Concept National Adaptation Strategy (NAS) for Kosovo

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Third roundtable NAS Kosovo
21 and 22 October 2013, Prishtina
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Intro

Reasons for preparing NAS:

• Priorities in the National Environmental Strategy and National Environmental Action Plan for the period 2011-2015

• Priority for Kosovo’s EU approximation process

• As of December 2012 MESP jointly with UNDP carefully coordinates donor interventions in the climate change agenda for Kosovo
Methodology

Phase 1: Assessment Phase

First roundtable IMWG (March 2013)
Focusing on project objectives, joint problem definition, and first assessment of ideas and solutions

Phase 2: Joint Vision Development

Second roundtable IMWG (June 2013)
Focusing on the development of a joint vision for the NAS Kosovo and identification of major obstacles to reach this vision + priority interventions

Phase 3: Development Strategy

MCA Workshop Adaptation (Sept 2013)
Comparison and evaluation of alternative interventions based on Multi-Criteria Analysis (MCA)

Phase 4: Fine-tuning

Third roundtable IMWG (Oct 2013)
Concept NAS: Feedback and discussion focusing on finalisation of NAS Kosovo
Methodology (part 2)

Based on a participative planning process ensuring relevant national and local stakeholders are consulted, in particular for:

- Vertical integration: streamlining adaptation at different hierarchical levels (e.g. by roundtables at national level and questionnaire survey at local level)

- Integration of different interests and spatial challenges into one single climate change strategy (NAS/LEDS)

- In conjunction with different (sectoral) strategies and action plans in Kosovo

- Coordination with several multilateral and bilateral donor agencies

- Reference for Disaster Risk Reduction (DRR)-strategy by MIA and AEM
Vision, mission and objectives

Glossary:

Your **vision** is what you strive for

Your **mission** is how you’re going to get there

Your **values** are the sort of nation you’ll be on the journey
Joint vision for LEDS/NAS

On 27th of June 2013 the IMWG deliberated and agreed upon the following **joint vision** for the LEDS and NAS together:

- A climate-resilient Kosovo, which is effectively **mitigating** the causes of climate change, and is effectively **anticipating** on, and **responding** to, the impacts of climate change, taking into account internationally endorsed principles for sustainable development
NAS Mission Statement

To reduce the risk and damage from current and future impacts of climate change in a cost-effective manner and to exploit potential benefits stemming from climate change.
Key objectives

• **Overarching strategy objective**: reducing the vulnerability of Kosovo to the impacts of climate change

• **Objective 1**: To introduce new and improve current mechanisms of disaster risk reduction, especially important for sectors of economic significance that are particularly vulnerable to climate change impacts;

• **Objective 2**: To enhance adaptive capacity of natural systems, in particular vulnerable ecosystems, and society, in particular vulnerable communities, such as poor farmers, marginal groups and women, to address the climatic impacts and related risks on their lives and livelihoods;

• **Objective 3**: To build the capacity of the local partners, actors and stakeholders to integrate climate change issues and adaptation into the local and regional development processes, and empower them for addressing climate change issues.
Climatic hazards in Kosovo

- Exposure to hazards such as droughts, floods, and forest fires will become greater with climate change. Climate variability has already increased in the Western Balkans.

- Rising intensity and frequency of precipitation extremes like heavy rain events, as well as more severe drought, particularly since the 1980s. Flash floods are getting more common in mountain areas, while river floods occur in plains and lowlands.

- Higher temperatures will make heat waves and forest fires more likely. Since 2000 there have been an increasing number of forest fires in Kosovo.

- Kosovo has been struck by drought several times in the last two decades (1993, 2000, 2007, and 2008).

- Since 2004 80% of Kosovo municipalities have suffered from water shortages due to hydrological drought and the misuse of water resources (OSCE, 2008).

- Increased temperatures, more uncertain rainfall, and reduced runoff will heighten exposure to drought.
High degree of vulnerability in Kosovo

• Natural hazards have a much greater impact than should normally be the case in a country such as Kosovo, owing to a high degree of vulnerability.
  
