Environment and Climate Regional Accession Network ECRAN

Environment and Climate Regional Accession Network (ECRAN)

Report on Workshop on National Climate Adaption Policies and Legislation – Step C: Assessing Adaptation Options

18 – 19 February 2016, Ankara

Enviroment and Climate Regional Accession Network ECRAN

ENVIRONMENT AND CLIMATE REGIONAL ACCESSION NETWORK - ECRAN

WORKSHOP REPORT

Activity 4.2

NATIONAL CLIMATE ADAPTATION POLICIES AND LEGISLATION

STEP C: ASSESSING ADAPTATION OPTIONS

18 – 19 February 2016, Ankara, Turkey

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LIST OF ABREVIATIONS	
APS	Adaptation Preparedness Scoreboard
AST	Adaptation Support Tool
BA, BiH	Bosnia and Herzegovina
CA	Climate Adaptation
CBA	Cost-Benefit Analysis
CC	Climate Change
CCA	Climate Change Adaptation
CCMC	Euro-Mediterranean Center on Climate Change
CEA	Cost-effectiveness Analysis
COP	Conference of the Parties
DG	Directorate-General
DHMZ	Croatian National Meteorological and Hydrological Service
DIVA	Dynamic and Interactive Vulnerability Assessment
ECRAN	Environment and Climate Regional Accession Network
EEA	European Environment Agency
EIA	Environmental Impact Assessment
EU	European Union
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIS	Geographic Information System
ICJ	International Court of Justice
INDC	Intended Nationally Determined Contribution
IPA	Instrument for Pre-Accession Assistance
IPCC	Intergovernmental Panel on Climate Change
MCA	Multi-criteria Analysis
MMR	Monitoring Mechanism Regulation
NAP	National Action Plan
NAS	National Adaptation Strategy
NDC	Nationally Determined Contribution
OG	Official Gazette
SEA	Strategic Environmental Assessment
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNSCR	United Nations Security Council Resolution
WG	Working Group

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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.

This makes it a must to manoeuvre economic, environmental and social interests and costs to safe havens through adaptation measures. Adaptation planning means anticipating the adverse effects of climate change and taking the appropriate action in order to prevent or minimise the damage that the effects of disrupted climate regimes can cause, or taking advantage of opportunities that may arise, such as e.g. through an increase in wind and solar options, adjustment of agricultural production practices, water farming and others. 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, the way energy production and supply has been shaped, 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.

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During the regional ECRAN Adapt Seminar in Skopje in July 2014, the ECRAN beneficiaries (Albania, Bosnia and Herzegovina, Croatia[1], the former Yugoslav Republic of Macedonia, Kosovo*[2], Serbia, and Turkey) have identified the sectors in the Western Balkans and Turkey that are most vulnerable to climate change.

Measures have been discussed for effective adaptation. However, the key to adaptation to climate change is the integration of the issue of climate change in all relevant strategic, planning and programme documents both at national and regional levels as well as the local level.

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.

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 promotes '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 addresses 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. Inter alia the Adaptation Support Tool (AST)[3] and the framework of the European Commission's Adaptation Preparedness Scoreboard are offered as tools that can be of potential support to the adaptation work of the beneficiary countries.

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

- Prioritisation of Adaptation Needs
- Identification of Adaptation Options
- Selection and Prioritisation of Adaptation Options
- Policy and Legal Changes

[1] Croatia has joined the EU and is currently no longer an ECRAN beneficiary
[2] 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. Further indicated in this report with an asterisk (*).
[3] http://climate-adapt.eea.europa.eu/adaptation-support-tool

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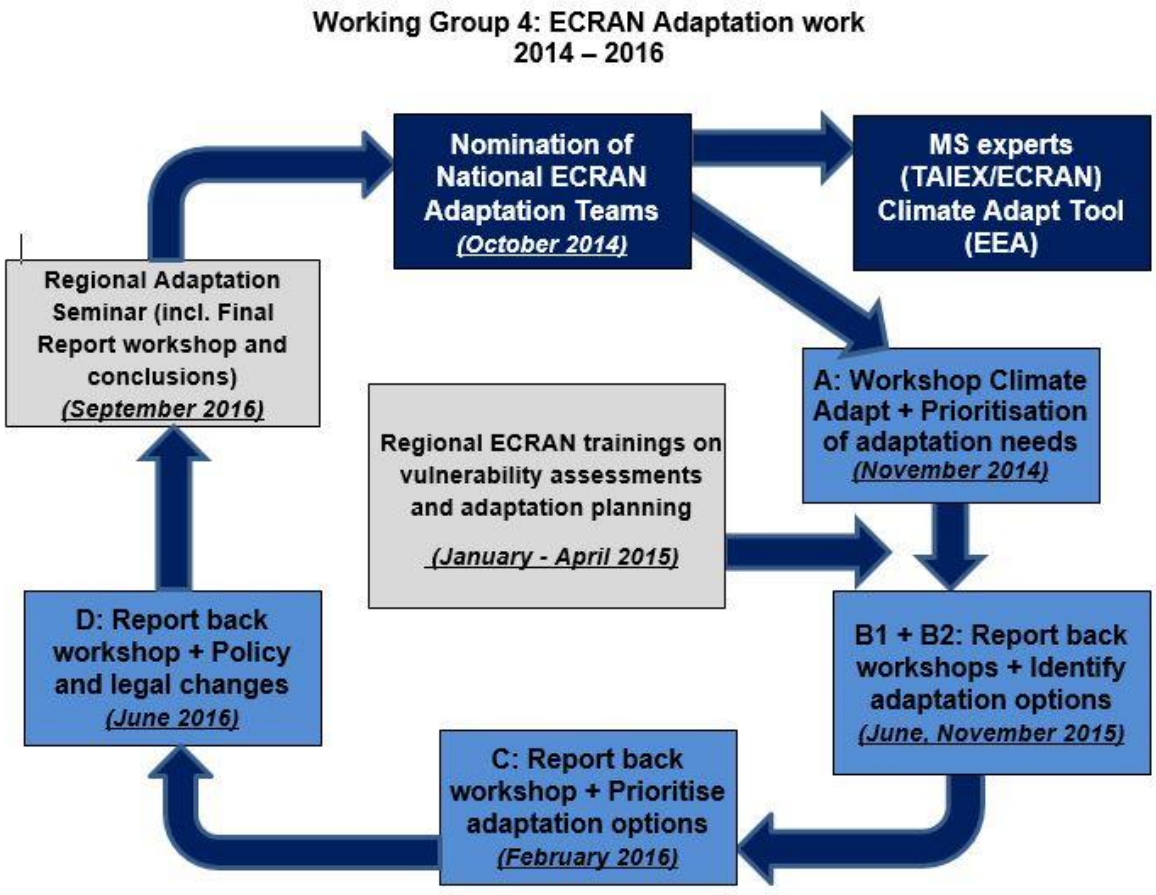

Training and Workshops Programme outline

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, combined with regional technical training sessions that support Beneficiary Countries' experts from selected technical areas to carry out risk and vulnerability assessments and adaptation planning.

The programme delivered three regional technical training workshops on vulnerability assessment and adaptation planning, each lasting two days. The three priority fields that were selected for the training are:

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

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 included aspects of cooperation and collaboration, mainstreaming, and inter linkages. These are aspects that are key to successful (adaptation) responses to climate vulnerabilities in each of the selected (and other) fields. In this context there is a link with disaster risk management, as disaster risk reduction and climate change mitigation and adaptation share common

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goals. Both fields aim to reduce the vulnerability of communities and achieve sustainable development. The training incorporated options for reducing disaster risks related to climate change.

The overall programme outline is as follows:

Step A	Climate Adapt Tool - Prioritisation of adaptation needs	24-25 November 2014
*Technical experts that will contribute to the step-by-step process carried out by the ECRAN ADAPTATION TEAMS have received **specific technical training** after Step A. This is expected to 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 targeted training programmes** on vulnerability assessment and adaptation planning (**Water Management**, **Urban Planning and Development**, and **Energy Planning**) have been provided*		19-20 January 2015 23-24 February 2015 16-17 April 2015
Step B1	Report back workshop + Identification of adaptation options	3-4 June 2015
Step B2	Identification of adaptation options (continued)	9-10 November 2015
Step C	Report back workshop + Prioritisation of adaptation options	18-19 February 2016
Step D	Report back workshop + Introduction of Policy and legal changes	9-10 June 2016
	Final Report at Regional Adaptation Seminar	15 September 2016

As shown in the outline the National Teams' workshops and development actions are supported through targeted training on vulnerability assessment and adaptation planning for selected categories of technical experts (January – April 2015). The first of these three training sessions was on Water Management (held in Ankara on 19 and 20 January 2015), the second on Urban Planning and Development (held in Podgorica on 23 and 24 February 2015), and the third on Energy Planning (held in Tirana on 16 and 17 April 2015).

ECRAN assists the Beneficiary Countries in further enhancing their knowledge and understanding of their climate vulnerabilities and thus prepare them to take better adaptation actions[4]. The training also draws on the EU Guidelines for National Adaptation Strategies and strengthens regional climate adaptation networking. The outline of the trainings is basically identical for all three training sessions. However, the technical area to be addressed differs per training.

[4] ECRAN Climate Work Programme, Activity 4.1.b

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National ECRAN Adaptation Teams Workshops

As indicated above the National Adaptation Teams will, supported by EU Member States experts, carry out their activities in 4 steps. These are addressed in 5 consecutive workshops: Steps A to D. Due to administrative reasons Step B was offered through 2 workshops (Step B1 and Step B2), thus allowing involvement of a broader audience with enhanced coverage of the topics at stake.

The Teams consist of representatives of public administration sectors that are relevant for climate change adaptation. Their composition differs per country depending on the most important adaptation aspects and current possibilities to mobilise sectors.

The Steps A to D workshops accommodate up to 10 National Team members per country. The workshops programme basically builds on the Adaptation Support Tool and draws from the framework of the Adaptation Preparedness Scoreboard, 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, building up their knowledge and skills that can feed into the policy development process.

The entire training programme will be rounded off with a concluding regional conference planned to be organised in September 2016.

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II. Objectives of the training

General Objective

To keep the steady progress that already started on climate adaptation action in the Western Balkan countries and Turkey.

Specific Objective

To enhance the understanding about climate adaptation action among a core of Beneficiary Countries' representatives, creating climate adaptation policies and planning as a basis for action.

Results/outputs

The expected results are:

- Enhanced understanding of workshop participants about their own country's state of progress and involvement of stakeholders in the action planning regarding implementation of selected climate change adaptation options;
- Workshop participants' understanding of their own country's specific gaps between current levels of knowledge and skills and of the conditions required to successfully proceed with the implementation of climate change adaptation options;
- A country-by-country view on the best way forward in terms of organising the implementation of climate change adaptation options.

To date three of the ECRAN beneficiary countries formally have a climate change adaptation strategy in place: Bosnia and Herzegovina, Kosovo*, and Turkey. Turkey also has a Climate Adaptation Action Plan.

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III. EU policy and legislation covered by the training

EU Adaptation Strategy

Adaptation means anticipating the adverse effects of climate change and taking appropriate action to prevent or minimise the damage they can cause, or taking advantage of opportunities that may arise. It has been shown that well planned, early adaptation action saves money and lives later.

Examples of adaptation measures include: using scarce water resources more efficiently; adapting building codes to future climate conditions and extreme weather events; building flood defences and raising the levels of dykes; developing drought-tolerant crops; choosing tree species and forestry practices less vulnerable to storms and fires; and setting aside land corridors to help species migrate.

Adaptation strategies are needed at all levels of administration: at the local, regional, national, EU and also the international level. Due to the varying severity and nature of climate impacts between regions in Europe, most adaptation initiatives will be taken at the regional or local levels. The ability to cope and adapt also differs across populations, economic sectors and regions within Europe.

In April 2013 the European Commission adopted an EU Strategy on Adaptation to Climate Change. The strategy aims to make Europe more climate-resilient. By taking a coherent approach and providing for improved coordination, it will enhance 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 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.

The EU also addresses knowledge gaps through research and the European climate adaptation platform (Climate-ADAPT). This platform, launched in March 2012, provides useful resources to support adaptation policy and decision making, such as: a toolset for adaptation planning; a projects and case studies' database; and information on adaptation action at all levels, from the EU through regional and national to the local level.

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Moreover, stakeholders from the local, regional and national level are encouraged to participate in the development of the EU Adaptation Strategy. The EU is providing guidelines on integrating climate into policies and investments and on how to use the instruments and funds provided by the Commission for climate change adaptation.

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IV. Highlights from the training workshop

Day 1 – Ankara, Turkey, 18 February 2016

Results previous workshop – Rob Bakx (ECRAN)

After introducing the workshop objectives and programme outlines, with a focus on Step 4 (assessing adaptation options) and Step 5 (implementation) of the Adaptation Support Tool (AST), speaker looks back at the November 2015 Step B2 workshop that was held in Zagreb.

The Zagreb workshop basically dealt with the identification of climate change adaptation options and was in general well-appreciated by its participants with an over 90% score evaluated for the aspect of 'time well spent'.

The workshop contained three important work sessions comprising country-wise self-assessments of the:

1. State of play as concerns Steps 1, 2 and 3 of the AST;
2. Completeness of the three position papers that were drafted by each of the countries in an earlier stage of the ECRAN adaptation activities;
3. Needs for training and technical assistance.

The assessment on the state of play in each country was held using the Adaptation Support Tool as a reference framework. As an average for all countries together, the estimated unofficial completion rates based on participants' best feel, give the following picture:

- Step 1 - Preparing the ground (67%);
- Step 2 - Assessing risks & vulnerabilities (73%);
- Step 3 - Identifying adaptation options (67%).

Asked about their main successes participants mostly mentioned the

- Completion of adaptation strategies (which was the case in Bosnia and Herzegovina, Kosovo* and Turkey);
- Achievement of high level attention and structures;
- Growing cross-sector interest for adaptation.

As main weaknesses/gaps participants mostly indicated a lack of financial resources, human resources, data, and public awareness.

When assessing the position papers that each of the countries prepared in the first phase of the adaptation work under ECRAN, the workshop participants concluded that with regard to the Steps 1 to 3 of the Adaptation Support Tool the following elements were highly presented in the papers:

1. Step 1: Information collection, awareness raising;
2. Step 2: Analysis of weather effects, risk and vulnerability assessment, selection of main concerns;
3. Step 3: Exploring good practice.

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The elements mentioned as to be least presented in the position papers included:

4. Step 1: high level support, set-up of the process;
5. Step 2: Addressing knowledge gaps/uncertainties, transboundary element;
6. Step 3: Describe adaptation options in detail.

As the top 5 priority areas where support is needed participants pointed at legislative work; project development and funding; awareness raising and cooperation; technical (sector specific) training; and practical implementation. At a more detailed level the topics with the highest scores for needs referred to:

- Obtaining high level support;
- Estimating resources needs, identifying funding options;
- CC risk and vulnerability assessment;
- Taking transboundary issues into account;
- Developing an approach for addressing knowledge gaps and for dealing with uncertainties;
- Collecting appropriate adaptation options given the countries' main concerns.

Latest Adaptation Developments (1) – Maddalena Dali (DG CLIMA)

At the December 2015 COP21 in Paris a new chapter in international climate governance and action was written, with a win for multilateralism. The conference gave a strong signal to policy makers, investors and businesses and represented a great example of EU unity and leadership in the fight against climate change.

Key achievements

The Paris agreement is a legally binding, universal agreement with long-term goals. It has a strong focus on transparency and accountability, and is fair and supportive for developing countries.

Main provisions

The agreement includes political parity of mitigation and adaptation with, for the first time, a global goal regarding adaptation; an issue that concerns all Parties. Parties committed to cooperate, act, and communicate – raising their domestic profile, multi-level governance and stakeholders' involvement. The promise of continuous and enhanced international support for adaptation was incorporated in the agreement, together with transparency of action and support (including for assessing progress - Global Stocktake), and keeping up the ambition Pre2020.

The agreement recognizes that climate change represents an urgent and potentially irreversible threat to human societies and the planet, which can cause permanent loss and damage, and thus requires the widest possible cooperation by all countries, and their participation in an effective and appropriate international response, through urgent and deep reduction of global greenhouse gas emissions. It acknowledges the specific needs and concerns of developing/ vulnerable country Parties arising from the impact of the implementation of response measures. However, the agreement does not involve or provide a basis for any liability or compensation claims.

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Cooperation is encouraged in different areas, including:

- Early warning systems
- Emergency preparedness
- Risk insurances
- Slow onset events
- Non-economic losses
- Resilience of communities, livelihoods and ecosystems
- Anchoring of the Warsaw Mechanism

The Paris Agreement calls for the Executive Committee of the Warsaw Mechanism to establish, a task force to complement and develop recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change.

What's next?

The EU Adaptation Strategy is coherent with provisions of the Paris Agreement. The Agreement provides an opportunity for enhanced ambition, forming an instrument to further support resilience beyond Europe's borders through effective action and support.

