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Stakeholders' participation in the process of water scenarios development. Narew River Basin case study

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This work presents the results of the water scenario development process carried out in the Narew River Basin, Poland. As representative for lowland region of the Central-Eastern Europe, this area had been selected as one of 10 Pilot Areas, within the European study on Water Scenarios for Europe and Neighbouring States, where this process has been conducted using uniform methodology. Developed scenarios were elaborated in the participatory process by invited key water stakeholders representing various sectors and institutions. The main present drivers for the study area, present and future relations between them as well as possible scenarios and challenges to achieve them are presented in this work. The proposed approach has intensely involved the stakeholders in the scenario development process, resulting in the set of scenarios suitable for further quantification and use in modelling exercises

Applied scenario development process consisted of four steps: a) characterising present and near future, b) looking at the future (long-term visions), c) critical review of developed visions, d) playing it back (short-term options), in which a sequence of the qualitative and semi-quantitative methods were used. In the Narew River Basin case three scenario development workshops were organized in 2008-2009 to carry out the process according to proposed methodology. Three qualitative methods (card-technique, discussion groups and collages) and three semi-quantitative methods (Fuzzy Cognitive Mapping, spidergrams and time trends) were applied in the whole process in the study area. The selected methods aimed at transition from basic qualitative to more quantitative information which can be useful e.g. in further modelling exercises. Four steps of scenario development process are ordered in a logical sequence, starting from a simple description of the present situation and ending with collection of semi-quantitative data about the water issues. Such an approach reduces the data gap between qualitative storylines and quantitative models.

At the beginning, present drivers playing the most important role in the Pilot Area were defined by using card-technique. Individual factors regarded as the most significant for the study area were coupled into 12 main groups: Flood protection, Water quality in lakes, Water-sewage management, Nature valuable areas, Spatial planning, Land amelioration systems, Impact of agriculture on water resources, Agriculture, Tourism, Role of forest, Transboundary co-operation, Water retention. Once the main drivers were recognized, their importance was set by use of the spidergrams method. Next, the semi-quantitative method of Fuzzy Cognitive Mapping was used for recognition of present situation in the Narew River Basin. The starting point for creating the Fuzzy Cognitive Maps was a set of main drivers defined by the card-technique method. Stakeholders were free to modify and/or add new main drivers, and they determined the relations and feedback between the drivers. In this way stakeholders created an almost complete system representation, presented in a simple way that give a new insight and understanding of a complex system such as the Narew River Basin. Next task of the process was oriented on drawing the future visions for the study area by using collages technique. So-called "fast-track" scenarios based on Global Environment Outlook (GEO-4) (UNEP, 2007), which describe the possible ways of what the world and Europe will look like in 2050, were used as a starting point for discussing and developing future visions for the Narew River Basin. Finally backcasting procedure, including a selection of objective (a desired future state) to be reached by 2050 and casting back from this end point to find out the possible ways to reach this objective, was applied to the visions elaborated within the process. Backcasting exercise allowed to identify main obstacles and opportunities that occur 'along the way', together with milestones, interim objectives and the (policy) actions necessary to reach the desire future according to the developed scenarios. At the end of the scenario development process time trends for chosen main factors for alternative future visions were created.

The scenario development findings, especially main drivers, scenarios and backcasting results, constituted a significant input to planning and carrying out the Integrated Water Resources Management by representing the stakeholders' view on main aspects of this process.