  – Unprecedented construction boom and urbanization since end of conflict in 1999
  – High socio-economic vulnerability
  – Illegal construction in hazard zones and failure to adhere to building codes
  – Lack of maintenance and destruction during wartime
  – Inadequate design of drainage and sewage systems
  – Inadequate land use and municipal planning increase population exposure to hazards
  – Unsustainable water management and agronomic practices, deforestation, and destruction of slopes by mining activities
  – ....

Sources: UN-Habitat 2009, OSCE 2008, UNDP/WMO 2009
No climate projections for Kosovo, but....

There are multiple lines of evidence that climate change is happening now, and the impacts are being seen now

(IARU, 2009; IPCC, 2007; World Water Development Report, 2009)

Even worse, recent observations show that greenhouse gas emissions and many aspects of the climate are changing near the upper boundary of the IPCC range of projections


Scientists generally agree that the hydrologic cycle will intensify and that extremes will become more common > The most common extreme events are floods and droughts

(IARU, 2009; IPCC, 2007; World Water Development Report, 2009)
Necessity of building adaptive capacity in Kosovo

Many sectors are extremely vulnerable to the impacts of climatic changes: agriculture, fishery, industry, navigation, tourism, human health, public safety, biodiversity and environmental services from ecosystems.

According to the World Health Organization (WHO, 2009) climate change is likely to be the biggest global threat to health of the 21st century.

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<thead>
<tr>
<th>Estimates of Suffering due to Climate Change in 2010:</th>
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<tr>
<td>Deaths</td>
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<tr>
<td>over 300,000 people per year</td>
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<td>Severely Affected</td>
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<td>over 300 million people</td>
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<td>Climate Displaced People</td>
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<td>over 20 million</td>
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<td>Economic Losses</td>
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<td>over US 100 billion dollar per year</td>
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<th>Estimates of Suffering due to climate change in 2030:</th>
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<tr>
<td>Deaths</td>
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<tr>
<td>approximately 500,000 per year</td>
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<tr>
<td>Severely Affected</td>
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<tr>
<td>approximately 650 million people</td>
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<tr>
<td>Climate Displaced People</td>
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<tr>
<td>more than 75 million</td>
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<tr>
<td>Economic Losses</td>
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<td>over US 300 billion dollars per year</td>
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Human Impact Report, 2009
For every Euro invested in disaster preparedness, six Euro could be saved in reconstruction costs (UNEP, 2004)
Specific challenges for climate change adaptation

• Many sectors and stakeholders with competing interests

• Dealing with complexity (e.g. cooperation between different ministries, across different levels and across administrative boundaries)

• Protection of vested interests

• Planning has to be adapted to the context and to capacity, and be tailored to the size and nature of the problem as well as to the objective targeted

• Dealing with uncertainties
Specific challenges (2)

• Major Uncertainties:
  – Ambiguity
  – Complexity of the system to be managed
  – New insights about system behaviour
  – Changes in environmental and/or in socio-economic conditions
Key definitions

**Climate adaptation**: An adjustment in ecological, social or economic systems in response to observed or expected changes in climatic stimuli and their effects and impacts in order to alleviate adverse impacts of change or take advantage of new opportunities.

**CCA Strategy**: general plan of action for addressing the impacts of climate change, including climate variability and extremes. It may include a mix of policies and measures, selected to meet the overarching objective of reducing the vulnerability of a certain area.

**Scenarios** are generally external and cannot be influenced, in contradiction to strategies.
Drawing from international experiences
Advanced adaptation strategies

Advanced adaptation strategies are characterized by:

– Robustness (capacity to deal with change and disturbance);
– Polycentric, broad and horizontal stakeholder participation;
– Strategy build upon climate change scenarios;
– Risk assessments;
– High diversity in management and physical interventions;
– Dealing with structural constraints
Dutch Delta Program

• Adaptive Management as the leading concept:

• Within the new Delta program one of the largest challenges is dealing with uncertainties in the future climate, population, economy and society.

• Reducing the uncertainty by research or improved measurements is not enough, this also requires an adaptive way of planning.

• Adaptive planning is an iterative feedback and learning based strategy to cope with uncertainty in decision making.

