

Terms of reference
For
International Expert: Impacts, Vulnerability, and Adaptation (IVA)

Project Title: The socio-economic implications of climate change on FYR Macedonia and national policy options on adaptation

Duty Station: Home based, with two missions to Skopje

Duration: 45 working days in the period September – December 2008

1. Background Information

Climate change is one of the greatest challenges facing the world's environment, society and economy today. Its impacts can already be seen across the globe and FYR Macedonia will not be immune. And as climate change impacts are inevitable, the need to adapt to our changing climate becomes more pressing, not just in the way we live, but in the way we do development.

The recently released Global Human Development Report (UNDP, November 2007) demonstrated that climate change is happening and that significant action must be taken to reduce its impacts and reduce the extent of that change. This Global HDR calls for international action to address both mitigation of climate change and adaptation to the effects of climate change. The global movement to address climate change is growing as effects become more apparent and the need for adaptation measures is becoming more apparent.

Responding to the obligations towards the ratified UN Framework Convention on Climate Change (UNFCCC) on December 4, 1997 (Official Gazette of RM – 61/97), the country submitted its First National Communication on Climate Change in 2003, and made some initial efforts to create an enabling environment for mainstreaming the climate change issues into the national legal frameworks.

Currently, the country is finalizing its Second National Communication on Climate Change (SNC). Significant efforts were dedicated to development of the vulnerability assessment and adaptation study within the SNC. Within this study, climate change projections for the country by the end of 2100 were also developed. Projections were developed separately for the four seasons: winter, spring, summer and autumn, for temperature and precipitation changes, for six different climatic regions of the country based on empirical downscaling, as well as for the entire country based on direct GCM output. Based on scenario results, assessment of climate change impacts on the most vulnerable sectors, such as agriculture, water resources, forestry, biodiversity and human health, was done.

In the water resources sector rough simulation on the impact of regional future climate change for the Vardar River catchment (representing 80.4% of the country territory) was done, applying MIKE SHE software, a dynamic modelling tool that can simulate the entire land phase of the hydrologic cycle. However, obtained results should be regarded as indicative only, due to the limited set of available historical hydrological data and their reliability, and the scale limitations of available spatial data.

In the agricultural sector, rough estimation (based on expert judgment) related to climate change impacts on soil and animal breeding was done. In addition, climate change impact on the crop production (grape, tomato, apple, winter wheat and alfalfa), in terms of expected yield decrease was calculated applying FAO Crop Yield Response to Water Deficit methodology.

Analyses in the forestry sector focus on the intensive process of morphological changes on the oak and fir; increased number of forest fires and burned area, due to the increased percentage of dead trees; migration of tree species toward higher altitudes. Analyses were done based on expert judgment and limited available data.

As the works towards becoming an EU member state it will be important that progress is made in dealing with climate change. While climate change science has been and is developing

quickly, the economic costs and benefits of addressing the issue are still lacking concrete analysis. This creates a situation in which action is less forthcoming.

The main purpose of this activity is to support the national policy dialogue on the socio-economic implications of climate change and policy options for adaptation at the national level. It is aimed to provide economic analysis for decision-makers, as well as to develop national capacity for effective participation at the UNFCCC negotiations. Furthermore, the report that will be produced aims to provide policy recommendations for the Government for implementation of adaptation measures that will benefit the Human Development of the country.

2. Scope of work

The purpose of the assignment would be to provide evidence and analysis on the economics of climate change that is specific to the country. The report produced by the consultant should contribute to a more detailed understanding of the costs of climate change impacts in the absence of adaptation policies and measures at the national level, with particular focus on the priority sectors such as agriculture, water economy and forestry.

The result of the analyses are aimed to provide economic analysis for decision-makers that need to manage the impacts of climate change by minimizing negative impacts and maximising any beneficial opportunities. Therefore, the consultant should provide policy advice for the Government for implementation of adaptation measures that will benefit the Human Development of the country.

The International Expert will work closely with the climate change project team, UNFCCC/Kyoto Protocol Focal Point (Ministry of Environment and Physical Planning), and UNDP Environment Practice. He/she will report to UNDP Environment Practice Coordinator.

The consultant is expected to carry out two missions in the country (5 days each), one at the beginning of her/his assignment and the second one towards the end of her/his assignment.

3. Duties and responsibilities

The consultant will perform the following tasks:

- Review climate change initiatives, activities, research and existing capacities in the country and in the region that has relevance, and identifies current adaptive capacity in the country.
- Carry out comprehensive stakeholder analysis in the key sectors.
- Review of current vulnerability and risk assessments available in the country; Identification of gaps in assessing the impact of climate change nationally; addressing the gaps as much as the scope of the study requires.
- Conduct consultations with the stakeholders in order to determine the national priorities.
- Conceptualize the approach to economic valuation of climate change risks and anticipated impacts; with special attention to harmonising research and analysis with ongoing efforts in the European Union;
- Review the climate change scenarios for the country to examine the socio-economic implications of the climate change on the key vulnerable sectors (agriculture, water sector and forestry) as well as geographic areas subject to climate change impacts in the country.
- Determine the impact of these scenarios on country's economic growth and development objectives, including distributional impact on the poorest, socially vulnerable groups;
- Analyze the extent to which climate has already changed in the country (climatology, hydrology, 10-15 years behind to reconfirm historical trends), including the evidence of extreme weather events, scale and associated costs of damages caused due to historical climate, on the basis of existing data, or extrapolate them from global/general projections;
- Among the above indicated priority sectors identify the key issues on which the success of the mid-term (2008-2015) and long-term development plans depend, in order to demonstrate the scale and magnitude of social and/or economic impacts of climate change;

