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5 Forests as commons

Changing traditions and governance in Europe

Christopher Short

Abstract

Forests and commons have had a close relationship in Europe for at least a millennium and maybe much longer. As shown in the other chapters of this book, the relationship between humans and forests and forest landscapes is complex and involves many inter-related factors. Similarly commons are also complex institutions and exist across the world in a wide range of situations regarding locally developed governance and management systems of many different natural resources. For many people commons remain associated with Hardin's theory concerning the "Tragedy of the Commons" (1968), in which he assumed that local users of a natural resource are unable to formulate governance and management structures concerning their own choices that took into account the long-term sustainability of the resource itself. As a result, Hardin articulated that the tragedy was that the resource would inevitably become degraded in such situations and that the solution was private or public ownership. However, across Europe many forests have for a very long period of time successfully been managed as commons, just as they have in many other parts of the world. As a result, this chapter has three main aims; first, it will provide an introduction to the various types of commons before going on to link the issue of commons to the traditional forests and forest landscapes of Europe. Thirdly, it will look at how the role of forests and forest landscapes has changed and how it may change further in the future.

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5.1 Introduction to the commons

Within the commons debate there is much discussion, and confusion, associated with terms such as common-pool resource or a common-property resource. Unhelpfully, within the literature both might be abbreviated and referred to as a "CPR", but there is a clear distinction between them. According to Edwards and Steins (1998) and Ostrom (1990 and 2005) the key characteristics of a common-pool resource are that an area is used by multiple-users or user groups, and that when one user exercises their use they in affect subtract benefits from another user. Finally, within a common-pool resource it is difficult to exclude users, often as there is no user rights attached to a specific group, a characteristic that is best described as a "free for all". Such areas are not commons, and Hardin was really referring to an "open access" regime and not commons as his title suggests.

Commons are almost always associated with common property where there are identifiable rights. Steins and Edwards (1998) suggest that by terming a resource

as a “property” there is a series of benefits to which rights can be associated. Property rights is used as a term to refer to the social institutions, that may have evolved over centuries, that are attached to the resource as specific user groups govern and manage the benefits arising from it. Thus, across Europe there are many examples of common property resource where the rights to the resource are generally shared according to prescribed regulations (legislation as well as local custom and practice) and are exclusive to a well-defined set of people (the rightsholders) that ensure the exclusion of other potential beneficiaries (Dolšák and Ostrom 2003; Short 2008). In these situations the rightsholders operate largely as a club as well as the institutions and, according to McKean (1992), the associated rules developed to manage the resource equate to a “club good”. As this chapter will reveal the land itself may be in public or private ownership, but such land can still be a common through the presence of **rights** associated with products or benefits arising from that land.

In the case of forests and forest landscapes the benefit that would have arisen from these areas would have most universally been timber, either for construction or as fuel. However, there is considerable variation across Europe with communities, farmers and foresters each revealing their own traditions and customs in the way they use and govern forests and forest landscapes. For example, these include leaf litter as household bedding, the use of resin in the slaughter of pigs and mosses and lichens in traditional medicine. Not in all of these cases will these uses be reinforced by rights, creating a further layer of investigation into the division of rights from that of customary usage. In many cases this cannot be verified with any certainty, but there are examples in the UK and Europe where rights appear to be been recognized or granted as part of wider discussions between local communities and **land owners** or government representatives.

A more recent development in forests and forest landscapes that is reflected in the commons is a more complex picture where different types of uses, both extractive as in the case of timber and non-extractive as in the case of landscape, are associated with different user groups and are managed under a mixture of property rights regimes. These developments result in presence of complex or multiple use commons that challenge previous **traditions** and customs and require new institutional frameworks to function. This has largely been the result of two centuries of change in which Europe has experienced dramatic social, economic and technological change, most especially during the **industrial revolution**.

5.2 History of forests as commons in Europe

The changes experienced throughout Europe as a result of the industrial revolution have a major impact on the social, economic and technological structure of this continent and as a result seriously challenged the governance and management of commons as well as their existence. Before that time forests, with extensive areas

of woodland within them, would have extended over most of Europe both North and South. Within these forests there would have been areas of **cultivation** and **habitation** alongside open **pasture** and smaller areas of **enclosure**, as well as areas cleared by wind or disease (Green 2010). Therefore, as Vera (2000) confirms, it is not true to say that there would have been a natural closed canopy of trees extending across Europe. The decline of commons, especially in northwest Europe, has been well documented (see De Moor et al. 2002; Bravo and De Moor 2008) and only small pockets remain, with the most extensive mostly in mountainous regions. However, forests, along with other resources such as pasture, irrigation systems and other forms of **agriculture**, remain and are governed and managed by user groups or community-based institutions.