• It seeks to maximize flexibility, keeping options open and avoid “lock in”.

• Measures are developed on a water system based approach, taking into account the linkages between the different water systems (rivers, lakes, estuaries and coastal zone) and water chain (demand and supply).
Recommend course of action:
Increasing **adaptive capacity** in Kosovo

**Adaptive capacity**: the ability of a system to adjust to climate change, to moderate potential damage or take advantage of opportunities

Adaptation involves:
- building adaptive capacity thereby increasing the ability of individuals, groups, or organisations to adapt to changes,
- implementing adaptation decisions, i.e. transforming that capacity into action > implementation framework
Building adaptive capacity

In social systems, adaptive capacity refers to the ability to learn from mistakes and to generate experience of dealing with change, which in turn depends largely on the ability of individuals and their social networks to innovate.

- Poor information, sectoral fragmentation and limited integration are seen as a main reasons for low adaptive capacity.

- To increase adaptive capacity it is crucial to make substantial investments and improvements in cooperation structures and information management.
Building adaptive capacity (part 2)

**Information management**: an iterative process for the identification of information needs, and the development, exchange and usage of information

- Knowledge generation in itself is not sufficient for building adaptive capacity, but also needs an institutional and social context within which to develop and act.

- Knowledge and the ability to act upon new insights are continuously enacted in social processes > **social network of stakeholders** is an invaluable asset for dealing with change

- The more diverse the group of actors, and the more they interact, discuss and exchange, the more they learn from each other

- **Free access to, and exchange of, information and practical experience** is crucial for supporting social learning and contributes to building trust between different parties
Building adaptive capacity (part 3)

Integrated cooperation structures: including non-governmental stakeholders, governments from different sectors and different hierarchical levels

• To build a joint knowledge basis, where not only technical knowledge is being shared and used, but also social, political and process related knowledge
• Sectoral integration, e.g. by involving the impacts of climate change in planning processes and macro-economic projections
• Adjusting institutional arrangements of similar policy issues to each other
Ecosystem services

• The principle of ecosystem goods and services may be a promising approach for improved integration

• E.g. carbon sequestration, flood protection and protection against soil erosion are directly linked to climate change and healthy ecosystems are an essential defence against some of its most extreme impacts

• A comprehensive and integrated approach towards the maintenance and enhancement of ecosystems and the goods and services they provide
Action Plan on Development of New Policies and Promotion of Local Initiatives in Climate Change Management (2012-2018), Association of Kosovo Municipalities (AKM)

Payment for Ecosystem Services (PES):
• May become a driving force for rural economic development, job creation, and sustainable environmental protection in municipalities, which are placed in or neighbouring to protected areas.
• Requires further study on the legal, administrative, organizational and financial implications of PES.
Priority listing of adaptation measures (1)

- 74 possible adaptation measures with high or medium priority
- + locations for best practices and/or lessons learned

### Flood protection:
- Upgrade/raise dykes
- Dyke replacements
- Retention areas
- Upgrade drainage systems
- River bypasses
- Deepening summer bed
- Removal hydraulic obstacles
- Reforestation
- Floodplain restoration
- Land use change
- Building restrictions

### Water Supply:
- Increase reservoir volumes
- Sustainable groundwater policy (incl. recharge)
- Rainwater harvesting
- Water transfers
- Securing minimum flows
- Desalination
- Etcetera

### Water Demand:
- Leakage reduction
- Use of grey water
- Treated sewage
- Re-use of industrial water
- Point-of-use conservation in households and industry
- Water saving technologies in agriculture
- Crop adaptations
- Landscape planning to improve water balance

### Public health:
- Public health programs for heat-related deaths & changing patterns of infectious diseases
- Awareness program on effects of heat exposure
- Adapt public health surveillance systems to detect potential effects of climate change on health
- Infectious disease surveillance systems
- Alert practitioners and their patients to the potential for changes