The further timeline includes:

2016 – March	Environment Council, EU Council: Assessment
2016 – April	Signing of Paris Agreement, New York
2018	Facilitative dialogue: assessment based on past performance and IPCC Special Report
2020	Update: communicate/update NDC & submission of first mid-century emission reduction strategy
2023	Global stocktake contribution
2025	Update NDC for post-2030 contribution

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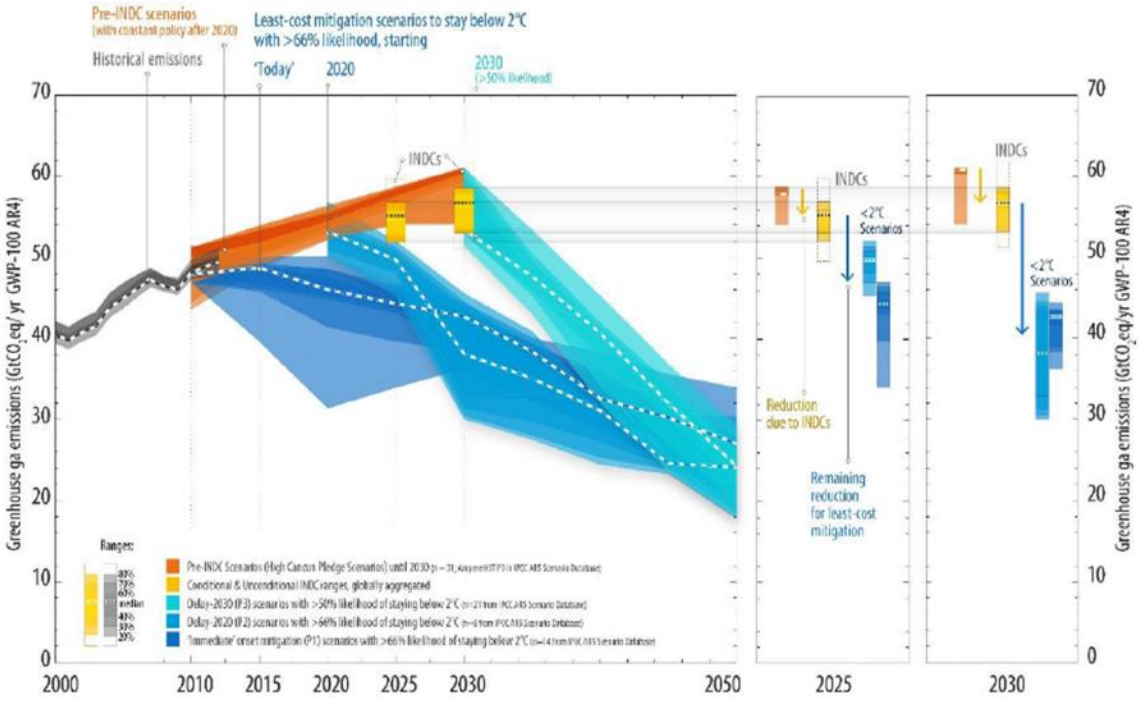
Latest developments (2) – Imre Csikós (ECRAN)

At the COP21 in Paris the need has been recognised to keep temperature rise well below 2°C.Before and during the Conference, countries submitted comprehensive national climate action plans (INDCs). However, these are not yet enough to keep global warming below 2°C, but the agreement traces the way to achieve this target.



Studies show that a thinning ice shelf is accelerating the flow of glaciers into the Southern Ocean, raising sea levels. Mitigation action, reducing greenhouse gas emissions, is inevitable. The Paris conference concluded on

- a long-term goal of keeping the increase in global average temperature to well below 2°C above pre-industrial levels;
- aiming to limit the increase to 1.5°C, since this would significantly reduce risks and the impacts of climate change;
- the need for global emissions to peak as soon as possible, recognising that this will take longer for developing countries;
- undertaking rapid reductions thereafter in accordance with the best available science.

In the area of transparency and global stocktake it was agreed among Parties to:

- come together every 5 years to set more ambitious targets as required by science;
- report to each other and the public on how well they are doing to implement their targets;
- track progress towards the long-term goal through a robust transparency and accountability system.

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In the field of adaptation action Parties concluded to strengthen societies' ability to deal with the impacts of climate change and to provide continued and enhanced international support for adaptation to developing countries.

The Paris Agreement recognises the importance of averting, minimising and addressing loss and damage associated with the adverse effects of climate change. It acknowledges the need to cooperate and enhance understanding, action and support in different areas such as early warning systems, emergency preparedness and risk insurance.

The EU and other developed countries will continue to support climate action to reduce emissions and build resilience to climate change impacts in developing countries. Other countries are encouraged to provide or continue to provide such support voluntarily.

Developed countries intend to continue their existing collective goal to mobilise $ 100 billion per year until 2025 when a new collective goal will be set. Climate mainstreaming in the EU budget of at least 20% represents an amount of € 180 billion. Support to ECRAN beneficiaries from the side of the European Commission will include ECRAN (follow-up), IPA, and Horizon 2020.

Prioritisation and selection of options – Dragana Bojović (CMCC, Italy)

When assessing adaptation options it should be clear that no one optimum solution exists, but that there is an array of adaptation options combined. Adaptation measures are to be tailored to spatial and temporal circumstances and need to consider limited confidence of climate change projections.

Assessment of adaptation options serves the identification of risks. It considers the time frame to implement the options and when they shall become effective. Furthermore, it addresses direct and indirect effects of the options in economic, environmental and social terms , assesses costs and benefits, and considers the barriers to implementation of adaptation actions.

Involvement of stakeholders provides legitimacy of the process, setting out the extent to which actors are recognised, invited and included in the decision-making process. Stakeholder involvement helps to understand the socio-economic and cultural setting and increases acceptability of the proposed measures.

Policy requirements or recommendations on stakeholder involvement exist. The EU Strategy on Adaptation to climate change suggests flexible and participatory approaches. The Adaptation Preparedness Scoreboard suggests robust methods, such as stakeholders consultation, for selection of priority adaptation options.

Selection of stakeholders distinguishes vertical, horizontal and cross-sector comprehensiveness. Vertical comprehensiveness considers all the actors who are directly or indirectly involved in the decision-making process at all levels of governance, whereas horizontal comprehensiveness considers all the actors from different sectors which are directly or indirectly affected by the decision. Finally, cross-sectoral comprehensives includes representatives of all major social groups.

The decision process on adaptation options requires contributions from multiple actors. It is a process of mutual learning and requires consideration of many elements, like norms, informal institutions and

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power relations. Adaptation decisions should be supported with various activities such as scenario development and modelling.

When analysing alternative adaptation options three phases can be distinguished:

- Intelligence phase: defines the structure and information basis;
- Design phase: conducts data processing and scenario simulations to obtain quantitative/qualitative information about the performances of options;
- Choice phase: final steps of decision analysis, includes sensitivity and uncertainty analyses.

A Robust Decision Making approach explores how options perform in a multitude of possible future scenarios.

Methods for analysing adaptation options include decision support systems that refer to computer tools. They couple the individual's intellectual resources with computer capabilities to improve the quality of decisions. Decision support systems can combine data processing tools (simulation models, GIS) and evaluation routines, within a customised user interface, to manage the decision making process with consideration of uncertainties (Xu and Tung 2008).

Techniques that are normally used for decision analysis are:

- Cost-Benefit Analysis: when the various dimensions of the problem can be converted into monetary units;
- Multi-criteria Analysis: CCA decision problems are multidimensional and expected performances of options are measured according to multiple indicators;

Multi-Criteria Analysis (MCA) methods provide a wide set of techniques for elicitation and aggregation of decision preferences. MCA involve stakeholders for discussing and deciding on criteria and their weightings for the prioritisation and selection of adaptation options. Examples of criteria that are used include effectiveness, efficiency, robustness, flexibility, acceptability, enhancement of adaptive capacity, conflict resolution, and others. MCA aggregates partial preferences describing individual criteria into a global preference and ranking the alternatives. Group decision-making is a final phase that facilitates the identification of a compromise solution, combining all individual rankings.

Absence of assessment can result in a reduced incentive to adapt and a lack of acceptability of proposed measures.

The outcomes of decision support should be adequately documented, and assumptions, subjective choices and uncertainties of various kinds transparently communicated to the stakeholders. The dossier produced during the assessment process represents the knowledge base for decision makers to support the choice to be made in front of the general public and other authorities.

Prioritisation and selection of options in the water sector – Ad Jeuken (Deltares, Netherlands)

The different steps of the Adaptation Support Tool (AST) cannot be treated in isolation. Especially steps 1 and 4 are stakeholder driven. The AST represents an iterative process.

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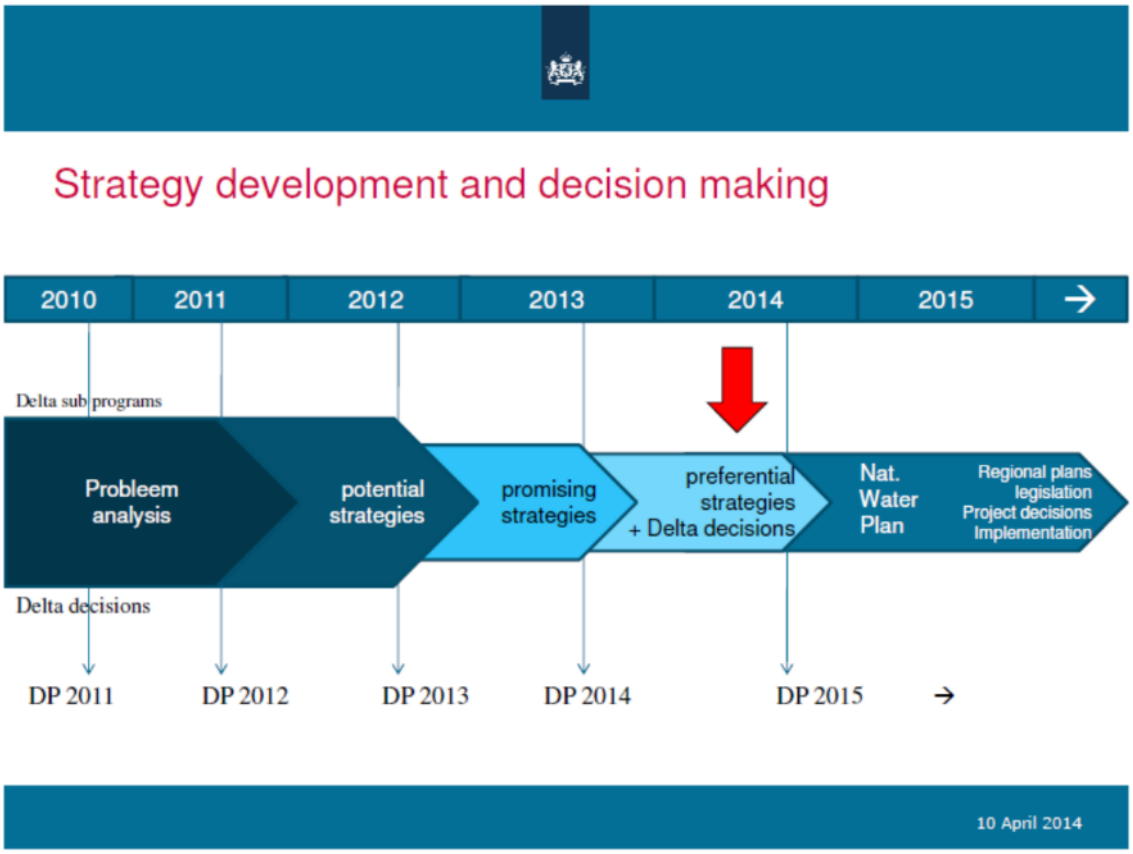
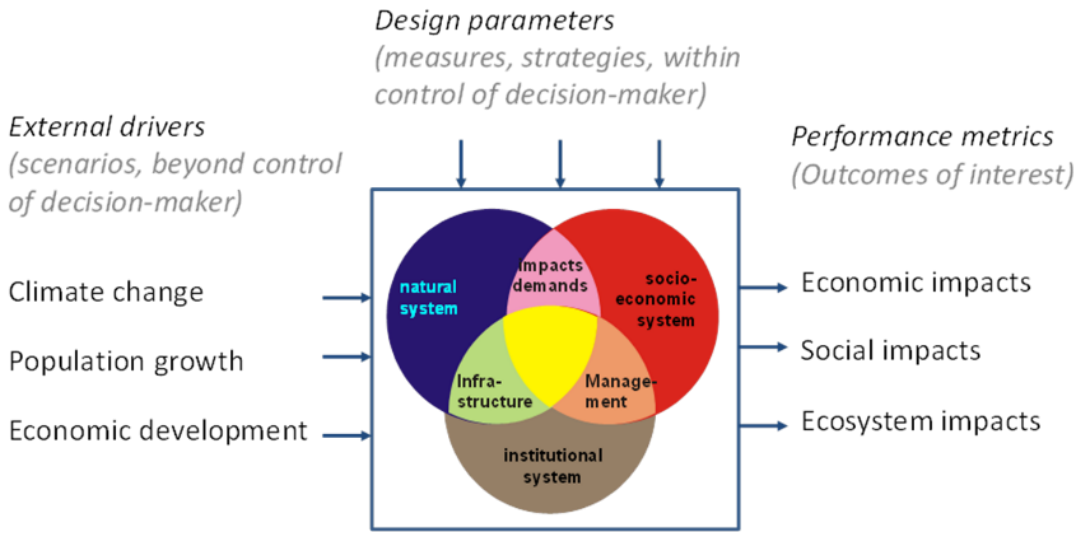


Figure. Decision making model in the water sector (National Adaptation Programme Water – Delta Programme), Netherlands, 2014

To be able to evaluate and prioritise - further down the road - it is important to first decide on the:

- evaluation framework;
- main objectives;
- other stakes to take along;
- spatial and temporal scope.

This is reflected in the concept of integrated water resources management (IWRM) as caught in the model below.



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Analysing costs and benefit aims at:

- providing economic justification for the investments in flood risk reduction measures;
- thinking critically about alternative approaches to justify the investments.

Measures cope with uncertainty as they contribute to:

- Resistance
  - (Over)dimensioning in general
  - Often constructions
- Resilience
  - Diversification >> local solution
  - Reduced damage
  - Increased coping capacity
- Flexibility
  - Expandable
  - Step-wise strategy
  - Short lifecycle

EXAMPLE 1: Dutch DELTA Programme

The Dutch DELTA programme distinguishes 5 key decision areas (West coast, Waddenzee (northern islands), IJsselmeer (inner sea), south eastern islands, main rivers), 3 national programmes (safety - updated standards; freshwater supply; reconstruction and development), and 6 regional programmes. Under the DELTA programme…..

- in the period 2011-2014 five national adaptation decisions were developed: how to adapt climate change in water management; how to be prepared;
- there are two major aims: climate proof flood risk management and water supply;
- activities are executed under 6 regional programmes and 3 thematic programmes (see above);
- a vast number of stakeholders are involved.

To guarantee uniformity and comparability one set of scenarios, a set of models and a framework for evaluating and comparing strategies were established.

The Dutch strategy evaluation framework consists of:

1. goals for reducing flood risks that have been achieved; number of victims, damage cost;
2. goals achieved for reaching better fresh water supply;
3. effects and opportunities including for regional development, ecosystems;
4. implementation quality of the strategy: risks, stepwise implementation, mainstreaming opportunities;
5. financing.

And in addition: how does the strategy score in terms of flexibility, solidarity and sustainability.

EXAMPLE 2: Comparing reference strategy with alternatives - Rhine and Meuse delta

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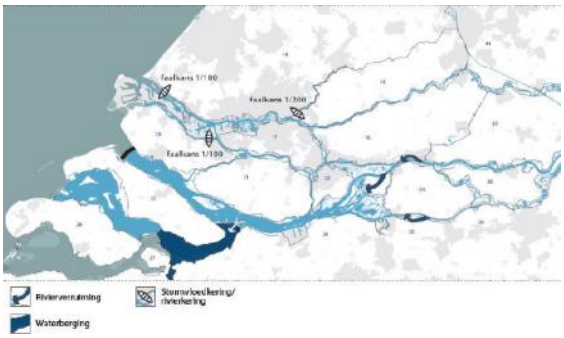
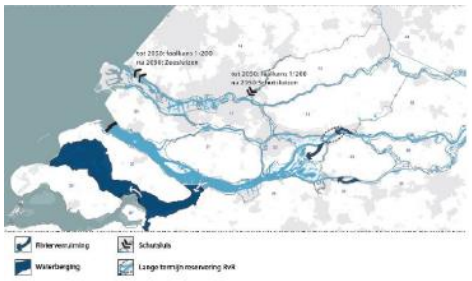
How do alternative solutions compare with the reference strategy? The table shows three different solutions.

