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DYNAMICS IN COMMUNITY FORESTRY IN THE NETHERLANDS

Impacts of changing cultural ecological knowledge

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Introduction

At the time of the initial interest in community forestry, attention was mostly focused on its potential in countries with developing economies. This focus was coherent with the relatively high occurrence of rural communities in those countries, which were often dependent for their livelihoods on natural resources, whether they be forests or otherwise. Yet, in the past two decades, interest in community forestry in economically developed countries has gradually increased as well (Jeanrenaud, 2001; Lawrence & Ambrose-Oji, 2015; Poffenberg & Selin, 1998; Wiersum et al., 2004). The Netherlands is an interesting example of such a country. Historically, Dutch community forestry was characterised by common property management of forest resources as part of local and regional rural economies. However, in the 19th century, these communal forestry systems were discouraged and finally outlawed for their alleged inefficiency to foster reclamation of new agricultural lands. Consequently, forests were either privatised or their ownership was transferred to local authorities, and in the 20th century, interest in community forestry was largely lost. However, in the early 21st century, a new appetite for community forestry is arising. This development is based on local interests in developing novel ways of engaging with forests, nature areas, and other green spaces. Examples include the re-emergence of rural co-operatives for local landscape management and community-based ecological restoration practices. These novel forms of community forestry are not only located in modernised rural areas, but also in urbanised areas. Urban examples resonate with suggestions that urban forests in economically developed societies may be considered as an example of the manifold expressions of community forestry (Johnston, 1985; Sheppard et al., 2017).

These new manifestations resemble the original forms of community forestry by being based on community action. Community endeavours, however, do not simply reflect the community forestry practices from earlier centuries. Rather they reflect new types of community relations and showcase that the denominator 'community' may have different meanings. Sociologists have

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identified three different interpretations of a community: it may refer to a locality, to a local social system involving inter-relationships among people living in the same geographic region, or to a relationship based on a sense of shared identity (Lee et al., 1990; Li, 1996). Initially the development of community forestry, predominantly in countries with developing economies, has strongly been influenced by the notion of a community as a locality where people share natural resources. In order to understand the features of such local systems, much attention was given to the theories of common property resources (Agrawal, 2001; Ostrom, 1990). Consequently, to identify the main characteristics of community forestry (Arnold, 1998; Gibson et al., 2000), consideration of the role of local rules and institutions on successful community forestry development became central (Agrawal, 2005; Casse & Milhøj, 2011). This institutional model of a community (Agrawal and Gibson, 1999) stresses the rules and institutions that underpin collective action. Consequently, two basic factors influencing successful community forest management were identified: (1) forest ownership as a crucial factor determining community control over forest lands; and (2) appropriate community-level arrangements for adjusting management to location-specific conditions. In addition, it was identified that effective community forestry requires the appropriate blending of community-level management arrangements to external socio-economic and policy conditions (Agrawal, 2001; Li, 1996; Waylen et al., 2010).

The recent interest in community forestry in the Netherlands is not primarily related to common property arrangements; most modern forms of community forestry are rather based on common interests and identities (Wiersum et al., 2004). Thus, while acknowledging the importance of the ownership model for understanding the characteristics of traditional types of community forestry in tropical countries, the awareness model as identified by Arts et al. (2017) seems to offer a better perspective for analysing the emergence of new types of community forestry in economically developed societies. Consequently, in this article, we will highlight which processes have resulted in a new awareness about the merits of community forestry in the Netherlands. The emergence of these novel forms of community forestry offers new insights on the potential of community forestry in economically developed countries. They also shed a new light on community forestry as a dynamic movement that reflects contemporary relations between local people and forests and other green spaces.

The aim of this chapter is to open up the concept of community forestry so that it can appropriately reflect its dynamic nature under a wide array of socio-economic and cultural conditions. This conceptual journey is empirically introduced in the following section by means of a brief description of the present status of community forestry development in the Netherlands. In the section thereafter, these cases are further assessed in respect of the theoretical understandings of the main features of community forestry. Taking the awareness model as a starting point, specific attention is given to the socio-cultural dynamics impacting on community forestry. Consequently, the notion of indigenous knowledge as an important socio-cultural factor shaping community forestry is adjusted to the notion of community forestry being impacted by changing cultural ecological knowledge.

Community-based approaches to green space management in the Netherlands

Considering the dynamics in development of community forestry in the Netherlands, two main types of community forestry under modernised conditions may be distinguished: (1) community-based management based on the recollection of historical community organisations in rural areas; and (2) new types of communal management of green spaces in urban areas.