- Investigate the economic, social and environmental consequences of climate change in the country, especially in monetary terms/costing, taking into account the risks of increased climate variability and major irreversible impacts.
- Quantify, as far as possible, the adaptation costs expected at different levels of global climate change scenarios and down scaled scenarios for the country, including taking no action (i.e. business as usual) scenarios;
- Define new scenarios for development and options for adaptation, especially in monetary terms/costing; evaluate the costs of adaptation options for avoiding damages; determine the options for change in policies and business practices that would help to better adapt to climate change in the country;
- Based on the above analysis provide specific recommendations on choices relevant to country's development objectives. In doing so closely examine compatibility with EU's policies and cultural acceptability of the recommendations.
Issues to be addressed include:

- What is the "order of magnitude" for climate risks and the net economic costs of climate change impacts?
- What is the menu of "no-regret/low-regret" adaptation options for the country or win-win measures?
- What is the estimate of net benefits of adaptation options to specific climate change impacts for the purpose of choosing between different options?
- How can international financial flows further support adaptation to already observed climate change and enhance climate-resilient development paths?
- How can public and private capital be leveraged / enhanced to support efforts to both adapt to climate change and enhance climate-resilient development paths?

Aligning economic growth with human development

- What are the economic and business opportunities that will arise due to climate change?
- Where is the country currently positioned in terms of taking advantage of those opportunities?
- What are policies/ business practices that may lead to taking advantage of those opportunities and promoting climate change and sustainable development?
- How can these opportunities be utilized to help meet country's stated objectives within human development?

Public view on Climate Change and its relationship to development in the country.

- What is the state of current public knowledge about Climate Change among the general population?
- What is the perception of communities about the frequency and intensity of extreme weather events and climate hazards?
- What are people's attitudes towards potential changes that will be necessary/ come about due to climate change?
- What are the views of people in the business community on climate change and what will be necessary/ come about due to climate change?
- What are methods of public education/ public involvement in order to adapt to climate change?
- Identify critical knowledge and skill gaps among local stakeholders and design and deliver a one day training (e.g. economic modelling and / or other methods of cost estimation of impacts) that will enhance local capacity;
- Present the main findings and policy recommendations to the key Government and other stakeholders

4. Output:

The main output of the assignment is a comprehensive analytical Report on the socio-economic implications of the climate change on the key vulnerable sectors in the country (agriculture, water sector and forestry).

The Report that should, at least, include the following contents:

- Executive summary;
- Introduction;
- Review of existing research and available data on climate change impact;
- Description of the assessment methodology;
- Situation analysis with regard to economic impacts of climate change on priority sectors/issues;
- Review the cost of adaptation options through ranging them (no regret, no cost, low cost; etc.), determine the options for change in policies and business practices that would help to better adapt to climate change in the country;
- Recommendations on adaptation measures.
- Report should be produced in English language.

5. Qualifications:

- Post graduate degree in environmental economics, environmental sciences, development economics, or another branch of economics. PhD would be a strong asset.
- At least ten (10) years professional experience in the areas related to the assignment;
- Superb knowledge of social, economic, environmental and climate statistics, including qualitative and quantitative methods of data collection;
- Excellent knowledge of climate models and current methodologies in use for developing cost estimates for the impacts of climate change;
- Experience in developing cost estimates, cost-benefit calculations, and/or cost curves in the areas of impacts, vulnerability and adaptation; Experience with developing estimates for European countries would be an advantage;
- Experience and thorough understanding of relations within climate, agriculture, water sector, and forestry;
- Excellent analytic skills applied to climate change-related research, as evidenced by relevant publications and project experience;
- Familiarity with the European Union's legislative, institutional and financial framework for climate change cross-cutting issues would be an advantage;
- Excellent written and oral English language skills.

6. Terms and conditions for provision of services

The payment will be made in three/four instalments: 1) mission costs; 2) draft report; 3) final report;

The CO will provide all available documents related to the assignment especially the Initial National Communication to UNFCCC, the draft Second National Communication to UNFCCC, Climate Change Scenarios for the country, as well as other relevant reports available on local and national level.

Technical support will be also provided by the Regional Technical Advisor and Headquarters on costing methodologies, climate information, review and comments on draft reports.

In her/his expression of interest (**Eoi**), the candidate shall submit a brief methodology describing her/his approach and steps which will lead toward successful completion of the assignment. A detailed timetable of the planned activities, along with description of the key deliverables and milestones shall also be provided.

Please submit your financial proposal as a lump sum in US\$ (the travel costs and the daily subsistence allowance for the period of the mission in FYR Macedonia excluded).

Please follow the following link to submit your application

http://jobs.undp.org/cj_view_job.cfm?job_id=5548