### Forest and biodiversity mngmt:
- Planting trees/reforestation
- Eduction about benefits of forest & harmful effects of deforestation
- Strengthening forest protection policy
- Strictly handling cases of illegal cutting
- Removal of fuel wood
- Choosing tree species and forestry practices less vulnerable to storms and fires
- Ecological corridors
Priority listing adaptation measures (2)

**Information management:**
- Decision support systems up to standards
- Modernizing the hydrometeorology sector (i.e. on forecast & early warning)
- Long term monitoring of surface and groundwater
- Uncertainties are not glossed over but communicated
- Interdisciplinarity
- Different government bodies involved in setting the TORs
- Governments exchange information and data with other governments
- Governments actively disseminate information and data to the public
- Adoption of an M&E plan

**Cooperation structures:**
- Legal provisions on access to information, participation in decision-making
- Co-operation structures include non-governmental stakeholders
- Non-governmental stakeholders actually contribute to steps in policy cycle
- Lower level governments are involved in decision-making by higher level governments
- Sectoral governments actively involve other government sectors
- Co-operation structures include government bodies from different hierarchical levels
- Conflicts are dealt with constructively

**Capacity building:**
- Public awareness programs on climate change
- Awareness campaigns on the risks of building, living and working in vulnerable areas
- Awareness campaigns, pilots, demonstration sites on saving water for citizens, companies, factories, etc.
- Training on efficient irrigation management for farmers
- Training for advanced professionals in water, agriculture, forestry, land use planning, public health, etc

**Finances & Cost-recovery:**
- Costs are recovered from the ‘users’ by public and private financial instruments (charges, prices, insurance etc.)
- Authorities can take loans and depreciate their assets, to facilitate efficient use of resources and replacement of assets
- Financial resources are diversified by using a broad set of private and public financial instruments
- PPP’s

**Risk Management:**
- Risk perception by formal expert judgment and by the stakeholders
- Both governmental and non-governmental stakeholders are involved in decisions on what are acceptable risks
- Insurance against housing and property damage
- Harvest insurance mechanisms
Overview of eight strategy components

1. Flood protection
2. Drought, low flow and water scarcity
3. Forest and biodiversity management
4. Public health
5. Information management and exchange
6. Capacity building, training and awareness raising
7. Finances, cost recovery and risk management
8. Cooperation structures
### Overview of interventions (part I)

