is difficult to make a clear distinction between towns and countryside at this scale. Flanders has the assets of a metropolis, without having lost its human character. Thanks to its relatively small towns, Flanders is a vibrant, varied region where open space is never far away. However, by 2050, the population in the region is expected to grow from six to seven million people. Thus, due to that nebulous structure, they occupy a lot of space at a relatively low density. Around a quarter of the total area of Flanders is taken up by buildings or paved surfaces and gardens, which is more than in surrounding regions. According to forecasts, if no action is taken this area could expand to a third or even half of the available space by 2050. As a result, the open space will come under ever greater pressure. That represents a unique challenge for Flanders. This strain on the available space must be addressed prudently. The region is challenged with changing patterns of precipitation, flooding, water shortage, sea level rise and more storms and droughts.
- The authorities of the region have been working on The Spatial Policy Plan, which builds upon the robust lines of the Spatial Structure Plan for Flanders (SSP). Just like the SSP, the Spatial Policy Plan formulates a vision and, just like the SSP, it examines how the vision is to be implemented. So, the Spatial Policy Plan replaces the SSP, and that is how they ensure continuity in the policy. Three new aspects have been introduced:
 - \circ $\;$ Adapted vision to the new or changed challenges;
 - Make a more explicit distinction between vision, strategy and action programme;



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- Implementation of the vision will demand improved cooperation between levels of government and with partners.
- In the last 40 years, degree of urbanisation has risen drastically, leaving less and less available space. The Spatial Policy Plan 2050 is proposing smart transformation of space, from untruly to resilient space by:
 - Restricting sealed surface;
 - doing more with less space;
 - use the available space more efficiently;
 - Developing a robust open space;
 - combat fragmentation;
 - limit the risk of flooding;
 - Establish a green-blue network;
 - Implementation of European Commission "Green Infrastructure"-strategy.
- Within the Spatial Policy Plan, an action programme for a more resilient space will be elaborated. This action programme contains actions at two scales: a regional scale and a more local scale. On a regional scale, the focus lays mainly on the larger river systems like the Schelde and the Maas. In order to protect the Schelde basin against floods caused by the North Sea, the Flemish government has drawn up a large scale flood protection plan in close consultation with all economic sectors and stakeholders in the region. Whilst the primary objective is flood protection the plan also deliberately sets out to meet other policy objectives, including those of agriculture, sustainable water management, nature conservation and recreation. The same approach is applied in the Maas River Parc project.
- An example of a project at regional level was presented, which is the development of a series of controlled flood zones along the Dijle-river, as a part of the Sigma project. An integrated spatial plan was developed where the flood protection function is combined with agricultural zones with a low flooding frequency, water recreation and nature development. At a more local scale, on city level, planning green and blue structures is becoming an essential part in urban development.
- The so called urban heat island effect is also present in this region. Some cities that suffer from this effect are developing a well-planned 'green' network within in the city. The plan contains the development of large green areas and parks at the edge of the city and a network of smaller parks and green public space in the centre of the city. The green-blue network delivers ecosystem services like clean air, temperature control and mitigates the local heat island effect.
- The Spatial Policy Plan also includes an action programme for resilient space, that encourages:
 - Act already where possible:
 - Raising awareness;
 - No-regret measures in existing projects;
 - Climate adaptation needs an integrated approach:
 - Strategy & action plans at different levels;
 - Link to budget;
 - Stimulate stakeholders to take action:
 - Pilot projects;



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Building legislation.

Urban Adaptation Support Tool (U-AST) – Linda Romanovska

- A more detailed introduction to Urban Adaptation Support Tool was presented. The Urban Adaptation Support Tool has been developed as part of the Mayors Adapt initiative of the European Commission. This meta-tool incorporates existing practical guidance and knowledge support to signatory cities, as well as to any other interested cities, towns or stakeholders. It supports urban adaptation decision-makers, practitioners and interested stakeholders with a quick-start step-by-step guidance through the adaptation planning and implementation cycles. It also facilitates easy access to in-depth, expert information and data by providing a comprehensive up-to-date database of literature and information sources for each step of the urban adaptation cycle. It is the official knowledge support tool of Mayors Adapt.
- U-AST is a web-based platform with comprehensive knowledge database with guidance through various information. It is regularly updated and hosted on the Climate-ADAPT platform. This tool is available for all users, both MS and non-MS. Although the tool is not a mandatory one, it is desirable to use it as it provides help in creating adaptation strategies. Target users include:
 - o Both political and technical decision-making authorities;
 - Cities and towns with different stages in adaptation policy development:
 - A 'beginner' city/town us as a step-by-step guidance to start adaptation action;
 - A city/town 'on the way' already search information on the current or problematic issue;
 - A city/town following other adaptation process guidance as a complementary reference and resource tool;
- The structure of the adaptation cycle has six main links, as shown on the following picture:



• For each of the six links there are several questions and answers, totalling 43 questions related to adaptation planning and decision-making. Questions are collected from the stakeholders, that is, cities and towns. The access to questions and answers was briefly demonstrated by Ms. Romanovska. Special attention was paid to exploring adaptation options. According to the climate impact and adaptation sector, the viewer can easily access various adaptation cases.



