SimBasin: serious gaming for integrated decision-making in the Magdalena-Cauca basin

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The Magdalena-Cauca macrobasin covers 24% of the land area of Colombia, and provides more than half of the country's economic potential. The basin is also home a large proportion of Colombia's biodiversity. These conflicting demands have led to problems in the basin, including a dramatic fall in fish populations, additional flooding (such as the severe nationwide floods caused by the La Niña phenomenon in 2011), and habitat loss. It is generally believed that the solution to these conflicts is to manage the basin in a more integrated way, and bridge the gaps between decision-makers in different sectors and scientists. To this end, inter-ministerial agreements are being formulated and a decision support system is being developed by The Nature Conservancy Colombia.

To engage stakeholders in this process SimBasin, a "serious game", has been developed. It is intended to act as a catalyst for bringing stakeholders together, an illustration of the uncertainties, relationships and feedbacks in the basin, and an accessible introduction to modelling and decision support for non-experts. During the game, groups of participants are led through a 30 year future development of the basin, during which they take decisions about the development of the basin and see the impacts on four different sectors: agriculture, hydropower, flood risk, and environment. These impacts are displayed through seven indicators, which players should try to maintain above critical thresholds. To communicate the effects of uncertainty and climate variability, players see the actual value of the indicator and also a band of possible values, so they can see if their decisions have actually reduced risk or if they just "got lucky". The game works as a layer on top of a WEAP water resources model of the basin, adapted from a basin-wide model already created, so the fictional game basin is conceptually similar to the Magdalena-Cauca basin. The game is freely available online, and new applications are being discussed, such as using the game in planning processes and to engage local communities.

The game has been beta tested at a modelling workshop in Bangkok and was then used as the basis of a national basin management forum in Bogotá. 42 high-level stakeholders attended and the session generated a great deal of interest in the decision support system, and served as a nucleus for different stakeholders to discuss ideas. The study discusses the development of the game and observations from these sessions.

More information: http://simbasin.hilab.nl