

Assessing the position of actors in river restoration at various scales in Romania

Évaluation de la position des acteurs de la restauration fluviale à différentes échelles en Roumanie

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RÉSUMÉ

L'objectif de ce travail est d'identifier les acteurs de la restauration fluviale en Roumanie et d'évaluer leur position dans le cadre du réseau des décideurs. En ce sens, nous avons inventorié et sélectionné les actions de restauration fluviale proposées dans le Programme national de mesures au sein des Schémas directeurs d'aménagement et de gestion des eaux à l'échelle du bassin versant, des Plans de gestion du risque d'inondation et d'autres projets indépendants. Grâce à l'analyse des réseaux sociaux, nous avons trouvé les principales caractéristiques du réseau d'acteurs de la restauration fluviale en Roumanie. Le réseau d'acteurs est petit, avec une densité modérée des connexions entre les uns et les autres. Le top cinq des groupes d'acteurs est constitué des ONG, autorités pour l'eau, autorités pour l'environnement, recherche & éducation et autorités pour la foresterie. En ce qui concerne le nombre de mesures/projets, les leaders sont les autorités pour l'eau. Comprendre le réseau actuel d'acteurs impliqués dans la restauration fluviale pourrait aider à créer les bonnes connexions pour donner plus ou moins de pouvoir et d'influence à certains acteurs afin d'atteindre les objectifs planifiés.

ABSTRACT

The aim of our study is to identify actors of river restoration in Romania and assess their position in the network of decision makers. We inventoried and selected river restoration actions proposed in the national Programme of Measures within River Basin Management Plans, Flood Risk Management Plans, and other independent projects. Through social network analysis, we found the main features of the network of actors in river restoration in Romania. We found a small network of actors with a moderate density of connections between each other. Top five groups of actors are the NGOs, Authorities for Water, Authorities for Environment, Research & Education, and Authorities for Forestry. In terms of number of measures/projects, the Authorities for Water are leading the list. Understanding the current network of actors involved in river restoration could help creating the right connections to give more or less power and influence to certain actors and therefore achieve the expected outcomes.

KEYWORDS

actor, Programme of Measures, project, river restoration, social network analysis

1 INTRODUCTION

Previous studies showed that river restoration is characterized by a multiplicity of actors and projects implemented especially at reach scale (e.g. David et al., 2017). The way that the public and private actors collaborate to achieve consensus on planning and implementing a project ensure the success of river restoration (Carré et al., 2021). Besides, scientists are considered as fully fledged protagonists of river restoration due to their knowledge that need to be communicated to managers and practitioners (Cottet et al., 2021).

Little is known about the practice of river restoration in Romania despite large-scale goals to rewild the Danube floodplain. But, overall, who decides for river restoration? The aim of our study is to identify actors of river restoration in Romania and assess their position in the network of decision makers.

2 DATA AND METHODS

To gather data, we extracted hydromorphological measures in the Programme of Measures of the second River Basin Management Plans in Romania and other green measures in national Flood Risk Management Plans, as well as responsible actors for their implementation. We also searched for independent river restoration projects implemented in Romania and involved actors.

Then, we grouped the actors according to their functions: Authorities, NGOs, Research & Education, Research & Development, Consultancy, etc. The analysis of groups instead of unique actors can simplify the network and help us obtain a general picture for river restoration in Romania.

Based on these data, we created a network of groups of actors connected to each other. A node is a group of actors. An edge is a common measure/project between two actors. We employed social network analysis to further characterize the entire network (e.g. density, average path length) and the nodes (e.g. centrality – degree, betweenness).

3 RESULTS AND DISCUSSION

In documents at national scale, we found measures to be implemented at river reach scale. The Authorities for Water proposed 17 hydromorphological measures to restore the connectivity and continuity of rivers. We also found 110 natural water retention measures under the supervision of another actor (i.e. the Ministry of Environment) and 233 measures of riparian forest management to be implemented by the Authorities for Forestry and the Local Authorities.

Besides, we counted 16 independent river restoration projects also at reach scale. These projects focused on river connectivity, improving riparian habitats of community importance, and river continuity. These projects were implemented by 11 groups of actors: NGOs (7), Protected Area Authorities (7), Authorities for Environment (6), Research & Development (6), Research & Education (4), Authorities for Forestry (3), Local authorities (2), International Partners (2), Private Company (2), Authorities for Water (1), Consultancy (1).

We found the 12 groups of actors connected by 15 unique edges and 837 edges with duplicates. The network density of connections is moderate (i.e. 42.4%). The average path length is equal to 1.451, which suggests a small network.

In terms of power (i.e. degree = numerous connections) and influence (i.e. betweenness = connections between groups of actors otherwise disconnected), the most important groups of actors are the NGOs and the Authorities for Water (Fig. 1, Table 1). Other powerful groups of actors are the Authorities for Environment, Research & Education, and Authorities for Forestry, but they are less influential in river restoration.

Overall, river restoration in Romania is shared between authorities, NGOs, and scientists. Yet, this is a theoretical network of actors, because some of the measures were only planned and not necessarily implemented.

4 CONCLUSIONS

The aim of our study was to identify actors of river restoration and assess their position among other decision makers in Romania. The Authorities for Water proposed the large majority of river restoration measures, but they collaborate with only few other actors. Therefore, the Authorities for Water were outran in the network by NGOs in terms of influence or spreading the know-how. As a particularity, we noticed the presence of the (national) Ministry of Environment in the decision making process at river

reach scale when concerned natural water retention measures. Its position is probably due to the high exposure to flood risk in Romania and the necessity to centralize all related decisions.

Understanding the current network of actors involved in river restoration could help creating the right connections to give more or less power and influence to certain actors, therefore obtain the expected outcomes. In practice, while the Authorities for Water have technical expertise, the NGOs could better work with other actors. Better separating scales could also help to increase the decentralization and implementation of river restoration actions.

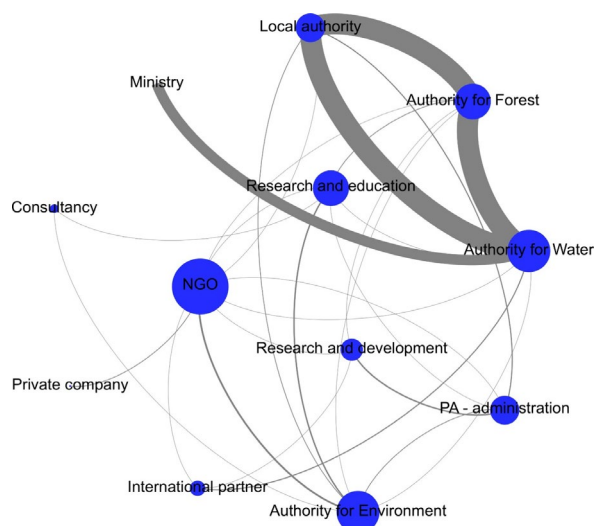


Fig. 1. Network of actors of river restoration in Romania

Table 1. Centrality of nodes in the network of actors of river restoration in Romania

Group of actors	Degree	Betweenness
NGOs	9	15.733
Authorities for Water	7	12.533
Authorities for Environment	7	5.900
Research & Education	6	4.700
Authorities for Forestry	6	2.200
Protected Area Authorities	5	1.533
Research & Development	4	1.033
Local Administration	5	0.700
International Partner	3	0.667
Consultancy	2	0.000
Private Company	1	0.000
Ministry of Environment	1	0.000

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