<table>
<thead>
<tr>
<th>Strategy component NAS</th>
<th>Overview of Intervention Sheets</th>
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| **Flood protection**   | 1) Restriction of settlement/building development in risk-prone areas  
2) Increasing river discharge capacity, including a) Deepening of summer bed, b) Adjustment or removal of hydraulic obstacles in river bed (e.g. buildings, trees, infrastructure, trash, etc.), c) Floodplain restoration (which involves lowering/deepening of floodplain), d) Replacement of dykes to enlarge river bed capacity, e) River  
3) Upgrade and/or raise dykes to prevent flooding  
4) Construction of retention areas (also called inundation areas to reduce flood run-off)  
5) Upgrade drainage systems  
6) Standards for building development (e.g. permeable surfaces, greening roofs etc.)  
7) Change of land use (for enabling natural retention of flood water)  
8) Enlarge reservoirs to increase buffer capacity  
> Reforestation areas to reduce flood run-off (see intervention sheet 21) |
| **Drought / low flow / water scarcity** | 9) Landscape planning measures to improve water balance (e.g. change of land use, reforestation, reduced sealing of areas)  
10) Leakage reduction  
11) Water recycling and re-use, e.g. use of grey water, treated sewage and industrial water  
12) Point-of-use conservation in households and industry  
13) Water transfers  
14) Securing minimum flows in dry periods  
15) Crop adaptations, including a) High resilient crop seeds, b) Crop choice (crops with more efficient water use), c) Crop rotation (for soil recovery)  
16) Water saving technologies in irrigation  
17) Rainwater harvesting  
18) Sustainable groundwater management (including recharge measures)  
19) Restriction of water uses during water scarcity, by priority sequencing  
> Increase Reservoir volumes (see intervention sheet 8) |
| **Forest and biodiversity management** | 20) Strengthening forest protection policy, including a) Strictly handling cases of illegal cutting/deforestation, b) Educating people about the benefits of forest & the harmful effects of deforestation, c) Removal of fuel wood in order to decrease vulnerability to forest fires, d) Choosing tree species and forestry practices less vulnerable to storms and fires, e) also related to interventions mentioned under information management and cooperation structures  
21) Planting trees/reforestation, also for dealing with water scarcity and floods  
22) Ecological corridors to help species migrate  
23) Incorporating local biodiversity objectives into the planning, delivery and management of green infrastructure measures  
24) Creating micro-climatic variation and ecologically resilient landscapes through varied topology to help species respond to changes in temperature and increase the chance that species will be able to migrate locally into newly favourable habitat |
| **Public health** | 25) For public: Public health programs, including programs for a) heat-related deaths (e.g. heat warning systems) and consequences of heat exposure, b) programs related to changing patterns of infectious diseases, c) Alert patients to the potential for changes in patterns of exposure to aeroallergens that exacerbate allergic diseases like asthma and allergic rhinitis (“hay fever”)  
26) For medical practitioners: Awareness program on climate change and health among public health and medical practitioners, e.g. alert practitioners to the potential for changes in patterns of exposure to aeroallergens that exacerbate allergic diseases like asthma and allergic rhinitis (“hay fever”)  
27) For authorities: Strengthening public health surveillance systems towards sufficiently comprehensive and sensitive to detect potential effects of climate change on health, e.g. Infectious disease surveillance systems can detect potential “signature” diseases that may affect Kosovo consequent to climate change |
<table>
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<tr>
<th>Strategy component</th>
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<tr>
<td>Information management &amp; exchange</td>
<td>28) <strong>Strengthening joint/participative information production</strong>, including a) Different government bodies and non-governmental organisations are involved in setting the TORs and supervising the search, or at least consulted (interviews, surveys etc.), b) Multidisciplinarity: Different disciplines are involved in defining and executing the research; in addition to technical and engineering sciences also for instance ecology and the social sciences, c) Researchers allow their research to be challenged by stakeholders and present their own assumption in as far as they are aware of them, d) Research results are not presented in an authoritative way; but in a facilitative way, to stimulate reflection by the stakeholders about what is possible and what it is they want, e) Uncertainties are not glossed over but communicated (in final reports, orally), f) Researchers are willing to talk with stakeholders about uncertainties 29) <strong>Modernizing the hydrometeorology sector</strong>, including a) strengthening forecast &amp; early warning or disaster warning system, b) Long term monitoring of surface and groundwater (quality and quantity) 30) <strong>Improving communication</strong> (exchange of data and produced information), including a) Governments exchange information and data with other governments, b) Open shared information sources that fills gaps and facilitate integration, e.g. an open shared database for data about long term monitoring of surface water (quality and quantity), c) Governments actively disseminate information and data to the public: on the Internet, but also by producing leaflets, through the media, etc. 31) <strong>Improving utilization of information</strong>, including a) New information is used in public debates (and is not distorted), b) Decision support systems, e.g. hydrometeorological information systems are up to standards, c) Adoption of an M&amp;E plan during project preparation that includes establishment of process indicators, stress reduction indicators, and environmental status indicators</td>
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<tr>
<td>Capacity building, training, awareness raising</td>
<td>32) <strong>Public awareness programs</strong> on climate change and how to deal with its impacts, including a) Awareness campaign on the risks of building, living and working in vulnerable areas, b) Awareness campaign on saving water for citizens, companies, factories, etc. 33) <strong>Training for professionals</strong>, including: 1) training on efficient irrigation management for farmers, b) training on climate change adaptation for advanced professionals in water, agriculture, forestry, land use planning, public health, etc</td>
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<tr>
<td>Finances, cost recovery and risk management</td>
<td>34) <strong>Financial and economic measures</strong>, including a) Financial resources are diversified by using a broad set of private and public financial instruments, b) Costs are recovered from the ‘users’ by public and private financial instruments (charges, prices, Insurance etc.), c) Authorities can take loans and depreciate their assets, to facilitate efficient use of resources and replacement of assets, d) Improving private sector participation in water and natural resources management, e.g. by public-private partnerships 35) <strong>Improving risk management</strong>, including a) Risk perception by formal expert judgment and risk perception by the stakeholders, b) Both governmental and non-governmental stakeholders are involved in decisions on what are acceptable risks, c) Harvest insurance mechanisms are available, d) Insurance against housing and property damage is available</td>
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<tr>
<td>Cooperation structures</td>
<td>36) <strong>Strengthening the level of, or provisions for, stakeholder participation</strong>, including: a) Legal provisions concerning access to information, participation in decision-making (e.g. consultation requirements before decision-making) and access to courts, b) Co-operation structures include non-governmental stakeholders (e.g. environmental NGO’s, user groups, citizen groups or private sector), c) Non-governmental stakeholders actually contribute to agenda setting, analysing problems, developing solutions and taking decisions (“coproduction”), d) Non-governmental stakeholders are enabled or allowed to undertake parts of natural resources management themselves, e.g. through water users’ associations 37) <strong>Improving cross-sectoral cooperation</strong>, including: a) Sectoral governments actively involve other government sectors (e.g. agriculture, nature, environment, tourism, forestry, health, navigation, spatial planning), b) Co-operation structures include government bodies from different sectors; many contacts generally, c) Conflicts are dealt with constructively, resulting in inclusive agreements to which the parties are committed (i.e. Conflicts are at least reduced, or resolved, in order to prevent stalling of the decision-making process) 38) <strong>Improving cooperation between administrative levels</strong>, including: a) Lower level governments are involved in decision-making by higher level governments, b) Co-operation structures include government bodies from different hierarchical levels; many contacts generally, c) Conflicts are dealt with constructively, resulting in inclusive agreements to which the parties are committed (i.e. Conflicts are at least reduced, or resolved, in order to prevent stalling of the decision-making process) 39) <strong>Improving cooperation across administrative boundaries</strong>, including: a) Downstream governments are involved in decision-making by upstream governments, b) International/transboundary co-operation structures exist (e.g. river basin commissions); many contacts generally, c) Conflicts are dealt with constructively, resulting in inclusive agreements to which the parties are committed (i.e. Conflicts are at least reduced, or resolved, in order to prevent stalling of the decision-making process)</td>
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Evaluation & ordering of interventions