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Economic Aspects – Jaroslav Mysiak

- As stated by Mr. Mysiak, climate change along with other environmental and societal changes
 pose significant challenges to economic growth, social cohesion, and environmental integrity.
 Economics play an important role in drawing attention to (economic) risks and vulnerabilities,
 paving the way for cost effective, efficient private and public adaptation (and risk mitigation)
 actions. However, safeguarding water scarcity is vital for climate adaptation.
- The World Economic Forum Global Risk Report placed water supply crises, in the 2014 report reclassified from societal to environmental risks, among the global risks of highest concern. In terms of potential impacts, water crises are second only to systemic financial/fiscal risks and to climate change. In 2012, a prediction was that expected annual damage from river flooding in Europe will increase from 6.4 billion Euros to 14-21.5 billion Euros by 2100. On the other hand, some (Jongman) predict that this number will rise to 24 billion by 2050. Economic strategies for water security include:
 - Shift risk (and damage) from high to low, that is, land value uses;
 - Shift water (as a resource) from low to high, that is, value use.
- Land usage is dependent on a population in a particular area. The total population in ECRAN countries (except Croatia) is predicted to increase by 16% by 2050, from 95 million to 110 million. This number is mostly driven by Turkey. However, all countries' population except Turkey and Kosovo*is expected to decrease, Serbia even by 29% by this year.
- Regarding land consumption, land-use choices influence the transformation of precipitation into runoff. Draining wetlands and eliminating natural vegetation, alongside expanding impermeable areas, lead to reduced water storage capacity and consequently a higher flood peak and a shorter time to peak. In November 2010, Veneto region was flooded, causing 700 million euros damage. So the regional administration adopted a plan to build 11 flood reservoirs. One of those reservoirs is on Timonchio river, with designed volume of 3/8 m3 over an area of 11 ha. The cost of only this reservoir was around 45 million euros.
- There is another example from Northern Italy. In 2012, on May 20 an earthquake occurred in Emilia Romagna Region of 5.9 Richter's scale. However, only nine days after, another earthquake happened, 5.8 magnitude. Several other earthquakes occurred by the end of the first week on June with lower magnitudes. More than 20,000 people were left homeless in these series of earthquakes. EU solidarity fund was mobilised for a record aid, of 670 million euros. But the greatest damage was done to agricultural land. The civil protection emergency plan proposed introduction of land drainage networks on two levels:
 - Network draining at higher-altitude areas (25 meters above sea level);
 - Network draining the lower-altitude areas, conveying the drained water eventually discharged into the Secchia River further down the stream before its confluence with the Po River.
- The Water Framework Directive (WFD) presents a blueprint for Integrated Water Resources Management (IWRM), aiming at:
 - Effective protection and/or restauration of water bodies, chemical, physical and biological integrity;
 - Efficient use;



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- Reliable access;
- Reduction of risk.
- During the presentation, Economic Policy Instrument (EPI)-Water project was presented. It is

 a project that sets to assess the effectiveness and the efficiency of Economic Policy
 Instruments in achieving water policy goals, and to identify the preconditions under which
 they complement or perform better than alternative (e.g. regulatory or voluntary) policy
 instruments. The project identifies remaining research and methodological issues that need
 to be addressed, in particular with regards to the further development and use of national
 accounting, for supporting the design, implementation and evaluation of EPI in the field of
 water management.
- Many will not agree with the fact that increased water pricing will lead to public depreciation. However, water pricing is crucial in order to induce greater efficiency. It is important to know the risks when inducing new price, such as economic and social implications, barriers to change and hydrological integrity of water sources. It is necessary to inform the public of the advantages and disadvantages of this change, so they can accept it more easily, including of course affordability of prices for water services. Risks can be managed however, by so called "low hanging fruits", by phasing out public subsidies or implementing partial of full cost recovery.

