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Serious-game for water resources management adaptation training to climatic changes

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Water resources access is a main issue for territorial development to ensure environmental and human well-being. Indeed, sustainable development is vulnerable to water availability and climate change may affect the quantity and temporality of available water resources for anthropogenic water uses. How then to adapt, how to change water management rules and practices and how to involve stakeholders is such process?
To prevent water scarcity situations, which may generate conflicts and impacts on ecosystems, it is important to think about a sustainable development where anthropogenic water uses are in good balance with forecasted water resources availability. This implies to raise awareness and involve stakeholders for a sustainable water management. Stakeholders have to think about future territorial development taking into account climate change impacts on water resources.
Collaboration between scientists and stakeholders is essential to insure consistent climate change knowledge, well identification of anthropogenic uses, tensions and stakes of the territory. However sharing information on complex questions such as climate change, hydro-meteorological modeling and practical constraints may be a difficult task. Therefore to contribute to an easier debate and to the global training of all the interested actors, a serious game about water management was built. The serious game uses scientist complex models with real data but via a simple and playful web-game interface. The advantage of this interface is that it may help stakeholders, citizen or the target group to raise their understandings of impacts of climate change on water resources and to raise their awareness to the need for a sustainable water management while using state-of-the-art knowledge.
The principle of the game is simple. The gamer is a mayor of a city and has to manage the water withdrawals from hydro systems, water distribution and consumption, water retreatment etc. In the same time, a clock is running and climate change occurs on the territory which impacts the water resources. The gamer has to deal with this evolution and try to help its municipality in growing. If the water management plays well the city can develop. At the opposite, wrong player decisions may generate water, energy or food scarcities, which lead the city to decrease.
A first version of this game still under development was built. It makes uses of data from a famous French ski resort: Megève municipality. A demo of this game will be presented.
Under a playful approach the serious game helps to discuss essential but strained topics between stakeholders, scientists and citizens. It may be considered as a useful tool for decision support and explanation of a complex topic. It is also hoped that this approach offers new ways of collaboration with stakeholders to approach complex situations in order to find the best paths for future water management.