> to distinguish between short term, medium term and long term interventions.

The following 8 criteria have been used for the multi-criteria analysis (MCA):

- **Technical considerations** (e.g. ease of implementation, redundancy and robustness of the solution, flexibility to changing conditions, durability);
- **Estimated costs**;
- **Water quality and quantity impacts**;
- **Habitat disturbance** (aquatic, riparian, upland);
- **Ecological & environmental impacts**;
- **Socio-economic impacts** (community amenities, tourism opportunities, village disruption, religious considerations, historic/archaeological);
- **Institutional (compatibility) considerations** (which agencies are responsible for implementation, does it fit within existing national programs, does it help achieve or impact national goals, how will it complement, reinforce and build on existing projects/investments?);
- **Political considerations** (do the solutions enjoy political support or opposition etc.)
Setting priorities

• A recurrent question about climate change is how much time and money does an agency spend preparing for it compared to other pressing and proven needs
• Many sectors in Kosovo are vulnerable and in most cases climate change triggers action that should have been done already in past
• In other words, concerns with climate change can reinforce and help drive ongoing work
• Moving from looking at strategies to deal with individual impacts to more holistic approaches like increasing the adaptive capacity of the system
Short term interventions: top 7

1. **Point-of-use conservation** in households and industry

2. **Water recycling and re-use**, e.g. use of grey water, treated sewage and industrial water

3. **Standards for building development** (e.g. permeable surfaces, greening roofs etc.)