Community-based management based on historical marke *organisations*

Although the traditional community forestry organisations in the Netherlands were officially abandoned in the 19th century, these organisations have not been entirely forgotten. Especially in the north-eastern part of the Netherlands, there are still several remnants of these organisations. Notably in rural areas with a feeling of the Saxon cultural heritage, the memories of what locally were called *marke* organisations are increasingly valued as cultural heritage and good neighbourhood relations. From medieval times up to the 19th century, a *marke* was a collective of farmers who jointly managed common property lands. In several localities, the renewed attention for these forms of management is reflected in the revitalisation of lingering memories of the old local *marke* organisations. In other places, the former *marke* organisations inspired the development of community-based programmes for nature and landscape management. In the following section, we elaborate on respectively the revitalisation and recreation of *marke* organisations in the Netherlands.

Revitalisation of remnants of old marke organisations

Possibly the oldest example of a surviving *marke* organisation is the *Buurschap Ede/Veldhuizen* in the province of Gelderland. This communal organisation was originally in charge of the management and regulation of communal land-use activities such as grazing on the common heathlands, maintenance of village woodlots, and water management. Although most communal lands were privatised in the 19th century, some lands remained communally owned. In 1952 even a new communal forest plot of 2.5 hectare was bought. Consequently, several of the old communal regulations were maintained by a local land-use management organisation, which is still active today.

A second example of the survival of a former *marke* organisation is the *Marke Vragender Veen* located in the eastern part of the province of Gelderland. In the 18th century in the seigniory of Lichtenvoorde, several *marke* organisations were responsible for the regulation of animal grazing on peat and heathlands, the collection of heath and woodland products for farm use and heating of houses, and the maintenance of country roads. In 1842, the common lands were formally divided into private plots, but several communal arrangements for their management were maintained. In 1943, plans were developed for including the lands in a formal nature reserve. The local farmers protested against this plan and decided to renormalise the communal *marke* organisation. Consequently, the foundation *Marke Vragender Veen* was established for managing the local peatlands. The resurrection of this *marke* organisation heralded the development of local agrarian nature conservation organisations in the Netherlands. Since its establishment, the organisation has gradually enlarged its land holdings to 40 hectares of peatland and adjacent agricultural lands that serve as a protection zone around the peatlands.

The most extensive efforts to revitalise *marke* organisations have taken place in the province of Drenthe. In an effort to stimulate local involvement in the government programme for rural development, the provincial Agricultural Society established the 'Association of Farmers Marken in Drente'. The establishment of this organisation was based on the observation that in several villages there exist remnants of the former *marke* organisation. These were tasked with the management of various landscape elements such as village squares, country roads and related vegetation belts, and community ice-skating rinks. After their renewed formalisation, the *marke* organisations became engaged in communal landscape conservation and management activities such as maintenance of local woodlots and tree belts, habitat management for wildlife and meadow birds, and conservation of the traditional farm tree species. These activities illustrate how the traditional focus on the integrated livestock and vegetation management of common

lands has been shifted to the conservation and management of rural landscape elements. They no longer focus on the provision of basic needs, but rather on maintaining the socio-cultural identity of the rural territory. This cultural focus is for instance reflected by a renewed interest in traditional farm horns as a heritage object for announcing local meetings and celebrations. The growing popularity of the *marke* organisations is evident from the steadily increasing membership of the Farmers Marke Association; since its establishment in 1979, 87 local organisations have joined this association. The acclaim for their contribution to the conservation of cultural heritage has led to the inclusion of the *Boermarken* in the formal Netherlands inventory of non-material cultural heritage.

Re-creation of modern forms of marke organisations

In addition to the efforts to revitalise former *marke* organisations, the growing interest in stimulating local forms of community forest and nature management can also be seen in several efforts to establish new local co-operative organisations for managing rural landscapes. Since the 1990s, a number of such efforts refer to the old *marke* traditions. For instance, in the early 21st century, the province of Groningen started to design an ecological corridor for conserving a traditional cultural landscape bordering two small local rivers. The inhabitants wanted to be involved in this and prepared a local plan for the conservation and management of their age-old cultural landscape. This plan was inspired by the recollection of the former communal management of the local landscape. The local authorities reacted favourably, and consequently several local hamlets created the '*Boermarke Essen en Aa's*' (Farmers' association for managing the agricultural fields and rivers) to stimulate local development in their area. The organisation manages several landscape elements such as tree alleys. Also, in co-operation with the government organisation for rural areas, a new bridge was constructed and new walking tracks and an art project were established. These activities contributed not only to the realisation of the planned ecological corridor preserving the historic landscape, but also towards the creation of a local meeting place for social interaction.