<table>
<tr><td>Reference model</td><td colspan="2">  </td></tr>
<tr><td><u>Alternative</u>

Lek river untouched

Small closable ring</td><td>  </td><td>  </td></tr>
<tr><td><u>Alternative</u>

Closed seaside</td><td>  </td><td>  </td></tr>
</table>

Qualitatively the alternatives are scored against a set of pre-defined criteria for the categories safety, fresh water supply, effects and chances, implementation, and financing. Criteria under these categories inter alia include flood risk, damage, victims, shipping conditions, nature, investment, industry, agriculture, tourism, etc.

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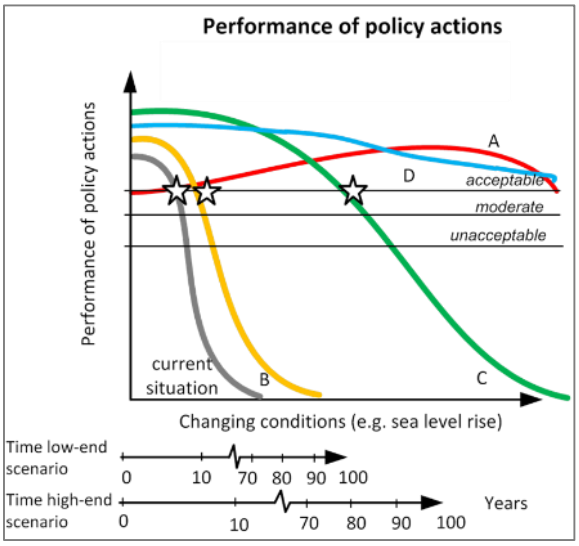
	Criteria	0. Referentie	1. Optimalisatie huidige strategie	2a. Gesloten zeezijde	2b. Gesloten Ring	3a. Open Haringvliet	3b. Open Haringvliet met Gesloten Ring	4a. Lek extra ontzien	4b. Lek extra ontzien, Kleine ring	4c. Lek extra ontzien, Grote ring	5. Anders Omgaan met Water
Veiligheid	Kans op overstroming (1)	0	+	+	0	-	-	-	0	0	
Veiligheid	Slachtoffers binnendijks (2)	0	+	++	+	--	--	-	--	--	
Veiligheid	Schade binnendijks (3)	0	+	++	+	--	--	-	--	--	
Veiligheid	Slachtofferrisico's (4)	0									
Zoetwater-voorziening	Beschikbaarheid en condities voor stedelijk gebied (5)	0	+	+	++	+	+	+	0	0	+
Zoetwater-voorziening	Condities voor infrastructuur (6)	0	+	+	++	+	+	+	0	0	+
Zoetwater-voorziening	Beschikbaarheid en condities voor landbouw (7)	0	+	++	++	+	++	+	-	-	
Zoetwater-voorziening	Condities voor scheepvaart (8)	0									
Zoetwater-voorziening	Beschikbaarheid en condities voor natuur (9)	0	0	0	--	-	--	-	--	--	
Zoetwater-voorziening	Beschikbaarheid voor industrie (12)	0	0	+	0	-	-	0	0	0	0
Effecten en kansen	(Inter)nationale concurrentiepositie (15)	0	0	-	--	0	0	-	-	-	0
Effecten en kansen	Risico's in buitendijkse gebieden (17)	0	0	++	++	--	+	+	0	0	
Effecten en kansen	Ruimtelijke kwaliteit (19)	0	+	++	+	0	+	+	0	0	
Effecten en kansen	Landbouw (20)	0	0	0	-	-	--	+	+	+	
Effecten en kansen	Industrie (22)	0	0	--	--	+	-	0	-	-	0
Effecten en kansen	Scheepvaart (23)	0	0	--	--	+	-	0	-	-	0
Effecten en kansen	Havens (24)	0	0	--	--	+	-	0	-	-	
Effecten en kansen	Recreatie en toerisme (25)	0									
Effecten en kansen	Natuur (26)	0	+	0		++	++	-	-	-	
Uitvoerbaarheid	Risico's (28)	0	+	-	--	--	--	-	-	-	0
Uitvoerbaarheid	Kansen (29)	0									
Uitvoerbaarheid	Aanpassingsvermogen (30)	0	+	-	--	-	--	-	-	-	+
Financiering	Investeringskosten (31)	0	0	0	--	--	--	-	-	-	+
Financiering	Kosten van beheer en onderhoud + organisatie (32)	0	0	0	--	--	--	-	-	-	+
Financiering	Financieringsmogelijkheden (33)	0	+	+	--	-	--	-	-	-	+

Also a quantitative assessment is made against threshold (see figure 'Performance of policy actions).

Spatial assessment framework - 'Rebuild by Design'

Recently, the Dutch experience was used to prepare an Assessment Framework for application in the 'Rebuild by Design' contest aiming at providing a more resilient and adaptive coastal development in New York and New Jersey after Hurricane Sandy.



An initial framework was tested during a workshop with the designers in February 2014 and was applied in reviewing the project designs (March 2014).

The core of the Framework includes a semi-quantitative scoring method on main criteria:

- goal realisation (flood risk reduction and/or freshwater supply);
- investment and maintenance costs as well as environmental;
- social and economic values.

The 'Rebuild by Design' scoring process has been embedded in a step-wise approach that includes:

- defining a reference situation;
- stakeholder identification;
- project scoring;
- robustness/flexibility tests;
- implementation and synergy opportunities.

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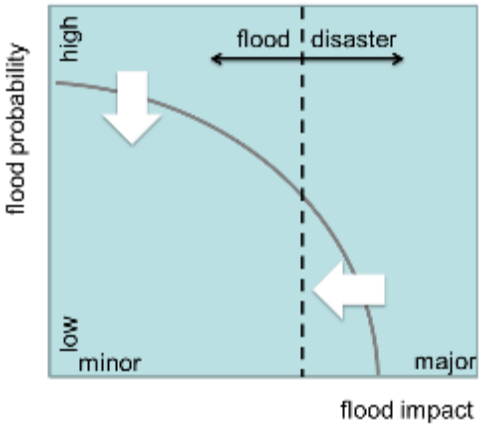
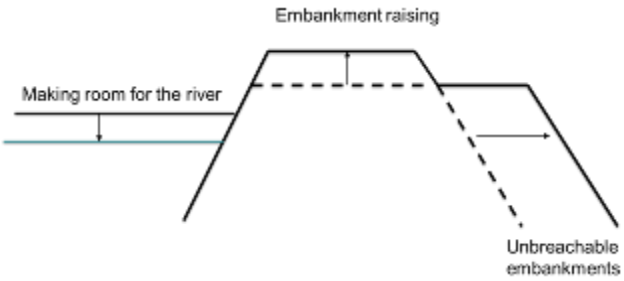
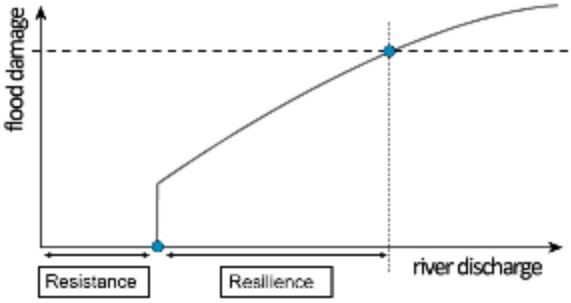
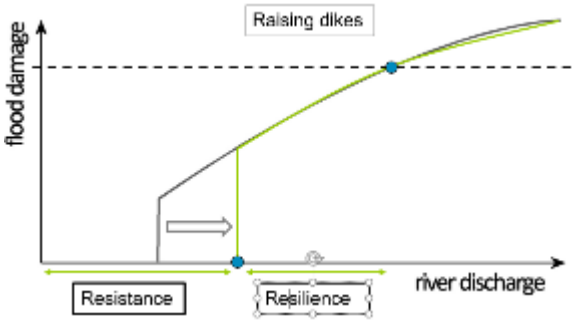
EXAMPLE 3: Floods - how to improve resilience/ prevent catastrophic impacts?

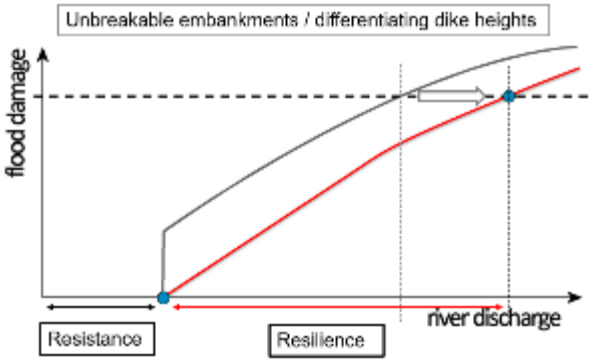


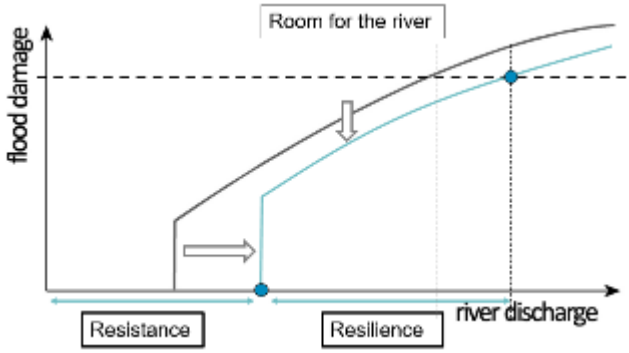


Towards robust river systems - options









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EXAMPLE 4: Sand nourishment at the coast

Picture. Netherlands; sand nourishment against coastal erosion

Costs	Effect	M€ / year
Sand nourishment	21 Mm^3 of sand (2001-2012)	7.0
Benefits	**Effect**	**M€ / year**
Alternative over reinforcement works	Saving on inland dike and dune reinforcement over 6 out of 41 km coastline (1985-2012)	2.7-3.4
Recreation	4-6 % of 88 million euro beach tourism spending at Walcheren	3 – 6
Nature conservation	Increase of dune habitat of ~110 ha (1985-2012)	0 – 0.1
Maintenance sea defence	Saving on maintenance of groynes and dunes along 20-40 km of coastline	0.5 – 0.7
Additional flood safety	Extra avoided damage to properties over 1:4000 probability of flooding	0.1
	Total benefits	6.3 – 10.3

Main experiences:

- Cost-effectiveness and cost-benefit analyses are only part of the evaluation;
- Use experts that are accepted by all stakeholders;

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- Work with a limited set of main objectives;
- Where possible use quantitative information;
- Difficult to rate side effects and implementation criteria;
- Cost-effectiveness and cost-benefit analyses are easier to do in the planning/ implementation phase than in the exploration phase (concrete design of measure helps a lot).

WORK SESSION 1 – Adaptation options 'identified'

In a break out session the participants of each country made – to their best knowledge – an inventory of their country's already 'identified' or possible adaptation options in selected sectors.

Each country group was supported by an external facilitator from EU Member States of institutions/ initiatives, as follows:

- Albania – Linda Romanovska (Mayors Adapt, Latvia)
- Bosnia & Herzegovina – Peter Heiland (U & I, Germany)
- Former Yugoslav Republic of Macedonia – Višnja Grgasović (Croatia)
- Kosovo* – Ad Jeuken (Deltares, Netherlands)
- Montenegro – Dragana Bojovic (CMCC, Italy)
- Serbia – Maddalena Dali (European Commission, DG CLIMA)
- Turkey – Imre Csikós (ECRAN)

State of play February 2016	Result of country groups discussions on identification of already chosen or possible adaptation options	
Country	**Sector**	**Options**
Albania	**Agriculture & environment**	- Establishing a Subsidized Insurance System in Agriculture (Vineyards protection insurance against hail) - Focus on the improvement and maintenance of the drainage and irrigation systems, in agricultural and urban areas also to prevent flash floods - Moratorium on forest cutting (10-years period) - Finding alternative water resources as a response to salinized and polluted aquifers - Moratorium on inert materials and sediment exploitation in riverbeds
	Energy	- Establishing the new dam system in the Drin cascade to prevent flooding and make room for the river - Achievement of the use of energy efficiency on all sectors especially in transmission and distribution of energy referring to national plans for energy efficiency; targeting also heat islands in highly urbanized areas - Riverbed management and regulation in accordance with neighbour countries, preventing floods from upstream
	Territorial planning & urban development	- Limiting building and urbanization only within already urbanized areas according to in-process National Territorial Plans and General Local Plans - Chapter for CCA in the document of Integrated Cross- Sectorial Territorial Plan for the Coast, translated into measures in the General Local Plans of the Municipalities
Bosnia & Herzegovina	**Agriculture**	- Increased public awareness of the effects of climate change on agriculture and education among farmers and families (communication plan, leaflets, roadshow, radio broadcast, website, etc. - Improved irrigation approaches, including drip irrigation, promoted and adopted (in conjunction with World Bank initiatives, and pilot programme for research and extension in key climatic zones of BiH)

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	Water	- Strengthened system of water quality monitoring in rural areas; technical assistance on water quality monitoring in rural areas; education in rural areas on water quality in wells and local water supply systems - Functioning river basin management plans (Sava river basin and south Adriatic basin) (multi-sectoral management plans with adaptation approaches as central objective)
	Human health	- Improved technical regulations for thermal requirements, heating, ventilation and air-conditioning of buildings - Disaster management plans improved for extreme heat events (capacity building, workshops, multi-agency planning, on the ground implementation)
Kosovo*	**Water**	- Institutional capacity building (knowledge, planning, legislation) <u>Floods</u> - Reforestation to increase upstream water buffering ➔ reduce peak discharge - Increasing river discharge capacity (dredging, cleaning, excavation) - Identification of flood areas (improve natural retention), include in river basin management plan - National reaction plan for disaster response (early warning, evacuation, shelters) - Flood control by multipurpose reservoirs <u>Droughts - increase water availability</u> - Sustainable groundwater management - Multi-purpose reservoirs (irrigation, flood control) - Rainwater harvesting - Reforestation - Development of water transfer schemes <u>Water use</u> - Water saving technologies (e.g. improve irrigation) - Water reuse and recycling - Crop adaptation (resilient to water stress)
The former Yugoslav Republic of Macedonia	**Water**	- Construction of additional and improvement of existing physical infrastructure for irrigation / using best available techniques: (i) canal linings, closed circuits instead of open channels, (ii) new reservoirs – system of reservoirs - Water saving measures: (i) reuse of water, (ii) leak repairs, (iii) rainwater collection - Maintaining and cleaning of river beds
	Energy	- Energy efficient building - Additional hydro-power plants - Solar power plants
	Urban planning	- Restriction of urban development in flood risk zones - Migration of people away from high risk areas
	Cross-cutting	- Improvement of institutional and legal framework, including horizontal and vertical coordination - Climate change legislation, strategy, action plans - Incorporation of adaptation measures into the vulnerable sectors, strategies, action plans - Improvement of risk management systems, including early warning systems for flooding
Montenegro	**Agriculture**	- Organic agriculture - Protecting autonomous species, but improving climate change resilience of varieties - Focus on economically most important crops, such as grapes and olives - Good practices for technical agricultural measures including irrigation systems - Traditional livestock breeding, including high-mountain farming - Protecting autonomous breeds, but also introducing cattle breeds resilient to warmer weather

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	Water[5]	- Floods mitigation (floods early warning system; infrastructural and other measures for flash (torrential) floods on the coast; torrential floods in urban areas) - Water information system - Storm water drainage
	Forestry	- Ecosystem-based forest management (nature-friendly forest management) - Use of autonomous (native) tree species for afforestation - Forest fires early warning and prevention system, including improvement of fire extinction logistics - Introduction/improvement/maintenance of the urban greenery and green infrastructure - Urban planning and green building measures
	Coastal management[6]	- Delineation of the construction zone - Determination of the zones vulnerable to high waters
	Health	- Awareness raising of the citizens about climate change and adaptation options related to health protection and improvement - Extreme weather early warning system - Special attention to (facilities for) socially endangered/ marginalized groups - Adjusting of working hours to extreme weather conditions
	Transport	- Sustainable transport, including sustainable urban transport
	Tourism	- Diversification of winter (and summer) tourism offer
Serbia	**Water**	- Reduce water pollution - Improvement of early warning systems (floods/ droughts) - Reduce losses in water supply - Develop flood protection plans - Develop and optimise irrigation systems - Drainage and water management facilities
	Agriculture	- Adaptation of agro-technical measures
	Forestry	- Forest fires monitoring and early warning systems - New multi-purpose forests (wind and erosion protection)
	Cross-cutting	- Improving weather forecasting (seas ➔ short term)
Turkey	**Agriculture**	- Use of drip irrigation and pressure measures / to increase water efficiency - Crop diversification / drought resistant crops - Promote urban agriculture/forestry and gardening - Early warning systems for heat waves
	Water	- River basin management planning to consider adaptation measures and integrated water management principles more systematically - Flood and drought management planning for each river basin - Increase the technical capacity of the industry sector to increase water use efficiency
	Cross cutting issues	- Public awareness - Develop financial incentives to promote behavioural change - Develop Disaster Risk Management systems for each sector - Provide incentives for R&D activities (adaptation measures in all sectors)

Assessing costs and benefits of adaptation options – Linda Romanovska
(Mayors Adapt, Latvia)

Important definitions include:

[5] The Water Basin Management Plan is in the pipeline for the two watersheds in Montenegro
[6] A strategy for keeping the construction zone away from the coastline (retracting of the construction zone inland)

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Cost and benefit analyses – processes by which adaptation measures are compared and prioritised based on systematic, unbiased assessment, using common standardised metric or scoring.

