



Synergy water and energy to a natural disaster: a challenge of sustainability in large cities.

Ojilve Ramon Medrano Perez

Fundación IMDEA Agua, Madrid, Spain (ojilve.medrano@imdea.org)

In 2007, humanity reached a significant demographic milestone: According to UN predictions more people will live in cities than in the countryside for the first time in history. In 2030, over 60% of the people will live in cities. The growth rate is particularly high in many of the so-called megacities, cities with more than 10 million people. A list of mega-cities made by the UN organization contemplates a total population of about 280 million. Today one of the main problems is the unplanned and unorganized growth these cities. But as cities and economies grow, so do the challenges they converge. A key matter is the every day burden of the growth in urban infrastructure. Thus water and energy are important instruments in development and in turn, the most affected ones in megacities; therefore, it is time to integrate the management of these resources knowing that they are intrinsically related.

This research is a study on how the approach of integrated water resources management can be applied to water and energy efficient use and management in large cities before the occurrence of a natural disaster. It has two main objectives: First, analyze and illustrate the interdependence between water and energy and their management disconnection for both resources, as well as the risk they present to the occurrence of a natural event. Second, encourage debate between policy emitters and decision makers involved in water and energy management and the severe vulnerability factor they present when a natural disaster occurs and affects large cities.

The research findings illustrate the interdependence of energy and water systems and highlight the fundamental differences between the sectors involving water, energy and the independence that exists with regards to policies their interactions. Research shows that integrated management of water resources can be used to form a new management approach capable of incorporating contemporary challenges of energy and water exposed to the occurrence of a natural disaster. Furthermore, this report also provides recommendations for future research in this area.

Keywords: water, energy, sustainability and megacities.