

Grey and green infrastructure used for flood retention in western Romania

Dr. Eng. Rares Halbac-Cotoara-Zamfir
Politehnica University of Timisoara, Romania
raresh_81@yahoo.com

Rivers have always played an important role in settlements development. A river is not just a water supplier but also, maybe more important, a dynamic ecosystem with frequent changes and specific characteristics influenced by many factors as local climate, geology etc. Human society, being in a continuous development and with high needs in new territories, finds in rivers a redoubtable adversary. The interference led, along centuries, to a radical alteration of rivers watercourses and major beds which had responded by flooding properties and livelihoods.

The result was an arms race, humanity with higher and stronger dikes, and other flood defenses, rivers with higher flow peaks with a strong destructive force. Regional and local authorities must develop integrated management plans for rivers in order to recreate their natural floodplains. However, traditional flood protection measures, mainly based on grey infrastructure are no longer sufficient to cope with dynamic flood risk being necessary to be implemented, as complement to grey infrastructure, nature-based solutions. An important challenge is to consider the reconciliation of flood risk management and land management, giving the multifunctional land uses which enable temporary flood retention and flood storage on private land without restricting the provision of other ecosystem services.

In addition, the origins and consequences of flooding have to be fully understood, particularly in developing countries, in order to propose and justify adequate institutional strengthening (regulatory agencies, conservation authorities) which should overcome existing institutional and political barriers.

This poster presentation will focus on grey and green presentation used for flood retention in western Romania, an area characterized by a high density of land drainage and irrigation system which provide several important regulating ecosystem services like flood retention, groundwater recharge etc. This area was recently affected by several floods requiring breaking down disciplinary boundaries between engineers, ecologists, agronomists, economists, hydrologists and climate scientist and the appliance of some reliable climate-energy-economic models as well as land-use models.

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