Approach	Description	Advantages	Limitations
Economic integrated assessment models (IAM)	Global aggregated economic models that assess the costs of climate change and the costs and benefits of adaptation.	Provide headline values for awareness. Range of economic outputs. Used to provide economic information on global climate policy.	Very aggregated approach with highly theoretical form of adaptation, no technological detail. Insufficient detail for national or sub-national adaptation planning.
Investment and financial flows (IFF)	Early studies estimate costs of adaptation as percentage uplift. More recent national studies estimate cost of marginal increase needed to reduce climate risks.	Highlights scale of short-term investment needs in sectoral or development plans.	Often little linkage with climate change scenarios, and little consideration of uncertainty.
Computable general equilibrium models (CGE)	Multi-sectoral and macro-economic analysis of the economic costs of climate change, and emerging analysis of adaptation.	Captures cross-sectoral linkages across economy, including autonomous market adaptation. Can represent global trade effects. Can link to sector studies.	Utilises aggregated representation of impacts and adaptation, no technical detail, no consideration of uncertainty. Omits non-market effects. Not suitable alone for detailed national or sector-based planning.
Impact assessment (scenario based)	Projects physical impacts and welfare costs from climate model outputs using impact functions, plus costs and benefits of adaptation options.	Sector-specific analysis at regional, national or sub-national scale. Physical impacts as well as welfare values. Can capture non-market sectors.	Not able to represent cross-sectoral, economy-wide effects. Treats adaptation as a menu of technical options to defined scenarios. Medium- to long-term focus, thus less relevance for short-term policy.
Impact assessment (extreme weather events)	Variation of above, using historic damage–loss relationships. Adaptation costs from replacement expenditures or analysis of options.	Consideration of future climate variability. Provides information on short-term priorities (with current climate extremes).	May be inappropriate to apply historical relationships to future socioeconomic conditions. Robustness limited by current high uncertainty in predicting future extremes.
Risk assessment	Risk-based variations include probabilistic analysis and thresholds.	As above, but risk-based context allows greater consideration of risk and uncertainty.	Risk-based approach introduces extra dimension of complexity with probabilistic approach.
Econometric based	Econometrics used for relationships between economic production and climate – applied to future scenarios.	Provides information on multiple factors and can capture autonomous adaptation.	Mostly focused on autonomous or non-specified adaptation. Simplistic relationships for complex parameters. No information on specific attributes.
Adaptation assessments	Economic analysis of adaptive management (iterative adaptation pathways).	Focus on immediate adaptation policy needs, soft and hard adaptation, and decision making under uncertainty.	Resource intensive.

Decision support tool	Brief description	Usefulness and limitations in climate adaptation context
Social cost-benefit analysis (CBA)	Evaluates all relevant costs and benefits to society of all options and estimates the net benefits/costs in monetary terms. CBA aims to directly compare costs and benefits, allowing comparisons within and across sectors.	Most useful when: • climate risk probabilities are known; • climate sensitivity is likely to be small compared to total costs/benefits; • good-quality data exist for major cost/benefit components.
Social cost-effectiveness analysis (CEA)	Compares relative costs of different options and can assess alternative ways of producing same or similar outputs, identifying least-cost outcomes using cost curves. Used extensively in climate change mitigation.	Most useful when: • as for CBA, but also applicable to non-monetary metrics (e.g. health); • agreement exists on sectoral social objective (e.g. acceptable risks of flooding.
Multi-criteria analysis (MCA)	Allows consideration of quantitative and qualitative data using multiple indicators for integrating broad objectives (and related decision criteria) in a quantitative analysis. It provides systematic methods for comparing these criteria, some of which are expressed in monetary terms, some in other units.	Most useful when: • there are broad objectives and qualitative data (including non-monetary metrics); • there is opportunity/need for stakeholder input towards agreement.
Real options analysis (ROA)	Extends principles of CBA to allow economic analysis of learning, delay and future option values, providing context for decisions under uncertainty. Can also provide an economic analysis of benefits of flexibility and value of information on climate risks and actions.	Most useful for: • large, irreversible capital-intensive investment, with potential for learning (especially in case of long decision/construction lifetime); • climate risk probabilities are known or the the range is within bounds.
Portfolio analysis (PA)	Allows an explicit trade-off to be made between the return (measured, e.g., in net benefit terms from the CBA) and the uncertainty of that return (measured by the variance) of alternative combinations (portfolios) of adaptation options under alternative climate change projections.	Most useful when: • a number of adaptation actions are likely to be complementary in reducing climate risks.
Robust decision making (RDM)	Aims to assess robust rather than optimal decisions and stress testing options against large numbers of future scenarios. Can work with climate uncertainty or in formal approach full-system uncertainty. Can trade off economic efficiency against other criteria.	Most useful when: • there is deep uncertainty; • scenarios for alternative climate, socioeconomic and vulnerability futures can be constructed and data for their characterisation are available.
Economic iterative risk management (adaptive management)	Iterative risk management (adaptive management) is an established approach that uses a monitoring, research, evaluation and learning process (cycle) to improve future management strategies, extended to capture economic appraisal using conventional or alternative decision tools.	Most useful when: • climate risk probabilities are not well established or do not exist; • there are threshold levels for risks (benefits expressed in quantitative or economic terms).

Adaptation costs - the costs of planning, preparing for, facilitating, and implementing adaptation measures, including transition costs as well as costs of residual risks/impacts.

Adaptation benefits - the avoided damage costs and/or the accrued benefits following the adoption and implementation of adaptation measures.

Regarding the assessment of adaptation options, a large number of methodologies and tools/ approaches are available. Useful information can be found on: http://mediation-project.eu/output/MediationBookFinal.pdf.

The most commonly used approaches are cost-benefit analysis (CBA), cost-effectiveness analysis (CEA) and multi-criteria analysis (MCA). The following table briefly describes them and shows their main strengths and weaknesses.

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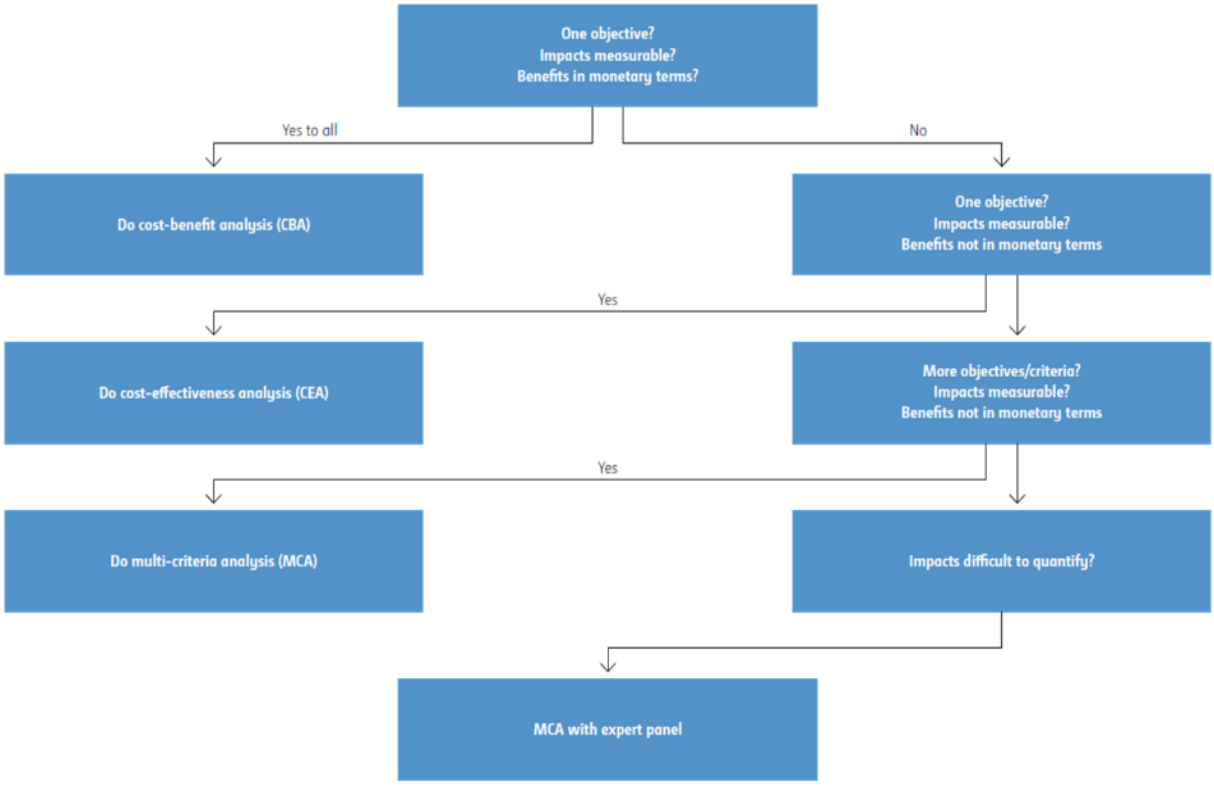
Approach	Description	Strengths	Weaknesses
Cost-benefit analysis (CBA)	Assesses benefits and costs of adaptation options in monetary terms. Outputs include net present values, internal rates of return or benefit-cost ratios.	CBA can provide concrete quantitative justification for adaptation options rather than just relative information. It allows for a comparison between different aspects using a common metric (e.g. EUR).	CBA focuses on efficiency, when other criteria may be important (e.g. uncertainty or equity). It has difficulties with non-monetised costs and benefits and may need a subjective input into the choice of discount rate.
Cost-effectiveness analysis (CEA)	CEA identifies the least-cost option of reaching an identified target/risk reduction level or the most effective option within available resources.	CEA can assess options, using units other than monetary units, thus it is good for effects that are difficult to value. It can be applied within the context of routine risks (e.g. health effects) as well as major climate risks.	CEA is unable to offer an absolute analysis or common metrics. It deals insufficiently with uncertainty or equity. The selection of thresholds or target risk levels is not always easy or objective.
Multi-criteria analysis (MCA)	Assesses adaptation options against a number of criteria, which can be weighted, to arrive at an overall score.	MCA can consider monetised and non-monetised costs and benefits together. It also allows for considering a wide range of criteria including equity.	Scoring and ranking of options in MCA is subjective and not easily comparable.

Prior to the assessment of options an approach has to be selected. The flow-chart below may be of help in this process.



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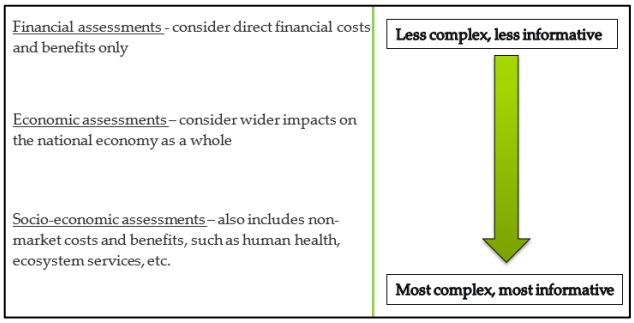
The valuation of costs and benefits is generally found to be least complex and less informative when making a financial assessment, which is contrary to the higher levels of complexity and information level in socio-economic assessments.

The main steps in a **social cost-benefit analysis** include:



1. Agree on the adaptation objective and identify potential adaptation options – *what we would like to achieve and with which potential methods?*
2. Establish a baseline – *what would happen without adaptation action?*
3. Quantify and aggregate the costs over a specific time period – *how much would it cost to implement this measure?*
4. Quantify and aggregate the benefits over a specific time period – *what is the value of avoided damages and co-benefits?*
5. Compare the aggregated costs and benefits – *which of the adaptation options provide most benefits for the lowest cost?*

Indicators:
- Net Present Value (NPV)
- Benefit-cost ratio (BCR)
- Internal rate of return (IRR)

The main steps in a **social cost-effectiveness analysis** include:

1. Agree on the adaptation objective and identify potential adaptation options – *what we would like to achieve and which potential measures can lead to the same/similar result?*
2. Establish a baseline – *what is the current situation and how far is the agreed objective?*
3. Quantify and aggregate the costs over the life cycle of each option– *what are the costs of this measure until it achieves its maximum results?*
4. Determine the effectiveness – *how far can this measure achieve the agreed objective?*
5. Compare the cost effectiveness of the different options – *what is the cost per unit of improvement achieved (effectiveness)?*

The main steps in a **multi-criteria analysis** include:

1. Agree on the adaptation objective**s** and identify potential adaptation options – *which simultaneous objectives we would like to achieve and with which potential measures?*
2. Agree on the decision criteria – *which criteria are important to determine how well each adaptation measure will achieve our objectives?*
3. Score the performance of each adaptation option against each of the criteria – *how good is the performance of this measure based on all criteria using standardised score?*
4. Assign a weight to criteria to reflect priorities – *how important is each evaluation criteria in the 'big picture'?*
5. Rank the options –

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what are the preferable adaptation measures based on the weighted scores?

With regard to cross-cutting issues, trade-offs and synergies, assess whether an adaptation option:

- could potentially **create negative side effects** for another policy area/sector;
- **delivers synergies** with other policy areas/sectors.

Using the Multi-Criteria Analysis – Rob Bakx (ECRAN)

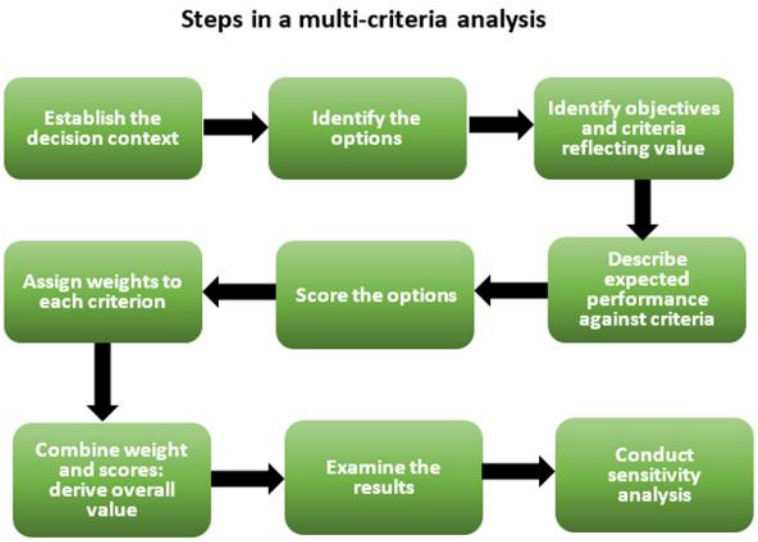
When selecting adaptation options, the focus should be on identifying the most suitable ones, to rank and select the preferred options (e.g. by using multi-criteria analysis) and include effectiveness and efficiency of the options in the assessment process.

Use of multi-criteria analysis

'*Multi-criteria analysis (MCA) or multi-objective decision making is a type of decision analysis tool that is particularly applicable to cases where a single-criterion approach (such as cost-benefit analysis) falls short, especially where significant environmental and social impacts cannot be assigned monetary values. MCA allows decision makers to include a full range of social, environmental, technical, economic, and financial criteria'* (UNFCCC).

MCA is all about multiple conflicting objectives. It is important to identify a single high level objective with sub-objectives. Key outputs include a single most preferred option, ranked options, short list of options for further appraisal, or characterisation of acceptable or unacceptable possibilities.

The ease of use of MCA depends on the particular MCA tool that is employed.



A first important step is to establish the decision context. Central are the decision making body, the administrative and historical context, the set of people that may be affected by the decision, and identification of those responsible for the decision. It is important to clearly understand to what overall ambition the decision is seeking to contribute.

Identification of options relies on the exercise of some expert judgment. It ideally requires involving affected stakeholders for discussing and deciding on criteria and their weightings for the prioritisation and selection of adaptation options. The involvement can be very useful to identify an appropriate set of options with a high level of acceptance. Due to the broad range of potential future climate change impacts and their implicit uncertainties, multiple-benefits, no-regret and low-regret adaptation options should be favoured.

Effective options reduce a particular vulnerability or number of vulnerabilities to a desired level. Efficient options are those whose benefits exceed costs and are more cost-effective than the alternatives. Benefits can be technical, economic, social, financial or environmental.