4. **Strengthening forest protection policy**, including a) Strictly handling cases of illegal cutting / deforestation, b) Educating people about the benefits of forest & the harmful effects of deforestation, c) Removal of fuel wood in order to decrease vulnerability to forest fires, d) Choosing tree species and forestry practices less vulnerable to storms and fires, e) also related to interventions mentioned under information management and cooperation structures

5. **Public awareness programs** on climate change, and **Strengthening joint/participative information production**, and **Improving utilization of information**

6. Design and construction of a **treatment plant Novoberde mine acid discharge** water

7. **Management plan and rehabilitation measures for Iber-Lepenci** channel
Medium term interventions: top 5

1. **Sustainable groundwater management** (including recharge measures)

2. **Securing minimum flows** in dry periods

3. **Improving risk management**, including a) Risk perception by formal expert judgment and risk perception by the stakeholders, b) Both governmental and non-governmental stakeholders are involved in decisions on what are acceptable risks, c) Harvest insurance mechanisms are available, d) Insurance against housing and property damage is available

4. **Financial and economic measures**, including a) Financial resources are diversified by using a broad set of private and public financial instruments, b) Costs are recovered from the ‘users’ by public and private financial instruments (charges, prices, insurance etc.), Authorities can take loans and depreciate their assets, to facilitate efficient use of resources and replacement of assets, d) Improving private sector participation in water and natural resources management, e.g. by public-private partnerships

5. **Modernizing the hydrometeorology sector**, including a) strengthening forecast & early warning or disaster warning system, b) Long term monitoring of surface and groundwater (quality and quantity)
Long term interventions: top 5

1. **Improving communication** (exchange of data and produced information), including a) Governments exchange information and data with other governments, b) Open shared information sources that fills gaps and facilitate integration, e.g. an open shared database for data about long term monitoring of surface water (quality and quantity), c) Governments actively disseminate information and data to the public: on the Internet, but also by producing leaflets, though the media, etc.

2. **Increasing river discharge capacity**, including a) Deepening of summer bed, b) Adjustment or removal of hydraulic obstacles in river bed (e.g. buildings, trees, infrastructure, trash, etc), c) Floodplain restoration (which involves lowering/deepening of floodplain), d) Replacement of dykes to enlarge river bed capacity, e) River bypasses (also used as ‘green rivers’ when there is no peak discharge)

3. **Improving cross-sectoral cooperation**, including: a) Sectoral governments actively involve other government sectors (e.g. agriculture, nature, environment, tourism, forestry, health, navigation, spatial planning), b) Co-operation structures include government bodies from different sectors; many contacts generally, c) Conflicts are dealt with constructively, resulting in inclusive agreements to which the parties are committed (i.e. Conflicts are at least reduced, or resolved, in order to prevent stalling of the decision-making process)

4. **Improving cooperation between administration levels**, including: a) Lower level governments are involved in decision-making by higher level governments, b) Co-operation structures include government bodies from different hierarchical levels; many contacts generally, c) Conflicts are dealt with constructively, resulting in inclusive agreements to which the parties are committed (i.e. Conflicts are at least reduced, or resolved, in order to prevent stalling of the decision-making process)

5. Design and implementation of **recultivation of tailing sites and treatment of acid mine drainage**
Implementation framework

• Section 6.4 presents an implementation framework, with estimated costs, project timeframe, Total design cost, Total Construction Cost and Total operation cost

• Total approx. cost: **293-365 Million Euro over 15 years**
  
  – Short term (1-3 years): 25-32 Million Euro (incl. 10-15 mEuro/year for leakage reduction)
  
  – Medium term (3-8 years): 177-202 Million Euro (incl. 10-15 mEuro/year for leakage reduction; 42 mEuro for Water saving technologies in irrigation; 70 mEuro for Modernizing the hydrometeorology sector)
  
  – Long term (>8 years): 91-131 Million Euro (incl. 10-15 mEuro/year for leakage reduction)
Conclusions

• Climate change is cross cutting, therefore a national strategy is essential to ensure a coordinated approach

• Strategy (implementation) needs to be streamlined with other strategies, including DRR, environment, agriculture/land management, forestry, water and health

• Moving from looking at strategies to deal with individual impacts to more holistic approaches like increasing the adaptive capacity of the system

• Early successes and lessons learnt shall be taken into consideration

• It is important to set realistic goals and tangible outcomes
Faleminderit për vëmendjen tuaj!

Çdo pyetje?