A second example of the re-creation of a *marke* organisation is present in the province of Gelderland. Historically, the heathlands of the village of Gorssel were managed by a local *marke* organisation. This commonage was officially dismantled in the mid-19th century, and in 1908 the lands were transferred to the Ministry of Defence for use as a military training ground. At the beginning of the 21st century, these training grounds were no longer needed, and local people became interested in managing the area again. In claiming local control over the lands, they referred to the former commonage arrangements and established a local foundation: *Marke Gorsselse Heide*. This foundation joined forces with a private foundation for conserving the regional landscape and its historic estate houses. The co-operation between the two organisations was successful in creating acceptance of a present-day *marke* organisation as the new owner of the heathlands and its management in accordance with its former status as a commonage used by local farmers.

A third example in the province of Gelderland illustrates how the recreation of modern types of *marke* organisations does not necessarily result from local initiatives, but may also be initiated by professional management organisations. In 2009, the regional water board of the district Rhine and IJssel decided to experiment with local self-governance of riverbanks and adjacent lands. In the village of Eibergen, they initiated a co-operative project with local inhabitants. During the negotiations, it was recalled that from the 16th century, the former *Marke Mallem* had been present in the area. Although the communal lands were formally privatised between 1840 and 1859, the *marke* maintained possession of some small parcels of land. The proceeds of

those lands were used to fund the maintenance of roads and bridges. This arrangement was only ended in 1974. The memories about these communal land management arrangements stimulated the deliberations of the water board about options for local self-governance of lands along the river. After a long process of negotiation and planning, a new local foundation with the former name of *Marke Mallem* was created in 2013. This foundation obtained the full management responsibility for 43 hectares of lands along the river Berkel.

Emergence of new types of communal green space management in urban and peri-urban areas

The examples of the revitalisation of former *marke* organisations illustrate that many forms of community-based management are not exclusively focused on the management of forests, but rather on the management of forested landscapes. A broader 'green space' orientation is also dominant in newly emerging forms of community-based management in peri-urban areas (Mattijssen et al., 2018a). These (peri-)urban forms of community-based management do not just re-create the traditional communal structures for managing the landscape, but rather also reflect an interest in developing novel green spaces which denote present-day appreciation for cultural landscapes. Consequently, they predominantly focus on biodiversity conservation as well as on the cultural functions of green urban spaces (Mattijssen et al., 2018b). These peri-urban types of community management are not so much directed at developing new forms of ownership but rather at creating a new shared sense of stewardship. In most cases, the ownership of green spaces is in the hands of local authorities rather than the community. Nonetheless, several scholars argue that such green spaces can be considered as a new form of 'commons': publicly accessible land which is managed through shared governance – regardless of actual ownership (Bendt et al., 2013; Colding et al., 2013).

Due to their focus on creating and maintaining inspiring green spaces, the community activities are often not merely driven by ecological aims; they also inspired by social and cultural objectives. These are expressed in different forms of socio-cultural practice in respect of education, social cohesion, food production, and recreation. Two ideal typical types of these peri-urban types of community management of green spaces may be distinguished: (1) conservation-oriented approaches in which much attention is given towards conservation of biodiversity and/or cultural landscapes; and (2) use-oriented approaches which predominantly focus on the provision of ecological services for people living in close proximity to the green spaces.

Community management of cultural landscapes

The cases of community-based conservation of urban landscapes are not primarily characterised by a clearly delineated geographical location, but by the presence of 'communities of interest' where people with a similar interest in green-space management meet. Often, such communities have a relatively strong focus on biodiversity and/or cultural history of the landscape – and members are willing to travel to these green spaces if necessary.

An interesting example is Natuurvereniging *De Ruige Hof* (Nature Association of the Wild Court) in the Dutch capital of Amsterdam (Mattijssen et al., 2017). The association was established in 1986, when a group of citizens joined up to protect spontaneously developing nature on abandoned, municipality-owned construction sites. Since then, the association has been working on the restoration of the traditional medieval cultural landscape in two areas that together span 13 hectares. *Klarenbeek* is an area reminiscent of the 11th–16th-century cultural landscape of the lower parts of the Netherlands. It is a diverse and relatively wet area with

small landscape elements such as flowery meadows, marsh reeds, scrubs, willows, poplars, ponds, ditches, and a medicinal herb garden. *De Riethoek* is an area consisting of a combination of dune-like drier areas and swamp areas. This results in a diverse vegetation including swamp species, flowery meadows, and thickets. As a 'community of interest', the association attracts volunteers from all over Amsterdam and even outside of the city. A particular feature is that about half of the volunteers have a psychiatric history. Thus, *De Ruige Hof* not only serves to restore and maintain a traditional cultural landscape, but also provides a sense of purpose to the members of the association.