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When preparing for the assessment of adaptation options, list the set of options to be considered. Options identification can hardly be done without (some) intuition. Early informal sifting of options may be done against legal and similar restrictions. Don't define options before being explicit about the objectives! *Options are only important for the value they create by achieving objectives!*

In the process of selecting options criteria play an important role:

- Criteria are the measures of performance by which the options will be judged;
- Strong criteria are of key importance for the value added through MCA;
- Important: Is it possible in practice to measure or judge how well an option performs on the criterion?
- Excessive numbers of criteria can complicate the MCA process and the communication of the MCA results;
- It should be possible to judge each option against each criterion;
- Judgement should be objective, but may alternatively be judgemental (subjective assessment of an expert);
- Leave out criteria that are unnecessary.

In line with the Adaptation Support Tool the assessment should include criteria, such as….

- urgency with respect to already existing threats;
- early preparatory action (to avoid future damage costs);
- range of effect (options covering multiple risks might be favoured);
- cost-benefit ratio;
- time-effectiveness;
- robustness under a broad range of likely future impacts;
- flexibility for adjustments or reversibility in case of diverging developments;
- political and cultural acceptability;
- enhancement of learning and autonomous adaptive capacity;
- and others.

In the assessment process options have to be scored on each of the criteria. It should be ensured that the sense of direction for scores is the same in all cases. Generally, the standard approach is to allot scores between 0 and 100 to each criterion, but different approaches are conceivable. When scoring the expected performance of each option against the criteria has to be assessed. A consistency check of the scores on each criterion should be carried out. Below is a basic example of a scoring and ranking template.

CRITERION / OPTION	Urgency – already existing threats	Cost-benefit ratio	Covering multiple risks	Political and cultural acceptability	TOTAL	RANKING
Weight 0 – 100						
Adapt Option 1						
Adapt Option 2						
Adapt Option 3						
Adapt Option 4						
Adapt Option 5						

CRITERION / OPTION	Urgency – already existing threats	Cost-benefit ratio	Covering multiple risks	Political and cultural acceptability	TOTAL	RANKING
Weight 0 – 100						
Adapt Option 1	80	45	60	60	**245**	**2**
Adapt Option 2	30	30	65	90	**215**	**4**
Adapt Option 3	100	50	30	70	**250**	**1**
Adapt Option 4	55	10	100	40	**205**	**5**
Adapt Option 5	60	75	80	25	**240**	**3**

Normally, a weighting is given to each of the criteria. Given weight in a range from 0 to 100% for each criterion is an often used approach. To include weighting provides a better balanced outcome. As is

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the case with defining criteria and with deciding the scores for each option against each criterion, also the weight to be given to each criterion is generally an intensive and time consuming process, involving experts and stakeholders.

CRITERION / OPTION	Urgency – already existing threats	Cost-benefit ratio	Covering multiple risks	Political and cultural acceptability	TOTAL	RANKING
Weight 0 – 100	*40*	*100*	*15*	*60*		
Adapt Option 1	80 *(32)*	45 *(45)*	60 *(9)*	60 *(36)*	**122 – 30.5**	**3**
Adapt Option 2	30 *(12)*	30 *(30)*	65 *(10)*	90 *(54)*	**106 – 26.5**	**4**
Adapt Option 3	100 *(40)*	50 *(50)*	30 *(5)*	70 *(42)*	**137 – 34.2**	**1**
Adapt Option 4	55 *(22)*	10 *(10)*	100 *(15)*	40 *(24)*	**71 – 17.8**	**5**
Adapt Option 5	60 *(24)*	75 *(75)*	80 *(12)*	25 *(15)*	**126 – 31.5**	**2**

Some sources in support of applying a multi-criteria analysis can be found on:

- http://unfccc.int/adaptation/nairobi_work_programme/knowledge_resources_and_publications/items/5440.php
- http://climate-adapt.eea.europa.eu/adaptation-support-tool/step-4/prioritise-and-select
- http://eprints.lse.ac.uk/12761/ (multi-criteria analysis manual)

Adaptation Preparedness Scoreboard (Maddalena Dali, European Commission)

Background

The EU Adaptation Strategy mentions that '*by 2014 the Commission will develop an adaptation preparedness scoreboard, identifying key indicators for measuring Member States' level of readiness.'*

The aim of the scoreboard is to develop a system for assessing in a comparable way the level of preparedness of Member States to the current and projected impacts of climate change, and thus the level of preparation of the EU as a whole.

Assessing adaptation options

Adaptation does not occur in a vacuum. The Adaptation Preparedness Scoreboard makes reference to:

- Multi criteria analysis;
- Cost-benefit analysis;
- Stakeholders consultation;
- Relevance to sector policies and priorities;
- Consistent with decision making frameworks.

Implementing options

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When implementing adaptation options, it is important to identify entry points and seek for agreement with stakeholders.

Identify entry points

A. *Looking at what is already in place: action through mainstreaming*

1. Environmental Impact Assessment
2. Disaster risk reduction/management plans
3. Land use and resource management plans
4. Sector policies, in line with EU mainstreaming
5. Insurance/investments in risk prevention

B. *New actions to increase resilience*

- Legal instruments?
- Economic instruments? (taxes, fees, grants)
- Information/communication tools (brochures, websites, campaigns)?
- Partnerships/arrangements?

Seek agreement of stakeholders

- Define responsibilities and roles
- Define a timetable
- Ensure availability of resources (human and financial)

No.	Main performance areas and key domains of relevance	Score*
	Climate change adaptation is mainstreamed into priority and key national planning and sectoral policymaking	
8A	Consideration of climate change has been included in the national frameworks for environmental impact assessments	
8B	Prevention/preparedness strategies (e.g. early warning systems) in place under national disaster risk management plans comprehend current and projected climate extremes	
8C	Key land use and resource management planning policies take into account the impacts of climate change	
8D	National policy instruments promote adaptation at sectoral level, in line with national priorities and in areas where adaptation is mainstreamed in EU policies	
8E	Adaptation is mainstreamed in insurance or alternative policy instruments, where relevant, to provide incentives for investments in risk prevention	
	Climate change adaptation policies and measures are implemented	
9A	Adaptation policies and measures are implemented, e.g. as defined in action plans or sectoral policy documents	
9B	Cooperation mechanisms foster and support adaptation at relevant scales (e.g. local, subnational)	
9C	Procedures or guidelines are available to assess the potential impact of climate change on major projects or programmes, and facilitate the choice of alternative options	
9D	There are processes for stakeholders' involvement in the implementation of adaptation policies and measures.	

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Adaptation Strategy Development – Višnja Grgasović - (Ministry of Environmental and Nature Protection, Croatia)

In Croatia a variety of sectors deals with climate change adaptation. Climate change is not treated as a separate risk but is considered a driving force of other risks, including in the field of disaster risk management. The National Meteorological and Hydrological Service (DHMZ) supports various regional climate modelling activities. In the field of physical planning there is an 'Ordinance on measures for protection against natural disasters in spatial planning and development', as well as a 'Rural Development Programme'. Flood and drought risk management, and management of the risk of sea level rise (tide gauge stations) are, so far, key areas under the country's climate change adaptation policies.

The following shows the Croatian state of play in Adaptation Strategy Development, with a view to the Adaptation Support Tool (AST).

AST – Step 1: Set up the process; Obtain high level support

- Air Protection Act in force (Official Gazette 130/2011, 47/2014);
- Modelling, assessment of the vulnerability and impact and adaptation measures are implemented by the central state administration and other public bodies responsible for meteorology, environmental protection, agriculture, fisheries, forestry, water management, energy, spatial planning, nature protection, sea, tourism and protection human health;
- There is a Committee for inter-sectoral coordination of policies and measures on climate change adaptation and mitigation;
- Coordination and Technical working groups have been established.

AST – Step 1: Set up the process

- The Air Protection Act recognizes sectors that are exposed to climate change impacts, and prescribes the obligation of undertaking adaptation measures in the following sectors:
  - hydrology and water resources;
  - agriculture;
  - forestry;
  - biological diversity and natural inland ecosystems;
  - biological diversity and marine ecosystems;
  - coast and coastal area;
  - tourism; and
  - human health.
- Steps in the process of strategy development include:
  - Assessment of the current situation;
  - Modelling, vulnerability and impact assessment for vulnerable sectors until 2040;
  - Preparing the impact and vulnerability scenarios and assessing adaptation measures;
  - Risk assessment and defining the priority measures and activities in different sectors;
  - Defining the way of integrating the adaptation measures in sectoral development plans, the order of implementation, timeframe;

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- Assessment of financial resources needed for implementation;
- Cost-benefit analysis of adaptation measures;
- Developing a set of indicators for monitoring the implementation of the objectives and measures defined in the adaptation strategy and action plan.

AST – Step 1: Set up the process; identification of funding opportunities

- The Air Protection Act prescribes the obligation to develop a strategy on adaptation to climate change for the period until 2040 with a view to 2070 with an action plan which will be the main document in the area of climate change adaptation;
- The National Adaptation Strategy (NAS) will be prepared within the Transition Facility Project;
- By the end of 2015 a High Performance Computing System for climate modelling was placed in the University Computing Centre;
- Preparation of the adaptation strategy will start at the beginning of 2016, adoption is expected in 2017.

Operational Programme – Competitiveness and cohesion 2014 – 2020

- Funds will be used in accordance with the objectives and priorities identified within the framework of the future NAS;
- Until the adoption of the NAS, the framework and preconditions for adaptation activities will be determined in accordance with the 6th National Communication to the UNFCCC;
- Modernisation of the existing climate observation and prediction system is foreseen;
- Stimulation of applied research in vulnerable sectors is to be carried out in order to identify and better understand possible climate change effects and to find the best solutions for adaptation measures, strengthening capacities, and awareness-raising, and support for local action plans.

Plan of usage of financial resources received from the sale of emission allowances through auctions in the Republic of Croatia for the period from 2014 to 2016 (OG 140/2014)

- Collected funds from the sale of emission allowances are paid to the Fund for Environmental Protection and Energy Efficiency.

Programme for stimulating research and development activities in the area of climate change for the period 2015 – 2016 (adopted in November 2015)

- Part of collected funds from the sale of emission allowances will be allocated to applied research and development related to climate change adaptation.

AST – Step 1: Collect information; Communicate and raise awareness

- UNDP, Good climate for all, 2008
- 6th National Communication to UNFCCC, January 2014; http://www.mzoip.hr/hr/klima/emisije-staklenickih-plinova.html
- Project CroAdapt, July 2014 - December 2015

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- GEF, 'The integration of climate change and variability in the national strategy for the implementation of the Protocol Integrated Coastal Zone Management in the Mediterranean':
  - Assessment of potential damage from sea level rise for Croatia;
  - Estimate of the costs of climate change for Sibenik-Knin County;
  - Modelling and projections, using the DIVA (Dynamic and Interactive Vulnerability Assessment), Climagine
- IPCC Report (WG1 - observed changes and their causes; WG2 – assessment of needs, options, opportunities, constraints, resilience, limits, and other aspects associated with adaptation to climate change; WG3 - assessment of all relevant options for mitigating climate change); http://www.ipcc.ch/
- EEA Report No 12/2012 on Climate change, impacts and vulnerability in Europe 2012; http://www.eea.europa.eu/publications/climate-impacts-and-vulnerability-2012/at_download/file
- Ministry of Environmental and Nature Protection; http://www.mzoip.hr/hr/klima.html; http://www.mzoip.hr/hr/klima/prilagodba-klimatskim-promjenama.html
  - Result 1.1. Increased Capacities of experts for performing climate models and scenarios to assess vulnerability and impacts on climate change and adaptation measures for each sector, trainings, workshops, assessment of past researches and capacity needs;
  - Result 1.2. Officials at the national and local level and the interested public will be educated on the impact of climate change and on measures to adapt to climate change, communication plan, 7 workshops, informative materials, brochures.

AST – Step 2: Assessing risks and vulnerabilities to climate change
- **Analyze how past weather events have affected your area**
- **Undertake a climate change vulnerability and risk assessment**
- **Take trans-boundary issues into account**
- **Develop an approach for addressing knowledge gaps and for dealing with uncertainties**

- Overview of current research and activities related to climate change impacts and adaptation to climate change, including biodiversity, risk management, and transboundary issues;
- Preparation and implementation of climate modelling and impacts on sectors, using data from climate scenarios of DHMZ and the National Protection and Rescue Directorate, and on the basis of 5th Report of the Intergovernmental Panel on Climate Change (IPCC); in all sectors vulnerable to climate change, with projections up to 2040 and 2070.

AST – Step 3: Identifying adaptation options
AST – Step 4: Assessing adaptation options

- Assessment of adaptation options for each vulnerable sector, taking into account the existing solutions and examples of good practice in countries with similar geographical and climatic characteristics;
- Analysis of cost effectiveness of the adaptation options and their ranking;
- It is necessary to assess the benefits and impact of the implementation of adaptation measures to climate change on the Gross Domestic Product, taking into account the costs and availability of

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financial resources, complexity of measures, barriers, capacity, and timeline for their implementation. Options should include risk and damage assessment in case of not taking the measures, and their cost to the environment, society and economy.

AST – Step 5: Implementation
AST – Step 6: Monitoring

- Air Protection Act provides the basis; Official Gazette 130/2011, 47/2014
- Development documents of certain areas and activities must comply with the principles, the basic objectives, priorities and adaptation measures identified for individual sectors in the adaptation strategy with its action plan;
- The state administration and other public bodies in charge of meteorology, nature protection, environmental protection, agriculture, fisheries, forestry, water management, energy, spatial planning, sea, tourism and health shall every four years, report to the Ministry on the activities related to climate change adaptation as per Article 15 of Regulation (EU) no. 525/2013.

AST – Step 5: Implementation

- The Ministry requires that adaptation is included in all new Strategic Environmental Assessments, Environmental Impact Assessments, Environmental protection studies and other documents. E.g. (from the beginning of 2015):
  - Spatial development strategy;
  - SEA for strategies, plans, and programmes (transport, spatial planning, water sector);
  - Environmental protection studies (waste transfer stations, water supply and drainage systems…);
- Translation of EU Guidelines:
  - Guidelines for Project Managers: Making vulnerable investments climate resilient (translated: http://www.mzoip.hr/doc/smjernice_za_voditelje_projekta.pdf);
  - Guidance on Integrating Climate Change and Biodiversity into Strategic Environmental Assessment (SEA), Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (EIA).

AST – Step 6: Monitoring and evaluation

Action Plans under the NAS have a validity period of five years and must include:

- detailed description of measures by sector;
- the responsible bodies;
- financing sources for implementation of the measures;
- the means of monitoring;
- timeframe for implementation and completion of certain measures;
- definition of the baseline situation;
- definition and developed indicators;
- proposal for upgrading the legislative and institutional frameworks;
- detailed elaboration of normative and financial-economic instruments;
- description of barriers;

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- plan to minimise the risk of certain barriers.

WORK SESSION 2 – Country self-assessments: AST, steps 4 and 5

In a break out session the participants of each country carried out a self-assessment on their state of play in the area of climate change adaptation with a focus on steps 4 and 5 of the Adaptation Support Tool. The assessment followed a template based on the AST and APS.

It must be emphasized that the country assessment is only based on the understanding and observations of the workshop participants and that the findings in no way can be considered binding or representative for the beneficiary countries. They just represent an honest and professional impression of the work session members as a possible prerequisite for further action.

By the end of the break out session the country groups prepared a brief feedback session to be presented at the start of workshop day 2, informing the other country groups of important findings in terms of successes, improvements and gaps.

State of play February 2016

	Completion of adaptation actions (as per AST) in % as estimated by country groups							
STEP 4 – Assessing and prioritising adaptation options	**ALBANIA**	**BOSNIA & HEREZEGOVINA**	**KOSOVO***	**The fYRoM**	**MONTENEGRO**	**SERBIA**	**TURKEY**	**AVERAGE**
4.1 Prioritisation system of adaptation options developed in cooperation with stakeholders	60	65	100	70	50	80	60	69
4.2 Possible synergies and conflicts identified and taken into account	75	45	30	80	30	70	80	59
4.3 Cost-benefits of options assessed	5	30	30	30	30	25	20	24
4.4 Preferred adaptation options selected for implementation	50	50	10	60	50	70	65	51
4.5 Adaptation strategy developed and politically adopted	45	100	70	0	10	50	100	54
STEP 5 – Implementation of adaptation								
5.1 Mainstreaming: identify and make use of entry points for adaptation	70	50	80	100	80	30	50	66
5.2 Roles and responsibilities of affected stakeholders agreed	30	40	90	80	50	-	80	53
5.3 Action Plan developed	20	100	50	60	20	-	70	46
5.4 Steps for implementation set	20	30	20	50	10	-	70	29

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The figures estimated by the workshop participants, show that by February 2016 the ECRAN beneficiary countries, as an average have completed approximately half of the actions needed for the completion of steps 4 and 5 that are part of the Adaptation Support Tool. Averages per step are approximately 51% for Step 4 and 48% for Step 5.

