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# Evaluating the use of an integrated forest land-use planning approach in addressing forest ecosystem services conflicting demands: Experience within an Irish forest landscape

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## ABSTRACT

There is an increasing demand for genuine public participation in Sustainable Forest Management (SFM) planning to address the various demands for forests to deliver a range of ecosystem services. However, as of yet, there are few developed and tested mechanisms to help authorities and stakeholders with diverse interests to effectively work together to reach a common goal. Integrated Forest Land-Use Planning (IFLUP) is an approach that has the potential to accommodate multi-stakeholders' demands in the field of SFM planning. In this paper an IFLUP framework process that facilitates stakeholder participation in future-oriented SFM planning is explored. This framework combines scenario analysis and stakeholder collaborative learning. Its application in a case study area in the West of Ireland is outlined and its effectiveness in accommodating conflicting stakeholder demands on forest ecosystem services as well as its potential opportunities and challenges are evaluated.

Based on the results and participants evaluation feedback of the IFLUP workshop outcomes, there was a shared view that the IFLUP approach has potential to address conflicting societal demands on forest ecosystem services within local forest landscapes. Likewise, collaborative learning process helps build trust and respect among stakeholder groups as well as improving the legitimacy and acceptance of SFM planning outcomes.

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## 1. Introduction

Sustainable forest management (SFM) is a widely adopted principle within the global forestry sector. It aims to ensure that forests are managed so that they provide economic, environmental, and social benefits to society now and in the future. SFM embraces the concept of social sustainability; it recognises that stakeholders are an integral part of forest management and that their interests and values should be accounted for in sustainable forest planning and decision-making (MCPFE, 2002; Sheppard, Meitner, Harshaw, Wilson, & Pearce, 2006). Coincident with the emergence of the SFM paradigm is society's increasing recognition of the range of ecosystem services that forests provide. Stakeholders assign different values to these various ecosystem services and hence their expectations as to what forests can and should deliver also vary.

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These emerging demands on forest resources alongside the EU and international commitment to SFM has increased pressure on those involved in forest planning to incorporate stakeholders' differing, and often, conflicting demands in forest decision making and planning. Despite this, successful models for addressing the concept of social sustainability or accounting for stakeholders competing demands in SFM planning have yet to emerge in practice (Sheppard & Meitner, 2005). This is also true for Ireland where existing stakeholder consultation mechanisms are viewed with cynicism by some forestry stakeholders who question their *usefulness* in accommodating and integrating the variety of conflicting demands being placed on forests (Bonsu et al., 2015). In particular there is a perception that the less powerful and influential stakeholder groups' interests and values are not sufficiently integrated into forest management decisions, especially when their interests are not aligned with those of forest owners and decision-making bodies (Bonsu et al., 2015).

Given this context, the exploration and testing of new public-participation approaches for SFM planning are evidently needed (Cullotta et al., 2015; Sheppard & Meitner, 2005), to support the transition of European forests to sustainable management (Cullotta et al., 2015). A mechanism that has the potential to accommodate multi-stakeholders' demands in the field of SFM planning is *Integrated Forest Land-Use Planning* (IFLUP), a form of broad-based collaboration mechanism for forest planning and land-use management (Amler et al., 1999). Clark and Stankey (2007) described that the 'integrated' approach is central to helping people from diverse backgrounds and with diverse interests effectively work together to reach a common goal. Further, the concept of 'integration' or the 'integrated approach' is a process rather than a particular outcome, but the process leads to integrated outcomes, and can help address conflicts, complexities and incoherencies in natural resource management and policy formulations (Amler et al., 1999; Clark & Stankey, 2007). Yet, little is known about practical frameworks, approaches and concepts that can be used to facilitate an integrated process to stakeholder participation in SFM planning (Blockstein, 1999; Sheppard & Meitner, 2005).

In this paper, an IFLUP framework process that facilitates stakeholder participation in SFM planning is explored in a case study area in the West of Ireland. This framework combines scenario analysis and stakeholder collaborative learning.

## 2. Materials and Methods

### 2.1. Theoretical framework

The theoretical framework used in this study combines insights from the Collaborative Learning (CL) approach and exploratory and normative scenario development literature. The Collaborative Learning approach strives to effectively integrate both the science and politics of natural resource management (Daniels & Walker, 1996). CL provides systemic learning and encourages a different approach to thinking about controversies and policy decision situations. It emphasises communication and negotiation over concerns and interests in order to improve a situation. It has become an increasingly popular approach in natural resource decision-making, particularly in situations where there are multiple actors with conflicting interests (Daniels & Walker, 2001), and when ecosystem services and land management situations are complex and 'no single party, agency, organization, or discipline holds the key to deciding on a particular natural resource management situation or has all the answers' (Daniels & Walker, 1996, p. 75).

CL, which requires multi-stakeholder collaboration, can be considered as a planned approach to future-oriented systemic thinking i.e. where multiple influencing factors operate in a natural resource setting and their impacts are incorporated in the decision-making process. These planned approaches to future-oriented systemic thinking are consistent with scenario thinking (Vergragt & Quist, 2011). Scenario analysis is an approach that has the potential to deliver integrated forest land-use planning by accommodating stakeholders' demands. In this approach stakeholders use the techniques and procedures of scenario development to identify acceptable and alternative futures for the forest landscape in question, as well as policy actions that need to be taken to achieve these futures. Scenarios are best defined as plausible alternative futures resulting from a combination of trends in driving factors and policies (Fontela & Hingel, 1993; Kosow & Gaßner, 2008). Scenario analysis helps order one's perceptions about alternative future environments in which one's decisions might be played out. It includes determining how drivers of economic and socio-ecological systems are likely to influence each other, and understanding their implications (Schwartz, 1991; Kok, Rothman, & Patel, 2006).

In scenario analysis, *exploratory* scenarios are developed (what are the possible futures?) as well as *normative* scenarios (what future do we desire?) (Kosow & Gaßner, 2008; Mietzner & Reger, 2005). Typically, exploratory scenarios are descriptions of a range of possible future alternative events or are used to gain insights into uncertain future outlooks, by looking at several plausible futures, based on the drivers of change (Biggs et al., 2007; Henrichs et al., 2010; Mietzner & Reger, 2005). In comparison, normative scenarios are goal-oriented descriptions of desired future events that facilitate both shared perceptions of possible futures among stakeholders and learning about others' perspectives. The development of normative scenarios also leads to the creation of a platform for negotiation and helps determine policy actions to achieve desired targets (Wollenberg, Edmunds, & Buck, 2000; Mietzner & Reger, 2005). In determining the policy actions in a normative scenario setting, the policy backcasting approach can be useful when complex issues are involved and where there are calls for major changes. According to der Herder et al. (2014), backcasting is an 'alternative futures method' used to develop normative scenarios and explore their feasibility and implications. In policy backcasting, a desirable future state or vision is first defined, and then reflected backwards to identify actions that will connect the desired state of future to the present (der Herder et al., 2014). The backcasting method, as a result, highlights strategies and policy actions necessary for desired

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