A second example is *Stichting Doornik Natuurakkers* (Foundation Doornik natural arable lands). Doornik is a hamlet in the peri-urban municipality of Lingewaard between the cities of Arnhem and Nijmegen. The historic, small-scale agricultural landscape of this area has disappeared due to urbanisation and agricultural intensification. When a part of the current location and adjacent polders were designated as a formal nature reserve, local citizens who were already active in nature conservation made a plan to restore the original cultural landscape. Their plans focused on meadow-bird conservation and restoration of traditional landscape elements consisting of a mixture of small forest plots and agricultural fields. The restoration activities took the form of cultivating traditional varieties of cereal crops and the development of a food forest of 32 hectares. Recently, another 30 hectares of lands in the nearby polder has been added to the original area, including a patch of forest and two bodies of water. The site has become a hotspot for all kinds of community activities such as maintenance of community gardens, organisation of outside school classes for primary school children, excursions, and sports activities. The activities also include traditional landscape management practices such as pollarding willows and braiding hedges. In just ten years, the area has become highly biodiverse and a popular visiting destination for people living in the nearby towns and cities.

A third example is *Stichting De Dommelbimd* (The Dommelbimd Foundation). This foundation manages a small-scale 'traditional' cultural landscape, totalling 6.5 hectares situated on the border of the city of Boxtel. The area was originally a private property which was closed off to the general public. When this land came up for sale in 2013, local citizens were afraid that the area would be developed for housing or commerce. Therefore, they decided to protect the area. They set up a foundation and, in co-operation with Stichting Brabants Landschap (a provincial landscape foundation), raised over €300,000 in crowdfunding for purchasing the land. In this case, and in contrast to most community-based green space management in the Netherlands, the lands thus came into actual ownership of the foundation. Since 2013, Foundation Dommelbimd has worked on making the area accessible to the public and providing educational activities. They have also worked on restoring and reconstructing former cultural elements in the landscape such as fruit orchards, a lake, braid hedges, reed vegetation, and a walking path.

Community management focused on daily use

The second category of community-based green space management in (peri-)urban areas is characterised by new forms of co-operation between daily users of specific urban spaces. These activities usually involve urban people who live in the close vicinity of the site. Generally, these groups of local users do not so much focus on biodiversity and cultural history of the landscape, but rather on the local use values, e.g., recreation, amenity, or social activities (Mattijssen et al., 2018b).

A prominent example of this type of community-based green space management is *Torentuin Zaltbommel* (Tower Garden Zaltbommel). A group of inhabitants of the town of Zaltbommel has developed a 1.5-hectare brownfield into a popular and well-visited green space. The 'tower

garden' includes small-scale urban agriculture, a natural playground for children, an orchard with 'traditional' breeds of fruit trees and also flowering beds. The garden thus included a combination of 'traditional' and 'modern' cultural elements that not only reflect the traditional regional landscape, but also include modern urban landscape elements. The citizens emphasised the cultural heritage nature of the park by restoring a part of the original city walls and presenting some of the archaeological findings from the site. Originally, the project was only meant to be temporary. However, due to the popularity of the newly created green urban space, the municipal council decided that the fruit trees and natural playground will remain after further urban development of the area.

A second example is *Stichting Parkplezier* (The Park Pleasure Foundation) in the town of Dongen. This foundation is involved in the management of a small local park of about 1 hectare that is 'sandwiched' in between high-rise buildings. Although the area had a relatively high natural value, local people experienced it as an unattractive and inaccessible location. In 2010, they decided to make a plan to revitalise the plot into a city park with a positive image. They established a foundation and started to search for allies in order to realise a community-based urban park. The plans were accepted by the municipality, and the foundation became responsible for its management. Since then, the members planted new trees, installed playground equipment, and developed an instructive tree path. They also installed a number of educational information panels and they organize events in the park. Consequently, the park is not only a biodiverse enclave, but has also become a site for social activities and is visited much more often than it was in the past. Although the municipality is formally in charge of the management of the park, the local people play an active role in the governance and planning of the area; they also have a key role in the organisation of a variety of social and educational activities in the park.