With regard to both Step 4 and 5 the country groups were asked to identify the most important and the most urgent actions to be taken in their country to further bring the process of CCA Strategy development and action planning forward. The table below provides an overview of the responses received:

State of play February 2016

Identification of most important and most urgent actions to be taken		
ALBANIA	**Most Important**	**Most urgent**
	STEP 4 – Assessing and prioritising adaptation options	
	- Conducting specific analyses to detail action plans	- Training and learning from best practices of using analyses as CBA, CEA, MCA, etc.
	STEP 5 – Implementation of adaptation	
	- Coordinate implementation efficiently	- Detailing adaptation action plans
BOSNIA & HERZEGOVINA	**Most Important**	**Most urgent**
	STEP 4 – Assessing and prioritising adaptation options	
	- Implementation of Adaptation Strategy	- Flood protection and agricultural measures to be taken
	STEP 5 – Implementation of adaptation	
	- Capacity building, technical assistance, funding	- Start with implementation immediately
KOSOVO*	**Most Important**	**Most urgent**
	STEP 4 – Assessing and prioritising adaptation options	
	- Institutional capacity building (knowledge, planning, legislation)	- Increase water availability
	STEP 5 – Implementation of adaptation	
	- Increasing river discharge capacity (dredging, cleaning, excavation) - Identification of flood areas (improve natural retention), include in river basin management plan - National reaction plan for disaster response (early warning, evacuation, shelters) - Multi-purpose reservoirs (irrigation, flood control) - Rainwater harvesting - Reforestation - Development of water transfer schemes - Water saving technologies (e.g. improve irrigation) - Water reuse and recycling	- Reforestation to increase upstream water buffering ➔ reduce peak discharge - Increase water availability

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The former Yugoslav Republic of Macedonia	**Most Important**	**Most urgent**
	STEP 4 – Assessing and prioritising adaptation options	
	- Lack of consistency in the use of terminology and prioritization between and among sectors. Connections among various planning documents are often not present	- Lack of consistency in the use of terminology and prioritization between and among sectors. Connections among various planning documents are often not present
	STEP 5 – Implementation of adaptation	
	- Action plan should be amended with financial sources and time frame	- Roles and responsibilities of affected stakeholders have to be put in legal framework
MONTENEGRO	**Most Important**	**Most urgent**
	STEP 4 – Assessing and prioritising adaptation options	
	- Development of the general system for prioritisation and its adjustment to the needs and recognised risks of sectors	- Robust approach to CBA
	STEP 5 – Implementation of adaptation	
	- Implementation of concrete adaptation options, after a comprehensive analysis	- Work on NAP
SERBIA	**Most Important**	**Most urgent**
	STEP 4 – Assessing and prioritising adaptation options	
	- Include more cost benefit analyses to assess adaptation options	- political adoption of the National Adaptation Plan
	STEP 5 – Implementation of adaptation	
	- Start implementation after adoption of National Adaptation Plan	- Start implementation after adoption of National Adaptation Plan
TURKEY	**Most Important**	**Most urgent**
	STEP 4 – Assessing and prioritising adaptation options	
	- Revised measures list with SMART indicators	- Cost Benefit Analysis
	STEP 5 – Implementation of adaptation	
	- Awareness raising for responsible institutions and affected stakeholders	- Training of stakeholders and strengthening the monitoring system

Annex 2 to this report provides for additional information regarding the state of affairs under steps 4 and 5, and the assumed needs for further action.

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Day 2 – Ankara, Turkey, 19 February 2016

For the second day of the workshop, work sessions were planned with a view of preparing action planning materials for prioritising adaptation options and implementation. Taking into account the way in which the workshop had developed on day one and the very start of day two, the team of facilitators concluded that a better and more beneficial approach would be to adjust the focus of foreseen the 3rd and 4th work sessions. It was decided to merge them into an exercise that would allow participants to practice the use of the multi-criteria analysis, which would allow them to build up or expand their experience with assessing and prioritising adaptation options.

WORK SESSION 3 – Application of multi-criteria analysis

The country groups were invited to apply prioritisation techniques presented in the workshop, and more in particular the technique of multi-criteria analysis. Each of the countries was proposed to carry out an MCA while using its adaptation options listed in Work Session 1. Relevant country criteria were to be discussed and defined, also taking into account the criteria mentioned in the Adaptation Support Tool. Groups were then to give the criteria a weighting and score them against the adaptation options. The results per country group were to be presented to the plenary.

The results of the works session are presented in Annex 3 to this Report.

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V. Evaluation

Statistical Information

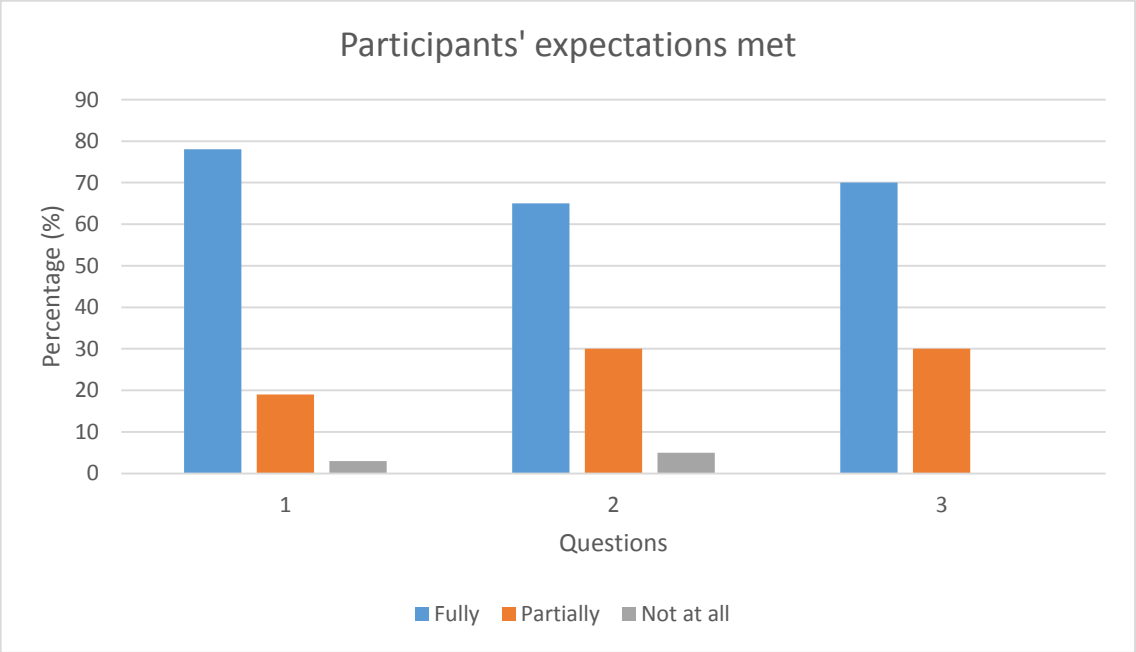
78% of the evaluating participants indicated that their expectations were fully met as concerns the workshop objective on 'strengthened knowledge regarding best practices in assessing climate change adaptation options'. An additional 19% indicated that expectations in this area were partially met.

According to the received evaluations two third (65%) of all participants enhanced their 'understanding about their own country's climate change adaptation priorities towards developing a national climate adaptation strategy and action planning'. Generally, the same result (70% fully met) was found with regard to participants' 'development of thoughts about a first vision for their country on the implementation of prioritised climate change adaptation options'. In both cases the vast majority of remaining participants found that these objectives were partially met.

An overall total of 83% of the evaluation scores regarding the quality aspects of the workshop such as presentations, facilitators, and logistics, obtained the marks 'excellent' (52%) to 'good' (31%) with 12% scoring 'average', 3% 'acceptable', 2% 'poor'. No less than 86% of all participants indicated that they found the workshop 'time well spent' ('excellent' or 'good'). 8% scored 'average' and 6% (2 participants) scored 'poor'.

Expectations

The extent to which specific expectations were met, or not met:



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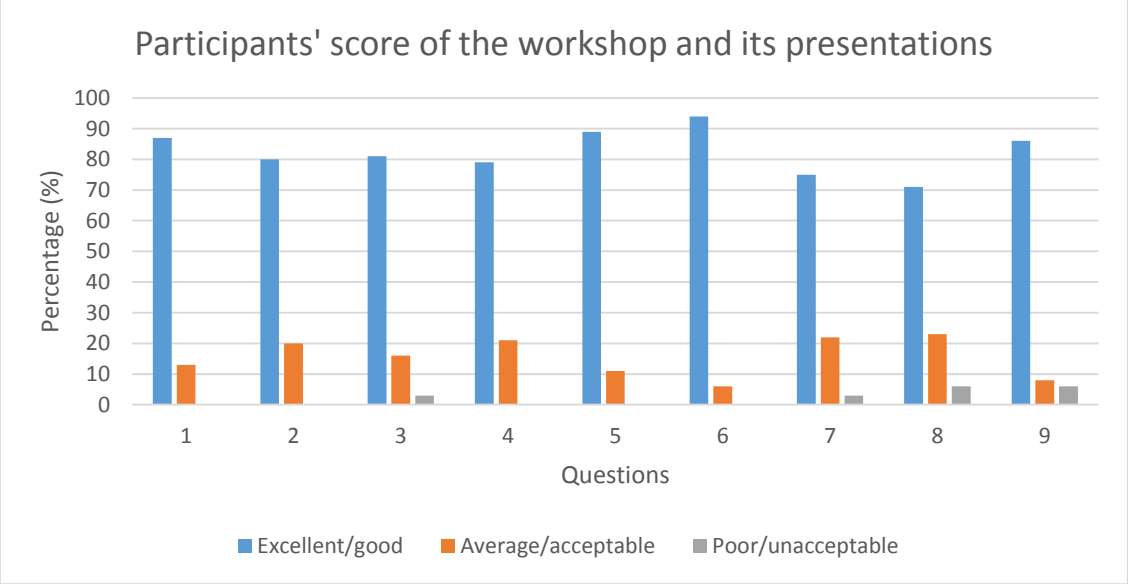
Workshop objectives	My expectations were met		
	Fully	Partially	Not at all
1. Strengthened knowledge regarding best practices in assessing climate change adaptation options	IIIII IIIII IIIII IIIII IIIII IIII (78%)	IIIII II (19%)	I (3%)
2. Enhanced understanding about my own country's climate change adaptation priorities towards developing a national climate adaptation strategy and action planning	IIIII IIIII IIIII IIIII IIII (65%)	IIIII IIIII I (30%)	II (5%)
3. Developed my thoughts about a first vision for my country on the implementation of prioritised climate change adaptation options	IIIII IIIII IIIII IIIII IIIII I (70%)	IIIII IIIII I (30%)	(0%)

Workshop and Presentation

Regarding workshop quality and logistical aspects participants scored as follows:



Aspect of the workshop	Excellent	Good	Aver-age	Accept-able	Poor	Unaccep-table
1. The workshop achieved the objectives set	IIIII IIIII IIIII III (49%)	IIIII IIIII IIII (38%)	IIII (11%)	I (2%)		
2. The quality of the workshop was of a high standard	IIIII IIIII III (37%)	IIIII IIIII IIIII (43%)	IIIII I (17%)	I (3%)		
3. The content of the workshop was well suited to	IIIII IIIII IIIII III (49%)	IIIII IIIII II (32%)	IIII (11%)	II (5%)	I (3%)	

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Aspect of the workshop	Excellent	Good	Aver-age	Accept-able	Poor	Unaccep-table
my level of understanding and experience						
4. The practical work was relevant and informative	IIIII IIIII IIIII III (55%)	IIIII III (24%)	IIIII I (18%)	I (3%)		
5. The workshop was interactive	IIIII IIIII IIIII IIIII III (66%)	IIIII III (23%)	IIII (11%)			
6. Facilitators were well prepared and knowledgeable on the subject matter	IIIII IIIII IIIII IIIII IIIII II (77%)	IIIII I (17%)	I (3%)	I (3%)		
7. The duration of this workshop was neither too long nor too short	IIIII IIIII IIIII I (43%)	IIIII IIIII II (32%)	IIIII I (16%)	II (6%)	I (3%)	
8. The logistical arrangements (venue, refreshments, equipment) were satisfactory	IIIII IIIII II (34%)	IIIII IIIII III (37%)	IIIII (14%)	III (9%)	II (6%)	
9. Attending this workshop was time well spent	IIIII IIIII IIIII IIIII II (59%)	IIIII IIIII (27%)	III (8%)		II (6%)	

Comments and suggestions

The following comments and/or suggestions were submitted in addition to the questions already answered:

Workshop Sessions:

- Well structured
- The less informative presentations were the ones that focused on theoretic knowledge; concrete practical experiences are welcomed
- To discuss more about environment
- I suggest to discuss more about energy, electricity and mines and protection of the environment
- It was well structured (3x)
- Good!
- It is more practical to have working tables in front of the participants during the lectures and not only for working sessions
- Good time distribution in between presentations and work sessions
- It was well designed

Facilitators:

- Very good (3x)
- Excellent (2x)
- Working with Dragana was good (2x)
- Dragana was excellent and very supportive!
- Good (3x)

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- Performed well, constructively and in a professional manner
- The facilitators are well prepared in the respective fields. They are careful to not get involved in the actual work sessions apart from suggesting the working methods
- Well prepared

Workshop level and content:

- Workshop was well-structured with excellent facilitators
- Very good
- Good
- Very general after the year of the same story
- High (2x)
- It was structured with excellent experts (3x)
- Appropriately responded to the participants' capacity for being active in the workshop
- It was informative overall but often the presentations from the countries lasted long and the listeners lost interest. Content was well thought
- It was a good level of workshop

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ANNEX I – Agenda

Thursday 18 February 2016

Topic: Assessing Adaptation Options (STEP C workshop)

Moderators: Rob Bakx, Imre Csikós

Start	Finish	Topic	Speaker(s)	Sub topic/Content
09:00	**09:30**	***Registration***		
09:30	09:45	Welcome and Introduction	**Rob Bakx**, Moderator, ECRAN	- Introduction participants - Step C workshop: the focus - Programme outline and logistics
09:45	10:00	Results of previous workshop	**Rob Bakx**, Moderator, ECRAN	- Summary of findings and conclusions of November 2015 workshop - Countries' progress
10:00	10:15	Latest adaptation developments	**Maddalena Dali**, European Commission, DG Clima **Imre Csikos**, ECRAN	- Update of workshop participants on latest developments in EU context - Paris Summit December 2015
10:15	10:50	Assessment of Adaptation options (part 1): Prioritisation and selection of options	**Dragana Bojović, CMCC**, Italy	- Adaptation Prioritisation tools - Examples - Questions and answers
10:50	11:15	Assessment of Adaptation options (part 2): Prioritisation and selection of options in the water sector	**Ad Jeuken,** Deltares, Netherlands	- Response strategies for water management (20") - Questions and answers
11:15	**11:30**	***Coffee Break***		
11:30	12:30	WORK SESSION 1 Adaptation options 'identified'	**Rob Bakx**, Moderator, ECRAN *Facilitators:* *(one per country)* **Dragana Bojović, Linda Romanovska, Maddalena Dali, Ad Jeuken, Peter Heiland, Višnja Grgasović, Imre Csikós**	Break-out session (7 country groups) *Per country group*: - Country specific identification of already chosen or possible adaptation options in the chosen sectors (see previous workshop results) - Results will feed into work sessions 2 to 4

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12:30	**13:30**	***Lunch Break***		
13:30	14:00	Assessment of Adaptation options (part 3): Assessing costs and benefits of adaptation options	**Linda Romanovska**, Mayors Adapt, Latvia	- Costs and benefits: Assessment approaches - Questions and answers
14:00	14:30	Prioritisation and selection of options (part 4) [7]: Using the Adaptation Support Tool	**Rob Bakx,** ECRAN	- Step 4 of the Adaptation Support Tool (AST): Assessing adaptation options - Questions and answers
		Adaptation Preparedness Scoreboard	**Maddalena Dali**, DG CLIMA	- Indicators for assessing adaptation options - Indicators for implementation - Questions and answers
14:30	14:45	Adaptation Strategy development	**Višnja Grgasović,** Ministry of Environmental and Nature Protection, Croatia	- Approach to and planning of the strategy development process in Croatia - Coordination and consultation - Questions and answers
14:45	15:00	Country assessments - introduction	**Rob Bakx,** Moderator, ECRAN	- Purpose of the work session - Explanation of the work session - Questions and answers
15:00	**15:15**	***Coffee***		
15:15	17:00	<u>WORK SESSION 2</u> Country self-assessments	**Rob Bakx and Imre Csikós,** Moderators, ECRAN <u>*Facilitators:*</u> *(one per country)* **Dragana Bojović, Linda Romanovska, Maddalena Dali, Ad Jeuken, Peter Heiland, Višnja Grgasović, Imre Csikós**	Break-out session (7 country groups) <u>*Per country group*</u>: - Focus is on indicators for '*Assessing and prioritising the Adaptation Options*', as identified under session 1, and on indicators for *'Implementation of adaptation'* - In depth country discussion and self-assessment inspired on AST and Adaptation Preparedness Scoreboard (supporting materials will be provided) - Prepare reporting materials and concise presentation for plenary feedback (use templates that will be provided) - Results will feed into work sessions 3 and 4
17:00	***End of Day 1***			