This chapter is therefore set within a wider context that has promoted forestry as socially, economically and environmentally more important than the production of timber alone. The "**Forestry Principles**" agreed by UNCED during the Earth Summit in Rio in 1992 included social, economic, ecological, cultural and spiritual values. Furthermore, much of European policy has been to sustain forests intergenerationally. Thus, while **multiple use** of forests is not new the notion of forests as commons with high levels of tradition, custom and practice remain a challenging notion to the industrial revolution's preferred approach to natural resources of privatisation and commodification, and in the case of forests, **clearance** for other uses, mainly agriculture.

5.2.1 Northwestern Europe and the Alps

Within Europe, the **Alps** form a distinct social, environmental and economic area, and it is in areas such as this that commons have survived. Merlo (1995) notes that from as early as the **Middle Ages** written rules were "laid down to regulate the social and economic life of village community members" with common forests, as well as pasture, at the heart of the communities in these alpine areas. The variety of uses and rights in this area provide us with a snapshot of what it may have been like across a much wider landscape and the level of attachment communities are likely to have had with the surrounding forests. For example oral history work by Gimmi and Bürgi (2007) in the **Swiss Alps** revealed that members of mountain communities used larch needles for livestock bedding, filled mattresses with beech leaves, cut the bark on **coniferous trees** to access the resin that, when added to hot water, prevented knives from becoming blunt when taking the bristles of slaughtered pigs, the inclusion of mosses and lichens in traditional medicine and a wide variety of fruits and berries for food. Similarly, Anderson et al. (2005) found evidence of tree marking and the use of the inner bark of Scots Pine as food in areas of northern **Sweden**.

The social and economic changes associated by the industrial revolution have resulted in modern state structures and economic development that, according to

Merlo (1995), meant that only 5%, some 200,000 ha, of Italy's alpine forests remains. This is partly because in these locations a combination of factors, including strong economic base, well-rooted ethical and cultural values as well as good fortune, were able to resist the more main stream economic changes. Nevertheless, these remnants of communal forests have, to some extent, shown themselves to be effective in and adaptable to various stages of socio-economic development. Merlo (1995) reports that up until 1700, the financial returns from communal forests were largely from sales of timber and that these were pooled to support the village community through education, water supply and health care. Some areas even became independent from feudal landlords on the basis of the wealth accumulated as a result. However, with the industrial revolution and the consequential establishment of modern states with a more centralized approach to governance meant that communal structures were broken up and divided between public or central ownership and private property. Bürgi and Stuber (2010) report that while these areas are visually similar from an aerial point of view the loss of the diverse management within the Swiss Alps outlined above is having a much heavier impact on the biodiversity of these areas. In addition, since the various practices appear to have a strong regional diversity, for example only one area used larch needles for bedding, it is likely that the local ecology also varies.

Gerber et al. (2008) report on the role of common pool resource institutions in the implementation of Swiss natural resource management policy. They too recognize that in a different part of the Alps the 20th century witnessed the establishment of the "concept of exclusive property rights" and the implementation of wide spread "public policies". They compare the impact of these changes to that of the enclosure movement in England, with the associated disappearance of not just the areas themselves, but the legal definition of "common" or "collective property". The result being that the Federal Swiss Civil Code of 1912 incorporates only a few examples of common or collective property (Gerber et al. 2008). They go on to note that the result of this individualization of resource units was greater heterogeneity in management practices which proved difficult to management in terms of issues such as biodiversity, landscape and hydrological management, an issue that will be picked up in the next section. The response of the Swiss is in line with the majority of NW Europe with the introduction of a standardized approach but with pockets of continued collective management within the remnants of previously wider forest landscapes.