Day 2 – Podgorica, 24 February 2015

Exercise on Identifying Problems in Cooperation and Communication

• The second day started with a group work, with the same groups that were formed the previous day. The topic of the exercise was the current problems with cooperation and coordination among the authorities of the ECRAN beneficiary countries, and it was identified that all of the countries are sharing similar problems:

Albania and Croatia

- Political Issues;
- Informing the public;
- Public Awareness;
- Communication;
- Lack of experts;
- Lack of finances;
- No information about funds;
- Lack of knowledge about Climate Change;
- Lack of organised education;
- Political beliefs based employment;
- Improvements can be based on capacity building, coordination, both vertical and horizontal, and education on all levels.

Bosnia and Herzegovina and former Yugoslav Republic of Macedonia

• Bosnia and Herzegovina has a full right to justify the lack of communication. The organisation of the country is very unique and complicated, so the lack of communication and cooperation



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is to be expected. The central Government of the country is divided into three parts, Republic of Srpska (divided into municipalities), Brcko District and Federation of BIH, while the Federation itself is divided into ten cantons. Each canton has its own government and they are divided into municipalities. The executive body of the central government is Council of Minister, formed from all three constitutive nations (Bosniaks, Serbs and Croats). The national UNFCCC focal point for Bosnia and Herzegovina is Ministry of Spatial Planning, Civil Engineering and Ecology of Republic of Srpska. The country has also adopted mitigation strategy. Several improvements have been made in the country regarding climate change:

- o Improvement of communication and cooperation among all stakeholders;
- Draft of an action plan for the strategy of implementation;
- Adaptation of adequate laws and legislation.
- The former Yugoslav Republic of Macedonia on the other hands, contains eight regions: Skopje, Vardar, Polog, Pelagonian, East Region, Northeast region, Southwest region, and Southeast region, which correspond directly to the ministries and the government. National focal point for UNFCCC is Ministry of Environment and Physical Planning. Some improvements have been made in the country:
 - Adopted law for climate action and long-term strategy;
 - Formation of climate change sector within the ministry;
 - o Improvement of communication and cooperation among all stakeholders.

Montenegro and Serbia

- In both of the countries currents problems are targeted, both vertical and horizontal. In vertical communication there is a problem in communication in inter administrative levels, while on horizontal level, there is a problem in communication in inter municipality/regional level, and inter sectoral level. Other targeted problems include:
 - Low capacities;
 - Budgeting barrier;
 - Legislative issues.
- Necessary action to be taken in both of the countries are as follows:
 - Raise awareness;
 - Educate professionals;
 - Provide political support;
 - Strengthen capacities;
 - Economic support.

Kosovo* and Turkey

- Although the countries cannot be compared due to their difference in size, climate regions and population, they still have pretty much same problems in cooperation and communication:
 - Lack of awareness;
 - Lack of information;
 - No coordination between local and national levels.
- So the actions that need to be taken include:
 - Raising awareness organising meetings among institutions on all levels;



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- Analysing gaps;
- Gathering and sharing information;
- Publishing regulation for urban planners.

Cooperation and Coordination among the Authorities – Peter Heiland

- Authorities in some of the cities will say that adaptation in cities is luxury and that more important task comes first. This is one of the problems that adaptation faces. In some of the cases, there is no transparent division of task, so some of the departments will say that they are not responsible for climate change. If climate change consequences will happen in 300 years, then why bother now, it is better to save money!
- But if nothing is done at the very moment, there might not be another opportunity to act. Heat stresses, droughts and flooding are all consequences of climate change. Thus, there is a need for adaptation even though that not all adaptation actions are attractive. But even with obstacles, opportunities and chances can be found. In the adaptation scenarios, there is a freedom of development, growth, extension and individual ideas, with implied restrictions and recommendation of course. But opportunities include a combination of mitigation and no-regret measures.
- Cooperation among the authorities usually is not at a remarkable level. Without proper strategies and action plan, communication on adaptation can be difficult.
- The instrument of environmental and urban politics is a 4 C's challenge: Combination, Coordination, Cooperation and Communication. Three instruments are dependent upon these challenges, regulative, economic and discursive, as it is shown on the following picture:



• Practical relevance for adaptation includes five levels of cooperation: local, regional, (federal state), national and European. Relevance for setting the framework policy has a bottom-up approach, while on the other hand, relevance for implementing specific measures has a top-down approach, having most implementation relevance at the local level. Cooperation levels for municipalities have their own goals, according to the type of cooperation, as shown in the table below:



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Type of municipality's cooperation	Cooperation goal / benefit		
A. Within the municipality	 Cross sector coordination (strategy, exchange) Implementation of cross sector CCA-measures Awareness raising (in municipality, public) Political visibility of CCA-actions 		
 Between the municipality and stakeholders 	 Joint realisation of CCA-measures Integration of stakeholders in strategy development Awareness raising 		
C. Between municipalities	Exchange of experiencesJoint lobbyingJoint development of transferable tools		