[7] http://climate-adapt.eea.europa.eu/adaptation-support-tool

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Friday 19 February 2016

Topic: Assessing Adaptation Options (STEP C workshop)

Moderators: Robert Bakx, Imre Csikós

Start	Finish	Topic	Speaker(s)	Sub topic/Content
09:00	**09:30**	**Registration**		
09:30	10:45	Feedback session – Successes, weak points and gaps	**Rob Bakx and Imre Csikós,** Moderators, ECRAN **Representative of each ECRAN country**	- Plenary feedback presentation from day 1 per country (approx. 5 minutes per country) - Questions and answers, discussion, conclusions
10:45	11:00	***Coffee Break***		
11:00	12:30	WORK SESSION 3 Action plan for prioritising adaptation options	**Rob Bakx and Imre Csikós,** Moderators, ECRAN *Facilitators:* *(one per country)* **Dragana Bojović, Linda Romanovska, Maddalena Dali, Ad Jeuken, Peter Heiland, Višnja Grgasović, Imre Csikós**	Break-out session (7 country groups) *Per country group*: - Against their results of work sessions 1 and 2, groups are asked to prepare a *tentative action plan* for their country regarding the prioritisation of adaptation options - In depth country discussion and conclusions - Prepare reporting materials and concise presentation for plenary feedback (use templates that will be provided)
12:30	14:15	***Lunch Break (extended, allowing participants to collect per diems)***		
14:15	15:15	Feedback session – Prioritisation Action Plan	**Rob Bakx and Imre Csikós,** Moderators, ECRAN **Representative of each ECRAN country**	- Plenary feedback presentation per country (5 minutes each) - Questions and answers, discussion, conclusions
15:15	**15:30**	***Coffee***		
15:30	16:15	WORK SESSION 4 Implementation Action Plan	**Rob Bakx and Imre Csikós,** Moderators *Facilitators:* *(one per country)* **Dragana Bojović, Linda Romanovska, Maddalena Dali, Ad Jeuken, Peter Heiland,**	Break-out session (7 country groups) *Per country group*: - Against the results of work sessions 1, 2 and 3, groups are asked to prepare an *outline for an action plan* for their country regarding the implementation of selected adaptation options - In depth country discussion and conclusions

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			Višnja Grgasović, Imre Csikós	- Prepare reporting flipchart (use template that will be provided)
16:15	16:35	Feedback session – Implementation Action Plans	**Rob Bakx and Imre Csikós,** Moderators, ECRAN	- Presentation of country results (outline of Implementation Action Plans) - Discussion, conclusions
16:35	17:00	Conclusions and wrap-up	**Rob Bakx and Imre Csikós,** Moderators, ECRAN	- Conclusions workshop - Next Steps: Towards Step D - Workshop evaluation
17:00	***End of Day 2***			

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ANNEX II – Detailed Results Work Session 2

Where does your country stand as concerns climate adaptation preparedness?

ALBANIA

Adaptation Support Tool - STEP 4

Assessing and prioritising adaptation options

No.	Essential issues when Assessing Adaptation Options	Completed 0 – 100%
4.1	**A prioritisation system of adaptation options developed in cooperation with stakeholders**	60%
	Status: Partially in place. In the framework of the NAP and NAS drafting process	
	Which actions to be taken: Deciding on and utilizing a method of assessment and prioritisation with stakeholders (CBA, MCA, etc.), after enlarging the group of the latter	
4.2	**Possible synergies and conflicts identified and taken into account**	75%
	Status: Mainly accomplished because of inter-sectorial involvement	
	Which actions to be taken: Send the up-to-date draft NAP to institutions managing other influenced sectors to receive their comments Public hearings and discussion sessions with interest groups	
4.3	**Cost-benefits of options assessed**	5%
	Status: Not started	
	Which actions to be taken: Trainings and learning from best practices of using CBA. Decide on the best way to accomplish CBA – hire experts to conduct the analysis?	
4.4	**Preferred adaptation options selected for implementation**	50%
	Status: Partially accomplished. Some options have already started to be executed: [Moratorium on tree-cutting] [Moratorium on inert materials and sediment exploitation in riverbeds] [Chapter for CCA in several national sectorial plans: Health, Territorial Planning, Agriculture, Tourism, Energy, etc.] [Limiting building and urbanization only within already urbanized areas according to in-process National Territorial Plans and General Local Plans]	

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	[Riverbed management and regulation in accordance with neighbour countries, preventing floods from upstream]	
	Which actions to be taken: Keep on enriching the list of assessed options and select them based on the decided method (CBA, MCA, etc.)	
4.5	**Adaptation strategy developed and politically adopted**	**45%**
	Status: NAP finalized in March. NAS in the first phases.	
	Which actions to be taken: Send the up-to-date draft NAP to institutions managing other influenced sectors to receive their comments. Public hearings and discussion sessions with interest groups. NAS – Analyse sectorial strategies in detail...	
	Overall assumed completion % →	**47%**

Adaptation Support Tool - STEP 5

Implementation of adaptation

No.	Essential issues with regard to Implementation	Completed 0 – 100%
5.1	**Key instruments for integrating adaptation identified**	**70%**
	Status: Partially accomplished. Chapter for CCA in several national sectorial plans: Health, Territorial Planning, Agriculture, Tourism, Energy, etc. SEA and EIA are obligatory for any plan.	
	Which actions to be taken: Analyse the areas where CCA is not integrated and find possibilities of incorporating it	
5.2	**Roles and responsibilities of affected stakeholders agreed**	**30%**
	Status: Accomplished only in a general definition basis.	
	Which actions to be taken: Further detailing of roles and responsibilities according to specific CCA options after CBA, CEA and MCA.	
5.3	**Action plan developed**	**20%**
	Status: In process	
	Which actions to be taken: Proceed with CBA, CEA, MCA and other methods off adaptation options assessment.	
5.4	**Steps for implementation set**	

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	Status: Partially accomplished. Some options have already started to be executed: [Moratorium on tree-cutting] [Moratorium on inert materials and sediment exploitation in riverbeds] [Chapter for CCA in several national sectorial plans: Health, Territorial Planning, Agriculture, Tourism, Energy, etc.] [Limiting building and urbanization only within already urbanized areas according to in-process National Territorial Plans and General Local Plans] [Riverbed management and regulation in accordance with neighbour countries, preventing floods from upstream]	**20%**
	Which actions to be taken: Keep on enriching the list of options to be implemented and select them based on the decided method (CBA, CEA, MCA, etc.). Define timelines for the implementation of the options.	
	Overall assumed completion % →	**35%**

BOSNIA AND HERZEGOVINA

Adaptation Support Tool - STEP 4

Assessing and prioritising adaptation options

No.	Essential issues when Assessing Adaptation Options	Completed 0 – 100%
4.1	**A prioritisation system of adaptation options developed in cooperation with stakeholders** Status: • The CCA strategy includes no prioritisation of actions • Sector action plans set priorities (within sector ministries) • After 2014-floods the flood-protection-actions got highest priority; working group including stakeholders was set up to develop flood protection action plan including priorities • Generally, in BA Agriculture has a high priority (in practise / facultative) – not systematic with stakeholder involvement Which actions to be taken: • Question: DIFFICULT / RISKY: the sector actions cannot be weighed against each other!?!? • Working group CCA-strategy should develop methodology for prioritisation (WORKING GROUP is not existing anymore? Follow up working group?) • Communes are working on multi-risk-assessments (until end 2016): this risk assessment would be important criteria for a prioritisation system. • High and lower levels of administration should be involved in the method development and in setting priorities and work together on realisation flood protection measures	**65%**
4.2	**Possible synergies and conflicts identified and taken into account**	

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	Status: • Conflicts: lack of resources (human, money, …) • Flood management measures can have synergies with biodiversity • Other also taken into account (see CCA strategy)	**45%**
	Which actions to be taken: • Air quality measurements • Cross border / regional assessment to create more synergies • Increase public knowledge on air pollution + GHG-emission • Others …	
4.3	**Cost-benefits of options assessed**	**30%**
	Status: • Cost estimations have been done for actions in all fields of action (see CCA-strategy) • Benefits? Not calculated yet; some estimations (flood risk management)	
	Which actions to be taken: • Benefits might be estimated within sector action plans • Benefits should be calculated on project level rather than on strategic level • Methods to assess benefits are not known for all sectors • Monitoring realised projects regarding the benefit • Monitoring of Emissions • Take indirect benefits into account	
4.4	**Preferred adaptation options selected for implementation**	**?**
	Status: • Agriculture and water and human health measures are selected	
	Which actions to be taken: • Not possible before methodology is created, see above	
4.5	**Adaptation strategy developed and politically adopted**	**100%**
	Status: Done; CCA strategy adopted 13.10.2013	
	Which actions to be taken: • Improve legislation (e.g. law on forestry is necessary, and laws / regulations for other sectors) • Find funds for implementation of actions	
	Overall assumed completion %	

Adaptation Support Tool - STEP 5

Implementation of adaptation

No.	Essential issues with regard to Implementation	Completed 0 – 100%
5.1	**Key instruments for integrating adaptation identified**	**50%**
	Status:	
	Which actions to be taken:	

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	Adaptation approaches are mainstreamed into decision-making, implemented and their objectives and planned delivery are understood by an informed society.	
5.2	**Roles and responsibilities of affected stakeholders agreed** Status: Which actions to be taken: Lack of capacity can decrease the role, but it remains a responsibility.	**40%**
5.3	**Action plan developed** Status: Completed Which actions to be taken:	**100%**
5.4	**Steps for implementation set** Status: Which actions to be taken: • Depends of funding and situation in the field • Involve local and regional level	**30%**
Overall assumed completion %		

KOSOVO*

Adaptation Support Tool - STEP 4

Assessing and prioritising adaptation options

No.	Essential issues when Assessing Adaptation Options	Completed 0 – 100%
4.1	**A prioritisation system of adaptation options developed in cooperation with stakeholders** Status: - All relevant stakeholders invited. - Questionnaire sent to municipalities - 39 interventions (short, medium, long term). Criteria: robustness, flexibility, redundancy, durability, technical feasibility, costs (quantitative estimates), water quality, quantity impact, habitat impact, environmental impacts, socio-economic impacts, tourism opportunities, institutional consideration, mainstreaming, political consideration (LONG LIST). - Qualitative scoring. Two experts from abroad. - National risk assessment has been done and used	**100%**

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	Which actions to be taken: Now- preparing action plan including reassessment (including financing possibilities)	
4.2	**Possible synergies and conflicts identified and taken into account** Status: Globally scored and taken into account in prioritisation Which actions to be taken: Will be reassessed in action plan and several impact assessments of individual projects	**30%**
4.3	**Cost-benefits of options assessed** Status: Costs yes, benefits only qualitatively Which actions to be taken: Cost benefit analysis for important categories like agriculture, cost reduction of water management, reduction of flood damage, better health (heat stress, bacteria). Can be important to attract financing	**30%**
4.4	**Preferred adaptation options selected for implementation** Status: Not yet Which actions to be taken: In Action Plan	**10%**
4.5	**Adaptation strategy developed and politically adopted** Status: Yes, accepted by all ministries and institutions, including big municipalities (Working group of 29) Which actions to be taken: After action plan budgets need to be made available	**70%**
Overall assumed completion %		

Adaptation Support Tool - STEP 5

Implementation of adaptation options

No.	Essential issues with regard to Implementation	Completed 0 – 100%
5.1	**Key instruments for integrating adaptation identified** Status: CA included in DRM CA included in nature protection and forest management CA included into rural development plan including agriculture Which actions to be taken: Need to go from planning to implementation CA needs to be included in Health sector	**80%**

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5.2	**Roles and responsibilities of affected stakeholders agreed** Status: Yes, inter-ministerial group established Which actions to be taken:	**90%**
5.3	**Action plan developed** Status: To be executed Which actions to be taken:	**50%**
5.4	**Steps for implementation set** Status: Not yet, waiting for action plan that then needs to be approved by ministry of Finance Which actions to be taken:	**20%**
	Overall assumed completion %	

The former Yugoslav Republic of M A C E D O N I A

Adaptation Support Tool - STEP 4

Assessing and prioritising adaptation options

No.	Essential issues when Assessing Adaptation Options	Completed 0 – 100%
4.1	**A prioritisation system of adaptation options developed in cooperation with stakeholders** Status: Adaptation options/measure have been identified for eight sectors within the TNC. For most of measures stakeholders were included, but for some sectors like water management only partially. Which actions to be taken:	**70%**
4.2	**Possible synergies and conflicts identified and taken into account** Status: There is a synergy especially in the water sector. Which actions to be taken:	**80%**
4.3	**Cost-benefits of options assessed** Status: Cost was estimated for each measure.	**30%**

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	Which actions to be taken:	
4.4	**Preferred adaptation options selected for implementation** Status: Preferred adaptation options for all the measures in all the sectors are identified and prioritization was made among all the measures. Which actions to be taken:	**60%**
4.5	**Adaptation strategy developed and politically adopted** Status: No adaptation strategy. Which actions to be taken:	**0%**
Overall assumed completion %		

Adaptation Support Tool - STEP 5

Implementation of adaptation options

No.	Essential issues with regard to Implementation	Completed 0 – 100%
5.1	**Key instruments for integrating adaptation identified** Status: Key instruments for integrating adaptation are identified 3rd National Communication. Which actions to be taken:	**100%**
5.2	**Roles and responsibilities of affected stakeholders agreed** Status: Roles and responsibilities of affected stakeholders have been identified. Which actions to be taken: Roles and responsibilities of affected stakeholders have to be put in legal framework.	**80%**
5.3	**Action plan developed** Status: Action plan has been developed within the 3rd National Communication Which actions to be taken: Action plan should be amended with financial sources and time frame.	**60%**
5.4	**Steps for implementation set** Status: Steps for implementation have been partially set Which actions to be taken: Steps for implementation will be completed after preparation and adoption of the adaptation strategy.	**50%**

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Overall assumed completion %	

MONTENEGRO

Adaptation Support Tool - STEP 4

Assessing and prioritising adaptation options

No.	Essential issues when Assessing Adaptation Options	Completed 0 – 100%
4.1	**A prioritisation system of adaptation options developed in cooperation with stakeholders** Status: - Public discussion process is defined by the law and imposed - Collaboration with stakeholders has not been established in the adaptation field Which actions to be taken: The general system for prioritisation should be developed and then adjusted to the needs and recognised risks of particular sectors	**50%**
4.2	**Possible synergies and conflicts identified and taken into account** Status: - Some strategies, such as ICZM, involved assessment of synergies and conflicts - For the projects of high concern, the public demands transparent policy/projects development Which actions to be taken: - Proper implementation of ratified Aarhus convention and adopted EIA and SEA. - The general system for prioritisation of adaptation options should include the analysis of synergies and conflicts	**30%**
4.3	**Cost-benefits of options assessed** Status: Which actions to be taken: More robust approach CBA and its implementation in the cases that allow for projects'/decisions' evaluation	**30%**
4.4	**Preferred adaptation options selected for implementation** Status: - Strategic goals are already prioritised - Some adaptation measures are identified Which actions to be taken: Implementation of concrete adaptation options is still to take place, after a comprehensive analysis	**50%**
4.5	**Adaptation strategy developed and politically adopted** Status: Which actions to be taken: Work needed on National Adaptation Plan	**10%**
	Overall assumed completion %	

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Adaptation Support Tool - STEP 5
Implementation of adaptation options

No.	Essential issues with regard to Implementation	Completed 0 – 100%
5.1	**Key instruments for integrating adaptation identified**	80%
	Status:	
	Which actions to be taken: Improvement of technical capacity of the National Council staff and finding financial possibility to involve external experts	
5.2	**Roles and responsibilities of affected stakeholders agreed**	50%
	Status:	
	Which actions to be taken: Awareness of climate change adaptation problems within different stakeholder groups should be improved	
5.3	**Action plan developed**	20%
	Status: Work on NAP is still missing	
	Which actions to be taken:	
5.4	**Steps for implementation set**	10%
	Status:	
	Which actions to be taken: Implementation of concrete adaptation options, after a comprehensive analysis	
Overall assumed completion %		

SERBIA

Adaptation Support Tool - STEP 4
Assessing and prioritising adaptation options

No.	Essential issues when Assessing Adaptation Options	Completed 0 – 100%
4.1	**A prioritisation system of adaptation options developed in cooperation with stakeholders**	80%