A third example of a community of daily users involved in the maintenance of a community park is *Postzegelpark Leusderweg* (Briefmark Park Leusderweg) in the city of Amersfoort. Located in a highly urbanised area, the original brownfield of 0.2 hectare was owned by a local estate developer. This plot was considered an eyesore by inhabitants of the neighbourhood, and a group of local citizens asked the owner if they could temporarily develop it into a green space. In 2013, an agreement was made that local people were allowed to develop and manage the area for a period of at least five years. They subsequently developed the plot into a green meeting space that included a tree-covered lawn, a vegetable garden, and recreational facilities for organising neighbourhood events such as a Christmas market. Similar to the Torentuin Zaltbommel, this Postzegelpark is only temporary as it will eventually be developed into an area for housing. As explained by a local volunteer, this temporary nature is a major reason for the success of this community park; the formal land owner would otherwise never have agreed to the greening of this space.

Conceptual analysis of the emergent features of community forestry in the Netherlands

Emergence of new types of community forestry

The Dutch cases of community management of what may collectively be termed green spaces illustrate the variety of ways in which local communities in economically developed societies may engage in the management of forested landscapes. Some of these engagements are based on the recollection of the local history in respect of communal landscape management in rural areas. Others reflect new types of communal arrangements in (peri-)urbanised areas. Consequently, the Dutch cases do not just focus on 'traditional' forested landscapes, but also on

green spaces in peri-urban areas or sometimes even in 'grey' cityscapes in which green spaces are integrated (Pauleit et al., 2019). This new orientation reflects how the traditional focus of community forestry on material products for local livelihoods is increasingly replaced by a focus on ecological, aesthetic, and recreational interests (Wiersum et al., 2004). The examples of the revitalisation and recreation of the former communal management of *marke* forests and the emergence of new types of (peri-)urban types of green space management indicate the relevance of not considering community forestry as essentially an isolated local activity, but placing it in a wider socio-economic, cultural, and ecological context.

The Dutch examples of modern forms of community-based green space management also illustrate the dynamic nature of community forestry. They reflect two main types of dynamics. The first involves a shift in the institutional arrangements; these are increasingly characterised by common interests and social relations rather than by common property. The second involves a new orientation at the role of forests in landscapes. The traditional systems of community forestry mostly focus on forests as a landscape component of traditional rural landscapes, in which forests provide basic services such as wood production and grazing ground. The modernised versions of community forestry have a more diverse orientation. In some cases they focus on the conservation of ancient forested landscape elements and biodiversity as valuable manifestations of biocultural heritage. However, they may also include the creation of new types of forested landscapes, providing space for relaxation and recreation as well as nature enjoyment.

In considering what analytical lessons can be learned from the Dutch cases, the observation that they are primarily based on common identity rather than on common property may serve as a starting point. Although *Stichting de Dommelbimd* and *Marke Gorsselse Heide* do reflect common property arrangements, such examples are rare in a Dutch context (Mattijssen et al., 2018b). Most arrangements are based on a shared interest in green space management as a means to conserve cultural landscapes and biodiversity and to create new spaces for social interaction. Thus, the Dutch cases are predominantly based on common social and cultural orientations. This shared interest in green space management not only incorporates attention to cultural landscape elements and biodiversity, but also includes interests in new forms of using forest landscapes for recreational purposes and local products. Thus, the Dutch cases highlight a need to give focused attention to the dynamic of cultural orientations that may shape community forestry.

From indigenous knowledge to cultural ecological knowledge

In the original approaches to community forestry in economically developing countries, it has been argued that this requires paying attention to the role of indigenous knowledge regarding the use and management of local forests. The examples from the resurgence of community forestry in the Netherlands indicate the need to further scrutinise the nature and significance of indigenous knowledge and to expand this analytical concept to reflect the dynamics in knowledge in economically more developed countries.

The concept of indigenous knowledge was originally introduced in the 1980s, when much attention focused on its potential as a device for rural development (Brokensha et al., 1980; Sillitoe and Marzano, 2009; Warren et al., 1991). At the UNCED conference at Rio de Janeiro in 1992, it also became acknowledged as an important device for biodiversity conservation. Since then, much attention has been given to its further operationalisation. As a result, different domains of knowledge in respect to biodiversity were identified, including cognitive and expressive features and daily livelihood practices (Orcherton, 2012; Pilgrim and Pretty, 2010; see also Houde, 2007). Alternatively, the concept of indigenous knowledge has also been identified as referring to an integrated knowledge-practice-value system (Berkes et al., 2000; Wiersum,

2000). These interpretations illustrate that the concept of indigenous knowledge does not only include the cognitive, practical, and cultural manifestations of ecological objects, but also the social institutions that are developed in the process of actually living with nature (Turnhout et al., 2013). During the process of living with biodiversity, a set of practices in respect of the generation, internalisation, and transmission of ecological values and practices takes place. This process is affected not only by local socio-cultural conditions, but also by education and exposure to generic scientific knowledge.