- Climate change adaptation impacts and adaptation itself can concern all sectors of the city, thus is necessary for all the sectors to be involved (population, infrastructure, economy, natural resources, etc.). So who has to be involved in an adaptation strategy:
 - Relevant departments of the administration;
 - Political back-up;
 - Infrastructure providers;
 - Economy / industry;
 - Stakeholders, environmental groups;
 - Everyone who can:
 - contribute with data / information;
 - integrate CCA measures in the own processes;
 - provide "windows of opportunity";
 - function as a "multiplier" of CCA awareness/
- The presentation was continued with the case of Darmstadt region, in the Hessen state of Germany. The region has 23 municipalities and around 285,000 inhabitants. In the last decade much more extreme events occurred, such as heavy rains, floods and heat waves. Summers are dryer while winters were wetter. So the options were given to act for all municipalities and regional actors, focusing on three selected fields:
 - Handycraft / guidance, trainings;
 - Public buildings (schools, administrations ...);
 - Adaptation in public places examples, recommendations.
- There was a brief presentation of Future Cities network. The Future Cities is a network of partners aimed at making city regions in Northwest Europe fit to cope with climate change impacts. The partners cooperate to develop, apply and improve assessment criteria for climate proof cities, where adequate action plans will be developed in each city region and priority measures will be implemented in small-scale investments. Focus is laid on existing urban structures. The Future Cities partners are 12 cities in five countries, United Kingdom, Germany, France, Netherlands, and Belgium. They have developed a Future Cities Adaptation Compass, a guidance for developing climate-proof region cities:





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• Working steps of the cities working groups include:

Vulnerability Check

- 0. Basis former event, sensitivities, vulnerability;
- 1. VA Classes mapping, VA sheets;

Understanding Climate Change Future risks

Climate Change trends – temperature, precipitation (in winter and in summer);

Explore Adaptation Options

- 3. Action Plan list of options and fact sheet of selected adaptation option.
- Partners and stakeholders are involved throughout the entire process of adaptation, however, different actors are involved in different phases of the integrated Climate Change Adaptation projects, which was demonstrated as on the picture below:





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- In order to increase cooperation and communication among the authorities and to provide policy recommendations for proper climate change adaptation, several messages must be spread:
 - Coordination across sectors;
 - More flexibility;
 - Improvements in flood risk management;
 - Raise understanding of Climate Change;
 - Monitoring of Climate Change impacts;
 - o Improvements in public procurement.

Building Urban Resilience: a European Perspective – Rob Swart

 In 2008, an agreement was signed between the Republic of Albania, Bosnia and Herzegovina, Former Yugoslav Republic of Macedonia, Republic of Montenegro and Republic of Serbia on the creation of South East European Climate Change Framework Plan (SEE/CCFAP) for Adaptation. The purpose of the SEE/CCFAP-A is to ensure that the South-east Europe population build their resilience capacity to the risks and impacts of climate change through implementing adaptation actions. The development of SEE/CCFAP-A follows the first recommendation within the so-called Belgrade Initiative for enhancement of the sub-regional cooperation in the field of climate change. The framework provides numerous proposed activities for each of the sector relevant to adaptation:

Sector	Proposed activities			
Public Health	 Perform regular health monitoring Establish emergency alert systems and data sharing Conduct impact and adaptation assessments 			
Water Resources	 Build or modernize irrigation systems in drought-prone areas Build or rehabilitate flood protection and drainage systems Expand and modernize the network of meteorological and hydrological stations Improve national flood and drought insurance schemes 			
Agriculture and Forestry	 Conduct research on the impacts of climate change on planting dates and cultivars, and on yields, pests and diseases Conduct research on the effects of extreme events on agriculture and forestry Develop databases on droughts and forest fires 			
Land Use, Buildings ans Transportation	 Improve design standards for buildings Incorporate climate change impacts information into the construction, operations and maintenance of infrastructure projects 			
Tourism	Develop efficiency standards for new tourist accommodations			
Coastal Zones	 Evaluate the impact of sea level rise on groundwater and water availability Improve early warning and response systems 			
Biodiversity and Ecosystems	 Conduct research on the impacts of climate change on species survival, habitat composition and structure, invasive species, and seasonal phenomena Assess climate change impacts on wetland and mountain ecosystems 			
Energy	 Conduct research on the impacts of climate change on renewable energy sources Conduct integrated research on the impacts of climate change on water resources (precipitation and runoff) and energy production and consumption 			
General	 Organize information and awareness campaigns and training programmes Create and develop maps Establish early warning systems Raise awareness Incorporate change adaptation into national and urban plans 			
Note: Information presented in this table is excerpted from table 2 in the South-East Buropean Climate Change Framework Action Plan for Adaptation.				







