

SOCIAL NETWORKS AND PLANNING. APPLYING UNIPARTITE GRAPH MODELS TO ANALYSE HETEROGENEOUS DATA IN COASTAL RISK GOVERNANCE

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Abstract: Risks affecting coasts can be aggravated by climate change. Having adequate response mechanisms requires an integrated, multi-risk planning system, which should include from prevention to emergency phases of risk management, together with a wide range of authorities. This research aims at analysing the Catalan coast (NW Mediterranean) statutory planning system to cope with these risks and evaluating the integration level of climate change. Our approach combines: (a) qualitative techniques (planning analysis, secondary-documents review and semi-structured interviews) to list actors and plans; and (b) social networks analysis to draw relationships between competent authorities and plans, in prevention and in emergency phases. We use unipartite graph models as methodological innovation to visualize and analyse our heterogeneous data. Results show the complexity of the legal and administrative framework of the Catalan coastal risk planning, which reflects the diversity of causes, origins, temporal and spatial scales characterizing hazards and risks. A dissimilar management tradition depending on each type of risk is observed. Flood risk management is coordinated by local and regional administration institutions with a more multi-risk perspective but unfortunately, they are not responsible for coastal erosion, a significant component of the global coastal risk in the Catalan littoral, which is managed from a higher administrative level. In contrast, climate change is not present in the emergency phase: it is only explicitly considered in the Spanish Coastal Law and the Strategic Environmental Assessment. We argue that an overall planning system that guarantees integration among administrative levels and sectorial policies is required to increase overall coastal safety.

Keywords: *Coastal risk, Governance, Social networks, Graph data visualization, Planning, Policy-making, Catalonia.*