While the notion of indigenous (forest-related) knowledge often focuses on rural communities in economically developing countries, the notion of integrated knowledge-practice-value systems seems more appropriate to reflect the characteristics of green space management in a more economically developed context. This concept acknowledges that knowledge is closely related to value systems. This is clearly expressed in the Dutch cases; they all incorporate an important cultural dimension which relates to present meanings, understandings, and customs of engaging with nature. Whereas the cases involving new forms of *marke* organisations reflect an interest in the cultural heritage value of former rural neighbourhood relations, the (peri-)urban cases reflect the emergence of new community organisations based on novel cultural orientations. The cases thus illustrate that also in a more economically developed context, local people are culturally knowledgeable on how to engage with biodiversity, passing on experiential knowledge and sharing practices with others (Krasny and Tidball, 2012; Mattijssen et al., 2017). While this knowledge might not be labelled as 'indigenous' as per the original definition, it just as well reflects shared cognitions, expressions, and practices related to living with nature.

The notion that the concept of indigenous knowledge can form a foundation for different interpretations is reflected in several alternative concepts, such as traditional ecological knowledge, local ecological knowledge, and cultural ecological knowledge. In order to understand the cultural dimension of community forestry, it is useful to consider the meaning and relevance of these concept in some more detail. Traditional ecological knowledge is often used in relation to traditional indigenous people (Berkes, 1999; Posey, 1999) and emphasises the role of the knowledge and practices of these communities in shaping a close and unique relationship with nature. In this interpretation, it is considered that both biological and cultural diversity face many common threats (Rapport & Maffi, 2010). In order to specify the cultural foundation of indigenous knowledge, the alternative term of *cultural ecological knowledge* has been proposed (Orcherton, 2012). This term emphasises that the ecological knowledge is culturally embedded and that it is important to acknowledge this cultural foundation and to conserve the different forms of cultural interaction with biodiversity (Ellen et al., 2000). Studies on cultural ecological knowledge tend to interpret this knowledge not only as a means to contribute towards biodiversity conservation, but also as an element to be considered in cultural heritage conservation, with special attention to the conservation of the threatened cultural identity of indigenous people. In this context, studies on cultural ecological knowledge often emphasise the need to better control loss of indigenous knowledge and their related features of biocultural diversity (Pilgrim et al., 2008; Rapport and Maffi, 2010). Thus, whereas the notion of traditional ecological knowledge stresses the relevance of ancientry, the concept of cultural ecological knowledge stresses cultural integrity. Such integrity is often not simply lost with modernisation, but is rather adapted. Due to cultural specificity, such knowledge adaptations are often location specific. Thus, cultural ecological knowledge is dynamic in response to the world-wide processes of socio-economic change and cultural modernisation (Cocks, 2006; Gómez-Baggethun & Reyes-García, 2013).

Cultural ecological knowledge in contemporary contexts

The identification of the various manifestations of local knowledge illustrates that it is incorrect to consider that such knowledge only is present under traditional conditions, but that rather it is subject to cultural dynamics. Although the concept of cultural ecological knowledge has often been used in respect of the cultural dimensions of the integrated knowledge-practice-belief systems of indigenous communities, it is also of relevance for understanding the cultural embeddedness of knowledge systems within economically developed societies. The concept of biocultural diversity has recently gained prominence for highlighting the interplay and co-evolution between biodiversity and cultural diversity. This concept calls specific attention to cultural and spiritual values as well as worldviews of human interactions with different types of biodiversity. It also considers that the process of co-evolution between the natural environment and local livelihood practices not only involves technical changes in dealing with biodiversity, but also includes the social and cultural dimensions of how local communities live with biodiversity (Cocks, 2006; Ellen et al., 2000). Although it is acknowledged that socio-economic change and rural modernisation may result in the demise of certain traditional forms of knowledge, it is also recognised that it may involve development of new types of practices (Cocks and Wiersum, 2014; Elands et al., 2015). Thus, the concept of biocultural diversity not only emphasises the historically constituted cultural foundation of ecological knowledge, but also considers the dynamics of knowledge systems in the form of evolution and hybridisation with externally induced knowledge systems. This implies that cultural ecological knowledge may not only inform traditional forms of biodiversity and nature conservation, but that it can also result in the creation of new ways of living with novel forms of agrobiodiversity and cultural landscapes.