- All the proposed activities can be arranged in one of the three types of adaptation measures:
 - Grey measures passive cooling of buildings, insulation, reduction of air pollutants, etc.
 - Green measures boosting green infrastructure, ensuring fresh air from green areas outside the city, etc.;
 - Soft measures rising awareness, mapping urban heat islands, reduction of air pollutants in transport, preparedness of health and social care system, etc.
- There are many approaches for managing high temperatures and flooding risk. City design can trigger cooling, according to some analysis. Managing high temperatures can be done with solar panels that include shading, and also include cool pavement materials and reflecting materials on house roofs. As for flooding, it can be mitigated with raising floor levels and managing flood pathways. In the town of Saleford in the UK, safety margins were applied in all of the buildings, and that has raised ground level.
- EU policies and legislations are enabling urban adaptation, which is a strong reason for local and regional levels to communicate with the state which then communicates with the EU. Possible sources of urban adaptation finance can be obtained from numerous actors:
 - International Organisations (EBRD, World Bank, UNDP, EIB, etc.);
 - City level finances taxes, fees, subsidies, etc.;
 - Community-driven finance mechanisms;
 - Private sector Public Private Partnerships, Green Bonds, etc.

Exercise on Identifying Adaptation Actions to be taken

- Before the final exercise, Mr. Csikós moderated a group discussion in order to provide some ideas and to encourage communication among the participants, on the issue of necessary adaptation actions. Participants and presenters gave several ideas:
 - Provide guidance to adaptation for citizens brochures;
 - Raise public awareness;
 - Have zero waste;
 - Work on green infrastructure;
 - Integrated Coastal Zone Management (ICZM) measurements;
 - Define building codes;
 - Water infrastructure
 - Poldering;
 - Example of Dutch Surge Support an instrument that responds to the needs during water related disasters around the globe by deploying excellent experts from the Dutch water sector.
- The representatives from each country provided the following actions:

Albania

- Deal with informal settlements;
- Rehabilitation of existing green spaces and riverbeds;



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- Protection of parks and forests from abusive cutting;
- Increasing of green spaces in urban areas;
- Updating the legislation according to European standards and norms;
- Improve infrastructure according to population growth;
- Raising awareness and education, especially the new generations;
- Improve public transportation to reduce air pollution;
- Design new waste water treatment plans;
- Adopt Action Plan for Adaptation (in progress).

Bosnia and Herzegovina (Cities of Banja Luka and Sarajevo)

- Align municipal strategies and planning documents with higher level standards;
- Strengthen cooperation with the NGOs;
- Provide inter-sectoral activities at the municipal level ad monitoring trough the work of inspection and other authorised bodies;
- Improve operation of civil protection organs;
- Manage informal settlements and improve utilities infrastructure;
- Rehabilitate and improve green areas;
- Regulate river basins and water courses;
- Develop sustainable urban mobility system in urban areas;
- Introduce energy efficiency measures in infrastructure and provide use of renewable energy sources;
- Map and repair existing landslides and prohibit construction in these vulnerable areas;
- Provide continuous population education on all levels and all age groups;
- Join Mayor's Adapt.

Croatia

- Adaptation actions on national level:
 - Adopt National Climate Adaptation Strategy (in progress);
 - \circ $\;$ Adopt Action Plan for Climate Change Adaptation with concrete measures;
- Adaptation actions on local level:
 - Join Mayor's Adapt;
 - o Prepare local climate adaptation strategies and action plans;
 - Incorporate measures in urban planning;
 - \circ $\;$ Establish monitoring and reporting system;
 - Raise awareness and inform stakeholders;
 - Find financial sources.

Kosovo*

- Restriction of settlements and building development in risk-prone areas;
- Adjustment or removal of hydraulic obstacles in river bed and upgrading drainage systems;
- Determine standards for construction;
- Replacement of dykes to enlarge river bed capacity and reduce leakage;
- Secure minimum flows in dry periods and work on providing rainwater harvesting;



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- Incorporate local biodiversity objectives into planning, delivery and management of green infrastructure measures;
- Provide public health programmes for heat-related deaths.
- Work on the awareness campaign on the risks of building, living and working in vulnerable areas;
- Provide financial resources for adaptation programmes and projects;
- Involve both governmental and non-governmental stakeholders in decision making.

