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The application of the Contingent Valuation method towards the assessment of the impacts emerged from the March 2006 floods in the Evros River. An experts-based survey.

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In March 2006 Greece was struck by a severe flooding, which caused significant damages in the Prefecture of Evros, on the Eastern border of Greece. 250 million m^2 of farmland was flooded causing severe damages to agriculture, transport and water supply networks. Total direct damages are estimated at € 372 million. The negative effect on economic activity caused by the floods, considered the worst over the last 50 years, took place in an area that had already been severely affected by floods in 2005. Apart from the direct damages critical were also the indirect impacts on the environmental and the social level.

The need for economic analysis concerning the design and implementation of efficient flood management policies is well emphasized in the natural hazards' policies. Within this framework, the present paper is analyzing the application of stated preferences valuation techniques for the assessment of the damages caused in the Prefecture of Evros by the severe floods of March 2006. The objective of this paper is to define the role of economic valuation techniques in assisting the design of efficient and sustainable policies for flood management. More specific, the Contingent Valuation (CV) method is applied in order to valuate the impacts of the March 2006 floods, including the environmental impacts as far as concerns the soil, the biodiversity and the aesthetic environment of the flooded areas.

The paper begins with a discussion of the theoretical economic framework, and particularly, the contingent valuation method framework that can be used to evaluate flood impacts. Understanding public preferences for complex environmental policy changes, such as flood impacts, is a preeminent challenge for environmental economists and other social scientists. Information issues are central to the design and application of the survey-based contingent valuation (CV) method for valuing environmental goods. While content is under the control of the analyst, how this information is accessed and used is ultimately up to the respondent.

In addition, the future trends of floods in the Evros River Basin are presented, linking the socio-economic framework with the physical conditions of climate change. The forecast of the future precipitation trends in the Evros River has been realized at the Bjerkness Climate Change Center, Norway (May – July 2006). The objective of this forecast is to identify the future extreme precipitation trends in the Evros River Basin applying the global change models and identifying the differences between the present climate and the IPCC scenarios for the future climate. The scenario used for the present climate was the '20C3M' and the scenarios used for the future climate was the 'SRES A2' and the 'SRES A1B as well. The climate change models used were the following: BCM, ECHAM5_MPI, GFDL and CNRM_CM3. The analysis was based on changes concerning extreme precipitation in periods of three and seven days, which can theoritically lead to flooding events.

Eventually, an application of the contingent valuation method is presented using the case study of March 2006 floods in the Evros River. In this context, the valuation scenario, the structure of the questionnaire, the elaboration of the survey and the results of the application are thoroughly illustrated. The good, or policy, being valued is the flooding impacts, focusing more at environmental aspects (soil, biodiversity, aesthetic environment). The survey includes a sample of 53 local experts in floods from various sectors such as local authorities, local public

services, agricultural associations, environmental NGO's and universities. The survey is based on peer to peer interviews, which theoretically provide the most coherent results. The valuation question explores the Willingness to Pay (WTP) to Avoid future impacts of flooding formatted as an annual household fee and alternatively as a percentage of the Prefecture's GDP. In both cases the respondents are also asked which percentage of their initially stated value should specifically given for the elimination of the impacts on the soil, the biodiversity and the aesthetic environment. Moreover, the payment vehicle is the payment card method with four pre-defined sets of values. The basic survey template includes three major sections. The first part contains attitudinal, and knowledge questions. The second part, or valuation section, contains the contingent valuation scenario, the actual valuation questions and the follow-up questions. The final section contains the demographic questions. Results indicate well informed local experts who are willing to pay respectable amounts in order to avoid flooding impacts and give a strong gravity on the environmental impacts of the floods. Also, respondents are criticizing the weaknesses of the current flood management status and provide alternative policies, which can potentially affect the policy-making.