5.2.2 Southern Europe

Southern Europe responded in a slightly different way to the industrial revolution, when compared to the northwestern parts of Europe described thus far. Reporting on the situation in Northern Spain, Lana Berasain (2008) uses the example of Navarre on the western border with France, where 44% of the land remains

communal property, largely as a result of the arrangements with the Spanish government concerning autonomy in the **Basque region**. He summarizes the changes in commons in a similar way to previous commentators with the gradual unpicking of the communal structures throughout the 17th, 18th and 19th centuries as the “rationalist and individualistic discourse of Enlightenment took hold” and dismantled communal property across Europe and Latin America. However, he notes that in Spain some upheld the collective approach as a positive thing with social benefits. These social benefits are now being recognized as fundamental in the maintenance of a managed forest landscape that includes areas of open pasture in reducing the risk of landscape-scale high intensity fires that would cause major damage to the ecosystem and nearby communities. Brouwer (1995) cites the example of **Portugal** where the commons, locally called *baldios*, were taken under state control in the mid 1930s, but returned to community under legislation passed in 1976 following the leftist military coup in 1974.

Lana Berasain (2008) suggests that while commons were ubiquitous across all of Europe from the Middle Ages onwards, there were with very different models for assigning rights to the resource, developing governance structures and the relationship with external powers. In supporting this notion Lana Berasain cites the work of De Moor (2002), Sundberg (2002) and Winchester (2002). Even within his Navarre case study he finds two broad models of communal land tenure that developed from different environmental and social conditions. The first is a “closed community linked to agricultural production” and the second “an open community with less restrictive access rights” with neither system designed to “repair injustices but to maintain a balance” within a fragile society (Lana Berasain 2008). In his detailed analysis of the changes during the 18th and 19th centuries he concludes that commons persisted because of the social link to the community. However, while the division of resources and associated rights during the pre-industrial period was very unequal following the structural changes commons became synonymous with the poor and equitable use.

The current situation in Spain outside the Basque area, where the highest concentration of commons are to be found, is broadly similar with two types of commons present in mountainous areas such as those within the Castilla y León region which includes the mountain range of the Cordillera *Cantabrica*. The commons within this area are seen as “public” lands and fall into two categories, those which are close to and the responsibility of the local community and those higher areas that are the responsibility of the municipality.

5.2.3 United Kingdom

A similar conclusion is reached when reviewing the literature surrounding the commons the **United Kingdom**. However, some historians, such as Neeson (1996) suggest that commons were of far greater significance to social relations and pro-

duction in 18th-century England than has been recognized by many historians and that this challenges the acceptance by many agrarian historians of the dominance of agrarian capitalism in the 18th and 19th centuries. Short and Winter (1998) go on to suggest that as feudal relics, commons were, of course, concerned with production but were hardly productivist in the capitalist sense and would therefore be more accurately described as a "constrained productivism". Productivism was the issue at the heart of the debate over enclosures. However, this was constrained by the commons system itself, because the use of commons was surrounded by conditions and a plurality of rights and rights holders which together seriously held back the release of maximum productive potential of the common land. That they survived at all reinforces the view that the links to the social and cultural structures of the community remained stronger than the forces of change.

Edwards and Steins (1998) provide an interesting case study of the New Forest in southern England, an area of some 38,000 ha that was given its name by William the Conqueror in 1079 when he designated it a Royal Forest with the wild animals protected for his hunting. Ownership has remained part of the Crown estate ever since meaning that it is in public ownership, but the majority of this land remains subject to common rights. These rights are spread among around 1500 people who live within a defined area and relate to the taking of the products of the land, such as timber and turf for fuel and rights for grazing. The latter rights remain crucial to the management of the area, and around 200 commoners still turn out cattle and horses.

Before bringing the discussion up-to-date, it is worth considering the impact of the forest and forest landscape, on both individuals and communities, through both that the close spatial proximity and their dependence on its resources. Other chapters discuss the spiritual and cultural aspects associated with forests. However, it is worth considering here the imprinting of a repeated mundane task conducted regularly over months, years and passed down through generations. The embedding within both the individual and community becomes an attachment to the land. In this sense the forest, life and knowledge were intertwined and this led to a well developed local ecology. It is important to bear this in mind when the chapter moves towards the present day, as Wylie (2007) in his book on landscape suggests the specific detail of each place, its current configuration as well as its past and the unique arrangements, relationships and events that have shaped it need to be understood and considered.