Formal Yugoslav Republic of Macedonia

- Provide green roofs and facades on new buildings, and where possible, reconstruct is the old ones. In this way we can take care of flora and fauna;
- Provide sustainable way of heating replacement of fossil fuels with natural gas;
- Raising awareness of the population about using public transportation and bikes instead of private vehicles – carpooling, introducing new tax fee in the central areas of the city that would be used for greening;
- Provide energy efficiency of the buildings use renewables, good insulation, rain water;
- Cover parking spaces with solar panels;
- Increase percentage of green areas in urban areas;
- Raise public awareness for all above mentioned measures trough different communication channels.

Montenegro

- Provide Rulebook on Physical Planning with inclusion of adaptation measures and goals;
- Use legislation of informal settlements to involve adaptation and implement protection measures;
- Follow sustainable development principles;
- Accommodate climate change trough public transportation and infrastructure;
- Increase energy efficiency and solar energy use;
- Organise monitoring institutions;
- Rationalise water management;
- In coastal areas, provide green and blue actions landscaping, green areas, erosion prevention, temperature decrease, etc.);
- Resolve water stress issue and use technical water where applicable;
- Plan new transportation corridors and strengthen protection coastal walls;
- Follow recommendations of river basin regulations, and relocate settlements from river basing flooding areas;
- Revise irrigation system maintenance plan.

Serbia

- Key institution for Climate Change Adaptation in the City of Belgrade is Secretariat for Environmental Protection. Numerous actions has been done, and are still in process;
- Afforestation strategy for Belgrade area was adopted in 2011;





- Defining Measures and Conditions to Protect the Environment for the needs of spatial and urban planning programme was launches;
- Strategic Environmental Impact Assessment (SEIA) of environmental plans and programmes is in progress;
- Numerous Environmental impact Assessment (EIA) projects are in progress;
- "Climate Change Adaptation in Western Balkans" project is ongoing with the objective of integration of Climate Change Adaptation in the cities of Belgrade, Podgorica and Tirana;
- A Steering Group w3as installed in the city of Belgrade, comprising representatives of the city, consultants and GIZ, as well as further selected representatives of the city and experts.

Turkey

- Disaster impact Law (7269) must be revised in order to include planning measures;
- Implementation regulation for this law must be published, to include climate change adaptation measures along with other disasters within spatial planning;
- ATLAS portal which contains pre-planning studies and plans across the country must include habitat and protection data, environmental and climate related data;
- Urban Regeneration Strategy Plans must include climate change adaptation measures;
- Ecological Settlement Unit Standard should guide urban regeneration projects and plans, while urban design must include climate change adaptation measures along with mitigation measures;
- Regulation on Environmental Law 2872 must be published to give responsibilities to the municipalities in order to found climate change related departments within their organisations.







V. Evaluation

Reference is made to Annex IV for details on the evaluation of the event. The evaluation confirms that the seminar achieved strengthened awareness and understanding of climate change adaptation needs and options among urban planning experts from Western Balkan countries and Turkey (83% mentioned this was achieved fully, while 17% evaluates that this aspect was achieved partially). About half of the participants indicated that the training fully achieved improved understanding of (the applicability of tools for) risk and vulnerability assessment in the urban planning sector, including the applicability of the Climate Adapt Tool (the other half mentioned it was partially achieved).

91% of the participants indicated that the workshop quality was of high standard, while all participants indicated that the training was time well spent.

EXECTATIONS OF PARTICIPANTS

- 1. The workshop strengthened awareness and understanding of climate change adaptation needs and options among urban planning experts from Western Balkan countries and Turkey established
- 2. Improved understanding of (the applicability of tools for) risk and vulnerability assessment in the urban planning sector, including the applicability of the Climate Adapt Tool
- 3. This workshop increased (steps towards) climate adaptation action planning in my country and the region
- 4. Awareness of the need to speed up and enhance climate adaptation action planning in the Western Balkan countries and Turkey





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WORKSHOP AND PRESENTATION

- 1 The workshop achieved the objectives set
- 2 The quality of the workshop was of a high standard
- 3 The content of the workshop was well suited to my level of understanding and experience
- 4 The practical work was relevant and informative
- 5 The workshop was interactive
- 6 Facilitators were well prepared and knowledgeable on the subject matter
- 7 The duration of this workshop was neither too long nor too short
- 8 The logistical arrangements (venue, refreshments, equipment) were satisfactory
- 9 Attending this workshop was time well spent





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ANNEX I – Agenda

Day 1 – Monday, 23 February 2015

Expert Training on Risk and Vulnerability Assessment and Adaptation Planning – Urban Planning and Development sector