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	Status: - Stakeholders consultations carried out with 2nd National Communication - Prioritisation made through expert judgement and multi criteria analysis (including cost benefit) - Experts (ex. Forest sector) were selected among a range of different fields and organisations	
	Which actions to be taken: More effort on cost benefit analysis is needed to make prioritization more robust	
4.2	**Possible synergies and conflicts identified and taken into account**	**70%**
	Status: - Synergies identified between water sector and agriculture options - Conflicts with other polices were also taken into account by expert	
	Which actions to be taken: Improve cross sector communication/cooperation, including understanding and importance of adaptation	
4.3	**Cost-benefits of options assessed**	**25%**
	Status: Some options were analysed through cost benefit analysis (included in the multi criteria analysis), others not. It is work in progress.	
	Which actions to be taken: Cost benefit analysis should become more systematic	
4.4	**Preferred adaptation options selected for implementation**	**70%**
	Status: A number of adaptation options have been selected for four sectors (water management, agriculture, forestry and biodiversity). Selection is not approved yet	
	Which actions to be taken: Further define options for other sectors Define options in more concrete terms	
4.5	**Adaptation strategy developed and politically adopted**	**50%**
	Status: - National Adaptation plan is at draft level (to be approved) - National adaptation strategy and action plan's preparation will start in 2017 through IPA funding	
	Which actions to be taken: -	
Overall assumed completion %		**59%**

Adaptation Support Tool - STEP 5

Implementation of adaptation options

No.	Essential issues with regard to Implementation	Completed 0 – 100%
5.1	**Key instruments for integrating adaptation identified**	

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	Status: - Climate is mainstreamed in some policies/legal requirements, but only sporadically. - Action is happening at technical level (spontaneous adaptation). - Identification of instruments for integrating adaptation options has still not happened as options are still at draft level. Work is ongoing.	**30%**
	Which actions to be taken: Possible new law in the context of MMR project which could include adaptation	
5.2	**Roles and responsibilities of affected stakeholders agreed**	-
	Status: Not yet. Stakeholders have been engaged throughout and are informed.	
	Which actions to be taken: Work is ongoing	
5.3	**Action plan developed**	-
	Status: No	
	Which actions to be taken: Developing action plan once options are approved	
5.4	**Steps for implementation set**	-
	Status: NA	
	Which actions to be taken: NA	
Overall assumed completion %		**30**

TURKEY

Adaptation Support Tool - STEP 4

Assessing and prioritising adaptation options

No.	Essential issues when Assessing Adaptation Options	Completed 0 – 100%
4.1	**A prioritisation system of adaptation options developed in cooperation with stakeholders**	**60%**
	Status: During the initial meetings it turned out that adaptation was a new subject and the concept of adaptation options development and identification was not completely understood	
	Which actions to be taken:	

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	A review of existing identified list of adaptation measures is necessary. Encourage high level positive involvement in the process of adaptation planning is necessary	
4.2	**Possible synergies and conflicts identified and taken into account**	**80%**
	Status: No systematic approach was applied but sectoral experts from the different institutions made a review of the whole package and provided their comments. This resulted in a deletion of repetitive actions or deletion of certain subjects due to incompatibility	
	Which actions to be taken: Some capacity building on sectoral vulnerability assessments and adaptation options setting would be required	
4.3	**Cost-benefits of options assessed**	**20%**
	Status: No specific method has been used for prioritisation (e.g. MCA or CBA). However, the identified measures have been selected on the basis of potential feasibility and implementability by the involved institutions. Some of the measures identified are already priorities on the basis of existing sectoral strategies and plans.	
	Which actions to be taken: The process of developing adaptation options and assessing them needs to be accompanied by training in the methods and approaches. Data quality needs to be improved and economic analysis of proposed measures are necessary to be done	
4.4	**Preferred adaptation options selected for implementation**	**65%**
	Status: Yes, most of the identified actions are under implementation and there is a monitoring system in place. However, the monitoring cannot quantify the progress indicators. Not all measures are not legally binding per se, which may be an issue	
	Which actions to be taken: A revision of the list is necessary to allow SMART indicators with identified measures	
4.5	**Adaptation strategy developed and politically adopted**	**100%**
	Status: Yes, approved by the Coordination Board	
	Which actions to be taken: NA	
	Overall assumed completion % →	**65%**

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Adaptation Support Tool - STEP 5

Implementation of adaptation options

No.	Essential issues with regard to Implementation	Completed 0 – 100%
5.1	**Key instruments for integrating adaptation identified**	**50%**
	Status: For some of the actions yes	
	Which actions to be taken: Still technical and financial instruments to be identified and developed for 50% of the measures	
5.2	**Roles and responsibilities of affected stakeholders agreed**	**80%**
	Status: New stakeholders pop up during implementation and monitoring and they realised ex-post that they are responsible for the identified actions. This may cause problems ownership issues	
	Which actions to be taken: Improved monitoring system and training to stakeholders	
5.3	**Action plan developed**	**70%**
	Status: This happens on the sectoral level. Yes	
	Which actions to be taken: As stated above there is a need to reduce the longlist of actions and to make the indicators quantifiable	
5.4	**Steps for implementation set**	**70%**
	Status: Not specified in the action plan, but this happens on sectoral level. There is also a relation here with the monitoring plan which lacks quantifiable and time bound indicators that need improvement.	
	Which actions to be taken: Strengthened SMART indicators to be developed for identified options	
	Overall assumed completion %	**67.5%**

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ANNEX III – Detailed Results Work Session 3

Prioritisation of adaptation options using the MCA methodology

ALBANIA

OVERALL OBJECTIVE: Limiting risks of CC in urbanized areas

Scoring: 1-5

SPECIFIC OBJECTIVES: 1. Avoid construction in vulnerable areas

2. Define land use to accommodate flooding

3. Adapting the existing situation to possible CC impacts

CRITERION / OPTION	Urgency – already existing threats	Cost	Benefit				Political and cultural acceptability	Impact in achieving the goal		Feasibility	TOTAL	RANK
			Economic	Social	Environmental	Multiple		Short-Term	Long-Term			
Weight 0 – 100	60%	80%	80%	80%	80%	100%	20%	80%	50%	100%		
Limiting building and urbanization only within already urbanized areas and avoiding sprawl in vulnerable areas	5 3	5 4	3 2.4	5 4	3 2.4	4 4	3 0.6	1 0.8	5 2.5	5 5	28.7	1
Making room for the rivers – controlled flooding	2 1.2	0 0	4 3.2	5 4	4 3.2	4 4	1 0.2	5 4	5 2.5	1 1	23.3	3
Providing support to individual households for the adaptation of settlements in vulnerable areas	3 1.8	3 2.4	3 2.4	2 1.6	1 0.8	2 2	4 0.8	2 1.6	4 2	2 2	17.4	5
Reconstructing/restructuring the subsurface infrastructure to avoid pluvial floods	5 3	2 1.6	3 2.4	2 1.6	2 1.6	1 1	5 1	5 4	5 4	3 3	23.2	4
Include CCA measures in urban planning/projects to increase resilience towards floods and heat waves	2 1.2	5 4	3 2.4	2 1.6	4 3.2	3 3	5 1	4 3.2	4 2	5 5	26.6	2

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		1	2	3	4	5	6	7	8	9
	criteria	costs	benefits	time period for realisation	public exeptance	sinergy with other measures for different	independence of external support	existing risk	flexibility for changes in CC projections	TOTAL
	weight	20	20	10	10	5	10	20	5	100
agriculture	Increase awarness off CC-e effects in agriculture	5	5	1	2	3	5	3	5	1
	improve irigation approach action	2	5	3	5	3	2	5	5	1
water ressources	Strengthened system of water quality monitoring	4	3	4	3	4	3	3	5	3
	Functioning river basin management plans	2	3	5	4	4	2	4	4	4
human health	Improvement technical regulations	5	2	5	1	2	5	2	3	5
	Disaster management plans for extreme heat events	3	4	4	3	3	3	4	3	2
agriculture	Increase awarness off CC-e effects in agriculture	100	100	10	20	15	50	60	25	48
	improve irigation approach action	40	100	30	50	15	20	100	25	48
water ressources	Strengthened system of water quality monitoring	80	60	40	30	20	30	60	25	43
	Functioning river basin management plans	40	60	50	40	20	20	80	20	41
human health	Improvement technical regulations	100	40	50	10	10	50	40	15	39
	Disaster management plans for extreme heat events	60	80	40	30	15	30	80	15	44

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CRITERION / OPTION	Urgency – already existing threats	Cost Effectiveness	Socio-economic benefits	Availability of finance	TOTAL	RANKING
Weight 0 – 100						
Reforestation (droughts and floods)	3	3	2	5	**13**	**4**
Improve/restore discharge capacity (floods)	8	6	5	4	**22**	**3**
Flood maps	10	7	1	8	**26**	**1**
Multipurpose reservoirs (floods and droughts)	5	8	8	5	**26**	**1**
National reaction plan for DRR (EW, Shelters, evacuation)	8	7	5	6	**26**	**1**
Water saving technologies (drought)	5	7	5	6	**23**	**2**

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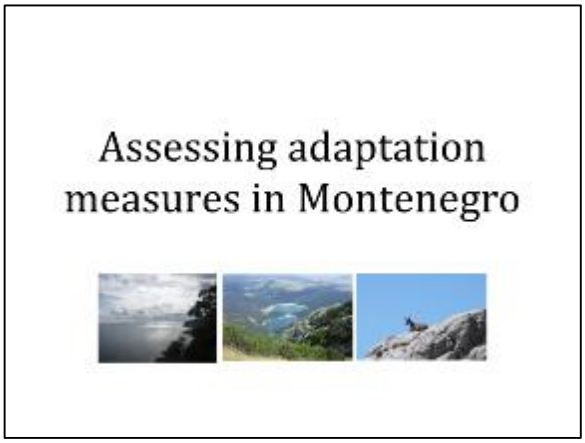
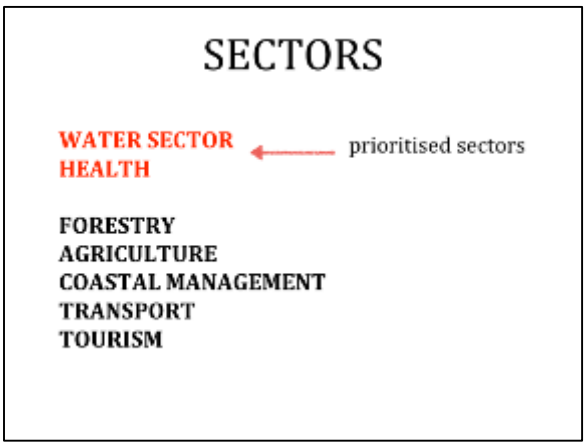
OPTION \ CRITERION	Urgency – already existing threats	Cost-benefit ratio	Covering multiple risks	Political and cultural acceptability	TOTAL	RANKING
Weight 0 – 100	*60*	*90*	*20*	*70*		
Adapt Option 1 Improvement of the existing and construction of additional infrastructure for irrigation	*60 (36)*	*70 (63)*	*80 (16)*	*80 (56)*	**171 - 43**	5
Adapt Option 2-Water saving measures	*80 (48)*	*90 (81)*	*70 (14)*	*80 (56)*	**199 - 50**	3
Adapt Option 3-Maintaining and cleaning of riverbeds	*100 (60)*	*70 (63)*	*60 (12)*	*70 (49)*	**184 - 46**	4
Adapt Option 4-Improvement of the institutional and legal framework	*100 (60)*	*100 (90)*	*100 (20)*	*80 (56)*	**226 - 57**	1
Adapt Option 5-Improvement of risk management systems	*90 (54)*	*80 (72)*	*100 (20)*	*90 (63)*	**209 - 52**	2
Adapt Option 6-Energy sector measures	*60 (36)*	*70 (63)*	*70 (14)*	*80 (56)*	**169 - 42**	6
Adapt Option 7-Urban planning measures	*60 (36)*	*70 (63)*	*50 (10)*	*80 (56)*	**165 - 41**	7

M O N T E N E G R O





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SELECTED MEASURES

WATER SECTOR

1. **Floods early warning system**

2. Measures fort **torrential floods in urban areas**

3. **Water information system**

HEALTH

1. **Awareness raising** of the citizens and decision-makers about adaptation options related to health protection and mitigation of health related risks
2. Extreme weather **early warning system**
3. Measures for special attention to **socially endangered/ marginalized groups**
4. Adjusting of **working hours to extreme weather conditions**
5. Advertising of measures for **healthy life**

SELECTED CRITERIA

WATER SECTOR

1. Effectiveness
2. Efficiency
3. Feasibility
4. Positive side-effects
   [co-benefits of the measure, win-win measures]
5. Urgency and priority
   [reflecting urgency of the risk(s) the measure will address, short- term effects of the measure]
6. Time-effectiveness

HEALTH

1. Effectiveness
2. Efficiency
3. Expected acceptability
4. Positive side-effects
5. Time-effectiveness
   [preferring measures expected to be effective in the short-term]

Efficiency definition:
Costs of the measures – including social (illness, diseases, deaths) and environmental costs are lower than benefits

Feasibility definition:
The work on the measure has already started, through policy preparation, allocated budget, or some other activities, considering also political-institutional feasibility

WATER SECTOR

	Effectiveness	Efficiency	Feasibility	Positive side-effects	Urgency and priority	Time effectiveness	TOTAL	RANK
Weight 0 – 100	100	70	50	50	80	70		
Floods early warning	80	90 (63)	50 (35)	50 (25)	100 (80)	50 (35)	55	2
Urban torrential floods	70	60 (42)	100 (70)	50 (25)	70 (56)	80 (56)	60	1
Water Info. System	70	60 (42)	90 (63)	60 (30)	80 (64)	35 (24.5)	55	2

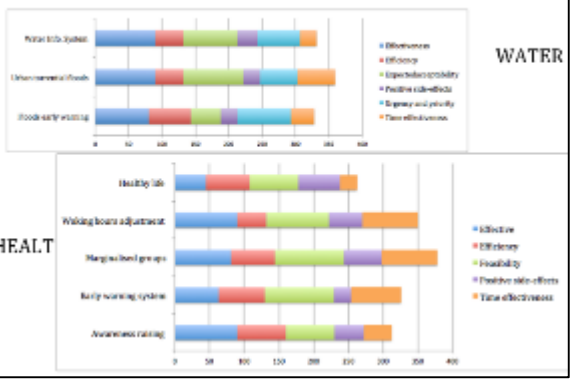
Health (unweighted)

	Effectiveness	Efficiency	Acceptability	Positive side-effects	Time effectiveness	TOTAL	RANK
Weight 0 – 250	90	70	100	60	80		
Awareness raising	100	100	70	70	90		
Early warning system	70	95	100	40	90		
Marginalized groups	90	90	100	80	100		
Working hours adjustment	100	60	80	80	100		
Healthy life style	90	90	60	100	90		

Health (weighted)

	Effectiveness	Efficiency	Acceptability	Positive side-effects	Time effectiveness	TOTAL	RANK
Weight 0 – 100	90	70	100	60	80		
Awareness raising	90	70	70	42	40	62.4	4
Early warning system	63	66.5	100	24	72	65.1	3
Marginalized groups	81	63	100	54	80	75.6	1
Working hours adjustment	90	42	80	48	80	70	2
Healthy life style	45	63	70	60	24	52.4	5

Results



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SERBIA

Options:		Long term	Feasibility (funding)	Co-benefit to other sectors	Urgency-already existing threats	Cost-benefit ratio	Covering multiple risks	Political and cultural acceptability	Trans-boundary cooperation	Total	Ranking
Weight 0-100		65	100	70	100	90	70	100	50		
Water management											
1	Improvement of water quality	95	20	100	75	75	90	100	75	409.5	3
2	Improvement of EWS (droughts/floods)	100	75	85	60	90	100	100	100	461.5	2
3	Water supply losses reduction	90	30	70	100	90	80	100	30	383.5	4
4	Develop flood protection plans	100	70	80	100	70	95	100	100	464.75	1

TURKEY

CRITERION / OPTION	Level of risk Reduction	Covering range of effects	Political acceptability	Public acceptability	Legislation	Availability of Financial Resources	Practicality	Cost efficiency	Equity (benefits for vulnerable groups)	TOTAL	RANKING
Weight 0 – 100	*90*	*70*	*100*	*80*	*90*	*100*	*100*	*80*	*90*		
Public awareness	54	56	90	72	72	90	80	72	72	658	4
Develop financial incentives to promote behavioural change	54	63	90	48	72	50	50	40	81	548	5
Early warning systems for extreme weather events	90	63	80	72	72	90	90	80	72	709	1
River basin management planning to consider adaptation measures and integrated water management principles more systematically	90	70	100	64	72	90	70	48	72	676	3
Flood and drought management planning for each river basin	81	62	90	80	63	90	80	72	81	699	2
Increase the technical capacity of the industry sector to increase water use efficiency	54	49	60	48	54	50	60	72	45	492	7
Provide incentives for R&D activities	72	63	70	48	63	50	50	56	63	535	6

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ANNEX V – Presentations (under separate cover)

Presentations can be downloaded from: http://www.ecranetwork.org/Events/140

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