Nevertheless, the New Forest, like some of the other examples outlined in this section, also reflects a more recent change that will be discussed in the final two sections of this chapter. This change concerns the move from single natural resource-based commons to complex commons through the addition of new functions such as public recreation (the area has a population of over 10 million within 1 hours drive), nature conservation (much of the New Forest has international designations for wetlands and lowland heath), landscape (the area has recently been designated as a National Park) and heritage (a result of millennium of human ac-

tivity). All of these functions now sit alongside the traditional function of "living off" the products provided by the open and forested areas of the New Forest.

The second area to be discussed in the final two sections concerns the shift across Europe from "government" towards "governance", something that is as true of forestry as other land based industries. Governance is a term that has been deployed with increasing frequency in recent times to describe "the development of governing styles in which boundaries between and within public and private sectors has become blurred" (Stoker 1998, p. 17). In addition to this blurring of boundaries, Stoker identifies the significance of autonomous self-governing networks of actors and government playing a role of steering and guiding as well as, or in addition to, legislative provision. Thus, the term is of particular relevance for commons where custom and practice is so important. Moreover, governance has much to do with breaking with hierarchical centralism through incorporating multiple stakeholders (Healey, 1998), a central issue in the management and planning of commons and forests and forest landscapes.

5.3 How the role and use of forests is changing

By returning to Merlo's (1995) work on the northern Italian Alps it is possible to highlight the change in forestry that has occurred over the past 20 to 30 years. Merlo found that sustainable communal forestry had four main elements to it:

- Income from the production of timber and other forest products
- Water management and soil protection
- Environmental and landscape enhancement
- Recreation and tourism

(adapted from Merlo 1995, p. 5)

This list reflects a number of common factors across much of Europe; issues of rural depopulation in isolated regions, or re-population in less isolated areas but by people who are less involved in land-based industries (timber and agriculture), due to growing mechanization and better paid work in urban areas. As a result, forests are no longer part of the ordinary life of the local community in terms of everyday products and income. Instead, there is the emergence of new functions (as a recreational space) and new concerns (about the environment) which indicates that forests are increasingly complex with a range of objectives associated with decision-making. Therefore, there is an increased opportunity for competing objectives.

It also reveals that forests and forest landscapes are no longer areas of maximizing timber output (often called the "productivist approach"), but now have a clear "post-productivist" strategy that incorporates a range of public or non-market benefits as well as traditional products such as timber and other forest products. This reflects the UNCED "Forestry Principles" and much European sustainable

forestry policy. Mather et al. (2006) reviewed the post-productivist literature and concluded that this fits forestry far better than agriculture. In the previous section work by Short and Winter (1999) highlighted the “constrained productivism” of commons and it is this that lies at the heart of their current interest. Constrained productivism is precisely what is required by many other users of forests and commons, offering an example not only of multiple land use but also as an arena for the articulation of non-productivist demands on the countryside.

The role and significance of the non-market benefits of forestry has been the focus of a number of reviews in the UK and Europe (Willis et al. 2000, 2003; Slee et al. 2004). Like Merlo’s work in northern Italy and Edwards and Steins study of the New Forest, the studies identify a range of other activities connected with forests and forest landscapes:

- Recreation
- Landscape
- Biodiversity
- Carbon sequestration
- Water quality
- Pollution absorption
- Preservation of archaeological artifacts
- Health and social wellbeing

Contained within this list is the central recognition that forests and forest landscapes can impact on rural communities economically, socially and environmentally and the impacts in all three categories can be positive or negative. This is revealed very concisely by Slee et al. (2004) who identify four main values that would be applicable across Europe. These are:

- Forestry values
- “Shadow” values
- Non-market values
- Social values

Forestry values are the benefits or disadvantages arising from all forest activity including upstream and downstream economic linkages. Shadow values emerge from the influence of the forest or forest landscape over locational decisions made by businesses and individuals. Non-market values would include informal recreation, biodiversity, landscape and carbon sequestration. Social values comprise the value of these areas to local communities in terms of identity and a “shared sense of belonging”. This inclusion of social or human values has been noted by O’Brien (2003) who comments that “woodlands are appreciated for a wide range of benefits [by those that use them] the majority of which do not appear to be related to their economic use or necessarily to whether people use them frequently or now” (O’Brien 2003, p. 50). A recent in-depth study of communities in England (Courtney et al. 2007) revealed that forest managers were often keen to control forests in a way that was conducive to biodiversity and local access, however,

they lived outside the local area; and this had an impact on active local engagement and empathy with the local community.