Chair and Co-Chair: Robert Bakx, Imre Csikós

Venue: Podgorica, Montenegro

Start	Finish	Торіс	Speaker(s)/Facilitator(s)	Sub topic/Content		
09:00	09:30	Registration	Registration			
09:30	09:45	Welcome and Introduction	Rob Bakx, moderator	 Introduction participants Programme outline and logistics 		
09:45	10:15	EU Adaptation Strategy 2013 and role of ECRAN	Rob Bakx, ECRAN	 Outline of EU Adaptation Strategy Links with adaptation practice 		
10:15	10:45	Preparing for adaptation; the Climate Adapt Tool	Markus Leitner , Umweltbundesamt, Austria (TBC)	 EU tool on climate adaptation action Usage of the Adapt Tool in the urban planning and development sector Group discussion: 'what to apply how?' 		
10:45	11:30	Coffee Break + adn	ninistrative concerns (TAIEX	()		
11:30	12:00	Potential vulnerabilities in the area of urban planning and development	Rob Swart , Alterra, Netherlands	 How do climate vulnerabilities in urban areas look like? How tangible are or can vulnerabilities be? Examples of (potential) vulnerabilities What is the role or urban planners and developers 		
12:00	12:30	How to identify climate vulnerabilities in the urban planning and development sector	Jan Rasmussen, City of Copenhagen, Denmark	 Is it difficult to identify adaptation challenges? How to organise the identification process? Climate adaptation vis-à vis urban planning and development 		
12:30	13:30	Lunch Break				



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13:30	15:10	Exercise on 'Identification of vulnerabilities in the urban planning and development sector'	Rob Bakx, moderator Rob Swart, Alterra, Netherlands Johan Bogaert, Flemish Government, Belgium (TBC) Jan Rasmussen, City of Copenhagen, Denmark	 Break out session, findings and conclusions, plenary feedback Brainstorming, discussion groups Information sources and tools Use of online climate information and adaptation tools Identification of key vulnerabilities
15:10	15:30	Coffee Break		
15:30	15:55	Planning practice vs. vulnerabilities	Anneloes van Noordt, Flemish Government, Belgium (TBC)	 Understanding and managing climate impacts Assessing impacts on cross cutting issues Roadmap to resilience
15:55	16:20	Climate resilient construction	Nico Tillie, City of Rotterdam, Netherlands (TBC)	 The role of climate resilient construction Construction examples
16:20	16:45	Economic aspects	Jaroslav Mysiak , FEEM, Italy	 Economic consequences of neglecting adaptation options Questions and answers, exchange of experience, discussion
16:45	17:00	Wrap-up	Rob Bakx	- Conclusions day 1

Day 2 – Tuesday, 24 February 2015

 Expert Training on Risk and Vulnerability Assessment and Adaptation Planning – Urban Planning and Development sector

 Chair and Co-Chair: Robert Bakx, Imre Csikós

 Venue: Podgoria, Montenegro

 Start
 Finish
 Topic
 Speaker(s)/Facilitator(s)
 Sub topic/Content

 08:45
 09:00
 Registration





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09:00	10:30	Cooperation and	Rob Bakx, moderator	- Presentation and discussion	
		coordination among authorities	Johan Bogaert , Flemish Government, Belgium (TBC)	 towards solutions for inter- authority cooperation Models and actions Break out session, plenary feedback 	
10:30	11:00	Coffee Break			
11:00	11.20	Accession and af	Dah Guart Altarra	Deserve et este size e	
11:00	11:30	Assessment of Response Strategies in the urban planning and development sector	Rob Swart, Alterra, Netherlands	 Response strategies: a definition How to use them Their impact on adaptation practice 	
11:30	12:30	Identifying urban planning and development sector adaptation options	Imre Csikos, ECRAN Rob Swart, Alterra, Netherlands Johan Bogaert, Flemish Government, Belgium (TBC) Jaroslav Mysiak, FEEM, Italy	 Interactive plenary session: combined Q&A, forum discussion, group discussion and brainstorm Identification of potential adaptation options Specificities that determine options to be chosen Feasibility aspects: technical, economic, legal, social Role of the public and CSOs 	
12:30	14:30	Extended Lunch Break (to allow participants to collect per diems)			
14:30	15:45	Exercise: Country action towards robust climate adaptation in the urban planning and development sector	Imre Csikós, Rob Bakx, ECRAN Break out groups moderated by experts	 Break out groups, plenary feedback and conclusions; Identifying country options for adaptation in the urban planning and development sector; who contributes and how does that look like? Options for continued cooperation among Western Balkan countries and Turkey in the (urban planning and development) adaptation area 	
15:45	16:30	 Conclusions and wrap-up Training Evaluation 	Rob Bakx, moderator	 Conclusions workshop, evaluation Next workshops Discussion 	





