

bodies (8.2, respectively). NGOs has rather low values excepting Agricultural/Forest Cooperative ($I_i = 11.42$).

The classification of stakeholders on the basis of the Index of Importance (I_i) represents eight key stakeholders: Institute of the Republic of Slovenia for Nature Conservation, Bled-Tourist Association, Forest company GG Bled, Slovenia Forest Service, Company EL-TEC Mulej, Agricultural/Forest Cooperative, Public institution of Triglav National Park (TNP) and Slovenian

Environment Agency. The other stakeholders can be classified as follows: 6 are recognised as primary stakeholders (Municipality of Bled, Municipality of Bohinj, Association of forest owners, Local Energy Agency of Gorenjska, Agrarian community Dovje Mojstrana and DOPPS – Birdlife Slovenia) and 17 as secondary stakeholders.

Public bodies, private organisations and NGOs are equally represented amongst key stakeholders and

Table 4. Ego degree centrality, ego network betweenness and index of importance of TNP's stakeholders

Stakeholders	S_e	B_e	I_i
Institute of the Republic of Slovenia for Nature Conservation	13	60.92	73.92
Bled-Tourist Association	10	23.00	33.00
Forest company GG Bled	6	12.00	18.00
Slovenia Forest Service	8	6.50	14.50
Company EL-TEC Mulej (Society for Energy and Environmental Solutions)	4	6.00	10.00
Municipality of Bled	2	1.00	3.00
Agricultural/Forest Cooperative	7	4.42	11.42
Public Institution of Triglav National Park (TNP)	7	2.50	9.50
Association of Forest Owners	3	2.00	5.00
LEAG – Local Energy Agency of Gorenjska	2	1.00	3.00
Slovenian Environment Agency	4	3.00	7.00
Agrarian Community Dovje Mojstrana	5	0.67	5.67
Municipality of Bohinj	2	0.00	2.00
DOPPS – Birdlife Slovenia	4	0.00	4.00
Company Lip Bohinj d.o.o.	1	0.00	1.00
Ministry of Agriculture and the Environment	1	0.00	1.00
Machine club Bled	1	0.00	1.00
Municipality of Gorje	1	0.00	1.00
Municipality of Kranjska Gora	1	0.00	1.00
GOLEA – Goriška Local Energy Agency	1	0.00	1.00
Alpine Association of Slovenia	1	0.00	1.00
Institute for the Protection of Cultural Heritage of Slovenia	1	0.00	1.00
CIPRA Slovenia	1	0.00	1.00
Fisheries Research Institute of Slovenia	1	0.00	1.00
Slovenian Forestry Institute	1	0.00	1.00
University of Ljubljana	0	0.00	0.00
Archdiocese of Ljubljana	0	0.00	0.00
Chamber of Commerce and Industry of Slovenia	0	0.00	0.00
RAGOR – Upper Gorenjska Development Agency	0	0.00	0.00
Regional Development Agency of Gorenjska	0	0.00	0.00
Association of Hoteliers	0	0.00	0.00

Figure 2. Network of TNP's stakeholders

primary stakeholders (i.e. four public bodies, three private organisations and one association amongst key stakeholders and three public bodies, two private organisations and one associations-NGOs amongst primary stakeholders). Conversely, secondary stakeholders consist of mainly public bodies (9 of 17 secondary stakeholders).

The network analysis of TNP shows that the key role in the decision process related to renewable energy is not in the hands of one central stakeholder but in those of a group of eight key stakeholders: Institute of the Republic of Slovenia for Nature Conservation, Bled-Tourist Association, Forest company GG Bled, Slovenia Forest Service, Company EL-TEC Mulej, Agricultural/Forest Cooperative, Public institution of Triglav National Park and Slovenian Environment Agency. Their involvement in the decisions related to RE planning is crucial for the success of the participatory process.

DISCUSSION

In a participatory process, the choice of the stakeholders to engage is crucial for the success of the decision-making process. A high number of stakeholders can make the process slow and inefficient, with the risk of not reaching a shared decision, whilst a low number of stakeholders may not be enough to represent all the interests at stake. Consequently, the development of a method finalised to choose objectively the key stakeholders is important in order not to jeopardise the participatory process (Grimble and Wellard 1997). In literature, there are many methods to identify and classify the stakeholders: Hamersley Chambers and Beckley (2003) classified the stakeholders into three groups, on the basis of the proximity to the resource: local people, interest group that may or may not be local and general public. Indeed, ODA (1995) considered three categories of stakeholders according to their power and legitimacy: key stakeholders are the main actors in the territory in terms of power and legitimacy, primary stakeholders are the beneficiaries of the plan with a less power and legitimacy in comparison with the key stakeholders, secondary stakeholders are the actors marginally involved in the issue. This classification system has been reviewed by Mitchell et al. (1997) considering three categories of stakeholders (definitive stakeholders, ex-

pectant stakeholders and latent stakeholders) on the basis of the presence or absence of three variables: power, legitimacy and urgency. Lupo Stanghellini (2010) has further integrated the classification system of Mitchell et al. (1997) with an additional variable: the proximity, which is defined as the state, quality or fact of being near or close in space to the natural resource.