In terms of forests and forest landscapes as commons, the move towards a wider interpretation of their value and purpose in social and environmental terms as well as economic is clearly advantageous to this chapter. Some of the specific roles, such as carbon sequestration and water quality, are directly linked to the management of global commons, something recognized by Dolšák and Ostrom (2005). The inclusion of social values as a valid element of forests and forest landscapes also has a relevance to commons as this has been termed the return to community or rural development forestry. Both terms are used to describe an approach where local people are meaningfully involved in the management of the forest and where they would benefit significantly from the resource itself. This is in part a return to the traditional forest commons before the industrial revolution and the centralization of policy and decision making.

Equally important, it is a recognition that forests and forest landscapes are multi-functional areas that have to cover issues concerning production (of timber), protection (of water quality, landscape and carbon) and consumption (through amenity and recreation uses). This triangular approach has been used by Holmes (2006) to understand and interpret what he has most recently termed the "multi-functional countryside". However, this overlooks the social aspect, particular of forest commons, where the human existence had been until relatively recently very close to the ecological. In this sense it might be helpful to consider these as socio-ecological system (Olssen et al. 2004) or human ecosystems (Likens 1992). These recognise the impact of the performative activities over time to the extent that the nature and the social are combined and deeply connected. Both concepts centre around the suggestion of a paradigm shift in ecological thinking that recognises humans as part of the ecosystem and the need for participatory approaches to identify and integrate "traditional" human activities into conservation management. However, there remains a lack of willingness within central governments to develop policy and incentives that recognize the traditional governance and management structures on commons, forest or otherwise, or their value to a wide range of interests and communities (Short 2000). Nevertheless, there are opportunities that can be developed and incorporated as the next section will illustrate.

5.4 The relationship between people and forest commons

Having revealed the significant change that has taken place regarding the use and understanding of what forests and forest landscapes are for, this final section will outline how the decision making and policy framework has begun to turn. In essence this is a shift in the basis of the relationship between the people of Europe and the forests and forest landscapes around them and suggests, at least in part, the return of forest commons as complex multi-functional sites.

Edwards and Steins (1998) suggest further characteristics for complex commons, those that retain some element of the traditional long enduring common alongside less traditional activities. These include the recognition of several possible tensions, key relationships and subsequent points of discussion. A frequent tension is between the old structures, often developed for single-use commons, and those required for multiple-use decision-making. Moreover, the construction of a new multifunctional framework arising out of the traditional single-use system requires a dialogue to establish the scope of the required changes. As Libecap (1995) indicates, adjustment in commons is not likely to take place in a smooth or timely fashion when there are important differences between the bargaining parties. Due to the decline in the traditional function, timber production interests increasingly feel disempowered compared to other stakeholders. Edwards and Steins (1998) work in the New Forest notes that the newer interests are often more articulate and well resourced than traditional resource users. Libecap (1995) also comments that uncertainty about future regulatory policies provide additional problems within any discussions, something that applies to forestry across Europe.

Critical within the commons literature is the relationship between central and local institutions and stakeholders. The most significant development in producing a management alternative to the centralized prescriptive approach has been the development of "adaptive management". According to Berkes et al. (2000), the main characteristics of adaptive management are the development of local-level regulations and a more accepting and influential role for traditional ecological knowledge (TEK). They outline adaptive management as being a system that might be characterized by:

- management through locally crafted rules enforced by users
- flexible resource use adjusted to suit resource at that time
- users who have accumulated ecological knowledge base
- livelihoods that are secure
- management adjusted to meet resource and ecosystem change

(Adapted from Berkes et al. 2000, p. 160)

Central to this approach is the incorporation of different types of knowledge within the process, often balancing the formal, or scientific, alongside local, or lay, knowledge (Berkes 1989). For example, a current project in the Castilla y León of Spain is concerned with reducing the likelihood of large forest fires that would cause environmental alteration and land degradation because of the post-fire exposure of bare soil to rainfall. The project takes a multi-disciplinary approach and works with extensive livestock farmers who for generations used fire in traditional pasture management systems on commons to encourage pasture regeneration and control scrub encroachment. By promoting cultural change in pasture management systems on commons through the support of pasture improvement (lime and fertilizers), adding value to the products from the area and encouraging collaboration between farmers to increase market share, alongside the

banning of scrub burning, the project has succeeded in maintaining the current local governance structures. The intention of the work in the Swiss Alps is that key aspects of the traditional management might be maintained by farmers using the mountain slopes for summer grazing of cattle or others in mountain communities once the link between these customs and practices has been made to ecological need. This would necessitate the move of such previously ordinary everyday practices to become more symbolic.