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ANNEX II – Participants





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ANNEX III – Presentations (under separate cover)

Presentations can be downloaded from:

http://www.ecranetwork.org/Files/Materials_Adaptation_Urban_Planning_Podgorica, February_20 15.rar



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ANNEX IV – Evaluation

Statistical Information

1.1	Workshop Session	Task 4.1B: Expert Training on Risk and Vulnerability Assessment and Adaptation Planning – Urban Planning sector
1.2	Facilitators name	As per agenda
1.3	Name and Surname of Participants (evaluators)	As per participants' list
	optional	

Your Expectations

Please indicate to what extent specific expectations were met, or not met:

My Expectations		My expectations were met				
		Fully	Partially	Not at all		
1.	Strengthened awareness and understanding of climate change adaptation needs and options among urban planning experts from Western Balkan countries and Turkey established	 (83%)	 (17%)			
2.	Improved understanding of (the applicability of tools for) risk and vulnerability assessment in the urban planning sector, including the applicability of the Climate Adapt Tool	 (48%)	 (52%)			
3.	This workshop increased (steps towards) climate adaptation action planning in my country and the region	 (48%)	 (50%)	l (2%)		
4.	awareness of the need to speed up and enhance climate adaptation action planning in the Western Balkan countries and Turkey	 (77%)	 (23%)			



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Workshop and Presentation

Aspect of Workshop	Excellent	Good	Average	Accept able	Poor	Unaccep table
1 The workshop achieved the objectives set	 (55%)	 (40%)	ll (5%)			
2 The quality of the workshop was of a high standard	 (57%)	 (34%)	 (9%)			
3 The content of the workshop was well suited to my level of understanding and experience	 (65%)	 (31%)	ll (4%)			
4 The practical work was relevant and informative	 (50%)	 (29%)	 (21%)			
5 The workshop was interactive	 (72%)	 (28%)				
6 Facilitators were well prepared and knowledgeable on the subject matter		 (20%)	l (2%)			
7 The duration of this workshop was neither too long nor too short	(78%) (53%)	 (37%)	III (6%)	ll (4%)		
8 The logistical arrangements (venue, refreshments, equipment) were satisfactory	(60%)	(30%)	ll (5%)	ll (5%)		
9 Attending this workshop was time well spent	 (74%)	 (26%)				

Please rate the following statements in respect of this training module:





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Coments and suggestions

- According to the participants' evaluation, the workshop sessions were very well organised with appropriate time. Apart from the interesting content and exercises, some proposed allocation of more time for exercises.
- All comments were positive regarding facilitators, especially for Mr. Bakx and Mr. Heiland. Facilitators were patient, communicative, encouraging communication, using good examples and very well prepared for the workshop.
- Workshop level and content were well suited. Participants seem to be satisfied, mostly because of the good presentations and availability of information.

Workshop Sessions:

- Just right;
- Great;
- The content of the workshop is very interesting;
- I suggest less referrals to the relevant web sites, but instead a practical guide through the (appropriate) respective website;
- It was a little bit difficult to work in a group made by participants from 2 countries. It would be easier one group one country;
- Cooperation and coordination among the authorities;
- More concrete realised projects;
- Could be a bit shorter;
- Since this is training, it would be more desirable to organise more practical sessions with training on already established and tested planning tools. Furthermore all examples/best available practices should be more explained and presented;
- Sufficient to time;
- Good organised with relevant information about communication, plans in climate change issues, relevant examples of good practices.

Facilitators:

- Excellent;
- Great;
- Very well prepared facilitators;
- ©;
- Excellent;
- Very good, precise and clear good examples; useful terminology clearance;
- Facilitators were very communicative and willing to give the best;
- Very communicative;
- Rob Bakx and Peter Heiland were excellent;
- Mr. Bakx moderated the workshop very well;
- Give us a little homework before coming here (2x);
- ©;
- Excellent;
- Excellent prepared about topics;
- I think that facilitators are patient to explain every aspect. It is important to disseminate the impression.

Workshop level and content:

- Just right;
- Missing concrete actions in urban planning, as example of some rules and case studies;





- Learning experiences of others is very useful;
- Very well suited, thank you;
- I am satisfied with the workshop content;
- Very good;
- Interactive workshop is must be a lot;
- High levelled;
- Understandable for all participants with available information.





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