The dynamic nature of cultural ecological knowledge is very relevant considering that traditional rural communities have been rapidly changing over the past two decades or so. Moreover, the advance of urban life across the globe and related processes of modernisation have also resulted in new forms of cultural interaction with forests and nature. They have also resulted in the incorporation of local communities in wider social and cultural networks. Ojha et al. (2016) capture this process with the notion of 'delocalising communities'. This conceptualisation may be contrasted with the traditional 'spatial model' of community in which the locals are framed as a geographically isolated entity with strong internal bonding and no interaction with external actors. The newly coined term of *delocalised community* asserts spatial community to be almost irrelevant, as communities tend to be embedded in larger networks that surpass the local domain (Ojha et al., 2016). The notion of delocalised communities emphasises that many social groups in modern societies, be they in urbanised settings or not, interact with fellow community members on the basis of 'larger' shared norms, values, or interests. These are often communicated through modern means of communication such as digital social media (Arts et al., 2015).

The notion of biocultural diversity as denoting the co-evolution between biodiversity and cultural diversity and the notion of delocalised communities of interest interacting through modern types of communication challenge the traditional notions of a community as being primarily a place-based, culturally homogeneous, norms-and-values-sharing, interest-convergent entity. Rather, it calls attention to the dynamics of how communities interact with forests and nature, and how present-day interactions in economically developed societies are not only based on the cultural heritage value of ancient landscapes and management systems, but may also be overhauled by new scientific knowledge (Agrawal, 1995) and new socio-cultural realities in urbanised regions (Bendt et al., 2013; Elands et al., 2019; Vierikko et al., 2016). Examples of such changes in cultural orientations on forest resources are the growing importance of forests as a place of recreation and relaxation (Pauleit et al., 2019; Sheppard et al., 2017) and the evolution in appreciation of wild and non-wood forest products in Europe (Wiersum et al., 2018) and the USA (Chamberlain et al., 2018).

Two key manifestations of cultural ecological knowledge: 'Biocultural memory carriers' and 'biocultural creatives'

Linking up with notions of biocultural diversity as a dynamic process of interaction between biodiversity and cultural ecological knowledge, Andersson and Barthel (2016)introduced the concept of biocultural memory carriers. They characterise these memory carriers as the motors of long-term socio-ecological dynamics and suggest that these act as both repositories and transmitters of experience, knowledge, and meaning. They furthermore specify that these memory carriers consist of a foundation of ecological memory carriers that is manifested in biodiversity. This foundation is complemented by social memory carriers in the form of recollections of culturally venerated forms of managing specific assemblages of biodiversity. Andersson and Barthel (2016) and Colding and Barthel (2013) argue that the linkage between the social and the ecological memory carriers underpins the resilience of biocultural memory carriers. The Dutch cases reflect the notion of biocultural memory carriers as sources of resilience for community forestry in two different ways. The revitalisation and recreation of the *marke* organisations are primarily based on the memories of the former neighbourhood relations as well as the former cultural landscapes based on local forms of integrated land use and neighbourhood control. Thus, these cases illustrate the intersection between ecological memory carriers and social memory carriers. Alternatively, the reconstruction of historical landscapes by new forms of community-based green space management in (peri-)urban areas such as *Doornik Natuurakkers* or *De Ruige Hof* is indicative for the significance of ecological memory carriers.

A second, recently identified manifestation of cultural ecological knowledge are biocultural creatives**.** Elands and Van Koppen (2012) propose this concept as an important vehicle in bio-cultural processes of adaptation. They define it as 'groups of people who, driven by an engagement with society and nature, create new cultural models and practices for interaction with biodiversity' (2012, p. 184). This engagement may be reflected in volunteering activities in nature conservation, recreation or in new types of 'green' initiatives by citizens, e.g., in respect of novel ways of using nature products. Indeed, biocultural creativity reflects new forms of engagements with biodiversity and ecosystems that arise during the ongoing process of biocultural co-evolution. The (peri-)urban cases of community-based management of green spaces provides several showcases of how local people creatively combine historical and modern cultural elements in their green space management activities. For instance, the case of *Torentuin* combines traditional forms of orchard tree management with a modern 'green playground' for children. *De Ruige Hof* maintains a traditional Dutch landscape, but also creatively involves (former) psychiatric patients in the management activities. And *Dommelbimd* managed to fund their purchase and management of the green space through a crowd-funding scheme. All these examples highlight how creative citizens are able to combine traditional cultural customs and novel forms of biocultural interaction for engaging in green space management.