As suggested here the adaptive management approach moves away from centralized rules and regulations that are exclusively developed by technical experts and enforced by agents who have no connection with the resource being used. In such situations there is little scope for variability and opportunity as well as resilience and adaptation to circumstances (Berkes et al. 2000). Therefore, it is possible to see how the move towards rural development or community forestry incorporates the adaptive management approach.

Clearly, the challenge for forestry and forest landscape management and research is the understanding and evaluation of what needs to change. Once again the principles of the commons literature is able to offer some helpful insights, notably the frameworks for complex multi-use commons developed by Edwards and Steins (1998) and the decision-making principles and rules of Ostrom (2005) based on numerous global case studies. The recognition that forests and forest landscapes are complex multi-use sites will enable the decision-making mechanisms to adapt so that they are capable of regulating access and resource allocation with appropriate sanctions for non-compliance. The use of existing organizations can enable the cultural and traditional structures to continue. However, as Meinen-Dick and Jackson (1996) indicate, "off-shoots of existing organizations tend to continue to reflect previous societal prejudices and may perpetuate inequality rather than providing a forum to meet the needs of a more diverse group".

The use of concepts such as co-management and the six step process outlined by Carlsson and Berkes (2005) provide a framework that would apply to forests and forest landscapes. The authors outline the need for an initial scoping of the area without predetermined ideas of how to adjust things to the benefit of a single interest. In the same way the GEMCONBIO research project (Simoncini et al. 2008) sought to develop "policy guidelines on governance and ecosystem management for biodiversity conservation". The project aimed to develop these guidelines using an ecosystem approach, an approach that emphasize the need for participation and arises out of the recent Millennium Ecosystem Assessment. GEMCONBIO concludes that biodiversity conservation needs to be determined from local economic and social characteristics as well as local, national and international ecological needs. The policy recommendations include the need to "recognise and respect customary institutions for natural resource management" and to "foster alliances between local, traditional institutions governing natural resources and the governmental agencies in charge of conservation".

5.5 Conclusions

Forest and forest landscape commons across Europe should no longer focus on the issue of declining traditional economic timber production functions, but on the effective inclusion of non-traditional functions that have increased both the economic significance as well as the environmental and social complexity of these areas. This chapter has shown that there is ample evidence regarding the significance of commons to these new forest functions. The traditional functions associated with forests and forest landscapes cannot be cast aside as these remain the most effective and sustainable means of management, as well as a crucial source of knowledge to the benefit of the other functions (Berkes et al. 2000). Further research is required to determine the role of national government and local management groups on these increasingly complex commons and if the variations across Europe. The opportunity for these commons to offer a range of natural (or ecosystem) services, such as water quality and carbon sequestration, should not be overlooked, further increasing both their value and complexity and making it vital that we understand the key design principles of successful approaches in terms of effective self-regulation, broad stakeholder engagement and policy development. In this regard it is possible that two relatively new policy developments might be useful to those wishing to develop innovative and historically sensitive governance structures on forests and forest landscapes.

The first is the introduction of the **European Landscape Convention** (ELC), agreed 10 years ago but being implemented on a voluntary basis across the member states. The guidelines for implementation outline the need to consider physical, functional, symbolic, cultural and historical functions (Council of Europe 2008). In a classic response, some member states, such as the UK, are using designations and policy frameworks that are several decades old to implement the ELC with the result that community involvement is not innovative and truly participatory. The second is the development and implementation across Europe of the Ecosystem Approach or **Ecosystem Services** (EASAC 2009). This framework arose out of the Millennium Ecosystem Assessment. It seeks to provide a rational framework that recognizes the range of natural services that ecosystems such as forests and forest landscapes offer in meeting the challenges of the 21st century.

These two different frameworks provide an opportunity for the richness of tradition, custom and practice within forest communities to embed itself with other uses. Through using these two approaches there is also a stronger possibility of behavioural change both within the community and the other users on the one hand and policy makers on the other hand because of the knowledge exchange that occurs within process itself. This is important in terms of the multi-objective land management that occurs where there are a number of interests operating at the landscape scale. These discussions will embed the idea of forests as commons as well as the important of ecosystem services say within a river catchments or wider landscape.

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