In TNP, the applied method has identified eight key stakeholders: four public administrations, three private organisations and one voluntary association. This distribution amongst categories of stakeholders can be considered a equitable distribution because it is able to consider both public interests and private interests. Indeed, public administrations have the objective of promoting the common goods provided by natural resources, whilst the private organisations have the goal of maximising revenues obtained from the use of natural resources, for example, timber and wood for bioenergy (Rinaldi et al. 2015). The associations-NGOs have in principle the objective of maintaining the resource or enhance the benefits for the whole society (Paletto et al. 2014b).

The results of the present study are comparable with those of another study based on social network analysis, realised in Italy (Paletto et al. 2015). This study, which considered the total network of stakeholders in the forestry sector, identified 5 key stakeholders of the total 25 stakeholders in Matese district (South of Italy) and 8 key stakeholders of the total 44 stakeholders in Arci-Grighine (Sardinia island).

Comparing the expert opinion-based identification of stakeholders with the results of social network analysis, some interesting differences could be highlighted: the stakeholders who have been repeatedly mentioned by the experts (Public institution of TNP, Slovenia Forest Service and University of Ljubljana) are not those with the highest relational power. On the opposite, two stakeholders (Bled-Tourist Association and Forest company GG Bled) with high importance was not mentioned by many experts. This confirms that the expert-based identification of stakeholders may provide more realistic picture of the network and reveal some hidden stakeholders with lower importance.

The proposed method of stakeholder analysis has the advantage of being simple and easily applicable, requiring a limited number of data. The basic data can be collected through either a face-to-face interview or

a self-administered questionnaire. The data analysis using the social network analysis allows the integration of the stakeholder analysis with quantitative information concerning the potential influence of stakeholders during the participatory process. The power and the capacity to control the information flow are two important characteristics of each stakeholder that decision makers will need to consider during the participatory process. The method could be adapted to different decision-making needs, assigning a different weight to these two variables in order to emphasise more the power or the capacity to control the information.

The main weakness of the proposed method is related to the exclusion of some stakeholders from the decision-making process. This fact can lead to a decrease of inclusiveness, a partial delegitimisation and a general weakening of the decision-making process. If a stakeholder is only weakly connected with other stakeholders or even isolate, it does not mean that the perspective and viewpoint of this actor is unimportant. A second drawback of the method is that it does not extend the analysis with the qualitative evaluation of the network. This is not easy although the qualitative evaluation is typically of public interest. Questions such as private or public interests of individual stakeholders, the individual characteristics of the organisations and associations-NGO members and the local cultural context may be as interesting as the general pattern of the stakeholder relationships. Other potential limits of the method are typical for questionnaire surveys, such as incomplete answers or low reliability of the answers to certain questions.

About the practical utility for the TNP managers and planners, this approach to stakeholder analysis can be used to decide the different level of involvement of stakeholders in decision-making process, in order to balance the interests at stake. For example, Paletto et al. (2015) recommended to involve only the key stakeholders in a collaborative participation, where the number of stakeholders exceeds 30. The other two categories of stakeholders may be involved for consultation (primary stakeholders) or are simply kept informed (secondary stakeholders). A less inclusive decision-making process may be faster, but it fails to consider all the stakeholders' point of view. A more inclusive process is without doubt slower, but, on the other hand, the needs and the necessities of the whole set of stakeholders are taken into con-

sideration, so the power of the participatory approach is for sure enhanced. After the stakeholder analysis, the future steps of the recharge.green project in TNP will be to share with key stakeholders some scenarios aimed at the bioenergy development. Such scenarios will be presented and discussed during several public meetings or focus groups in order to reach a shared scenario. In this context, the definition of a standard technique to identify and classify the stakeholders that must be involved in the decision making is of fundamental importance in the participatory processes. If a stakeholder analysis is not objective and not able to identify all the interests at stake, it might affect the participatory decision-making process undermining the credibility (Cantiani 2012). Consequently, it is important to define and test techniques for stakeholder analysis objective and replicable in different contexts. The present research has tried to address this issue by proposing a method of stakeholder analysis based on experts' opinions. Surveying experts in forestry and environmental issues may reduce biases connected with the scarce knowledge of the technical aspects (Carnol et al. 2014). In this study, experts were fundamental because they had a broad knowledge of the actors involved in the decision-making process and of the territorial peculiarities.

CONCLUSIONS

Firstly, we want to highlight that to ensure a process as inclusive as possible, we used the stakeholder analysis before starting the participatory process in the RE development. The Alpine space is a very delicate area: extreme climate conditions, slow ecosystem dynamics with high pressures of human activities. Such an environment requires strategies of development capable to preserve the natural and social capital. The participatory process is proved to be very effective in guaranteeing a sustainable and long-lasting use of the natural resources (Walz et al. 2007). In particular, the sustainability of the bioenergy sector is very important for the protected areas (e.g. TNP), not only to accomplish the EU target on RE but also to fulfil the conservation aspects that have to be pursued in a protected area.

In conclusion, we point out that studies concerning relations between social network and RE development are influenced by a combination of factors and deeply

rooted in the local socio-economic context. For this reason, case-study surveys offer ideas and insights that could be used to improve this field study. The proposed methodology based on the stakeholders and social network analysis is an important tool for including as much factors as possible in the land management strategies formulation.

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