Conclusion: Emerging properties of community-based green space management

Traditionally, the concept of community forestry has been interpreted as referring to a localised management system that is based on a sense of shared identity of people who make use of common lands. The notion of indigenous knowledge is often considered as a major factor informing the use and management practices of these lands. Such a conceptualisation of community forestry is ill-suited to understand the characteristics of contemporary community-based arrangements in economically developed countries. As illustrated by examples of community-based management of green spaces in the Netherlands, community-based forest

management in economically developed conditions may better be conceptualised as an activity by a group of people with a similar awareness regarding the biocultural value of forests and related landscapes. Consequently, the notion of community forestry as essentially involving common resources may be amended to a notion of community forestry as essentially involving a 'community of practice' (Arts & De Koning, 2017) with a common biocultural orientation. We identified 'cultural ecological knowledge' as a more useful and appropriate concept than 'indigenous knowledge' for understanding the emergence of novel forms of community forestry. This concept reflects the growing recognition of biocultural diversity as reflecting the interaction and co-evolution of biodiversity and cultural diversity. It stresses cultural adaptivity and does not assume ancientry or cultural originality. Moreover, it accommodates understandings of local 'delocalised' communities operating in economically developed or developing societies. Finally, it does not adopt an alarmistic point-of-view about the demise of indigenous knowledge, but rather emphasises the new types of knowledge that are created. It thus opens up new vistas on the stewardship of forested landscapes that are characterised by self-determination and participatory governance.

The notion of dynamics in cultural ecological knowledge was further specified by (re-)introducing the concepts of 'biocultural memory carriers' and 'biocultural creatives'. The first concept relates to the capacity of landscape elements that act as both a repository and a transmitter of experience, knowledge and meaning. The latter concept refers to groups of people who create new cultural models and practices for interaction with biodiversity. These concepts assist in the identification of two present-day categories of community forestry in the Netherlands: (1) either revitalised or re-created historic landscape management arrangements in rural areas, and (2) new types of communal green space management arrangements in urban and peri-urban areas. The analysis of the emergent features of the Dutch cases of community-based green space management thus resulted in a reconceptualisation of the main characteristics of community forestry. The conceptual steps in this process are summarised in Figure 32.1.

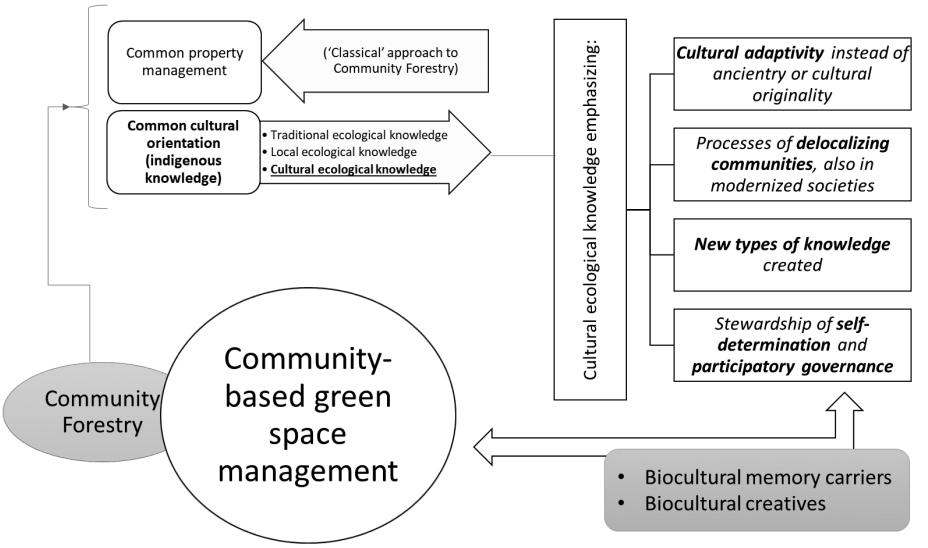

Figure 32.1 Overview of conceptual steps from 'community forestry' to 'community-based green space management'.

In conclusion, the examples of the Dutch cases of modern manifestations of community forestry indicate the need to consider its scope beyond the original conceptualisation of community forestry as a common resource management practice to a more dynamic concept of community forestry management as reflecting biocultural interactions. In order to reflect these dynamics, we propose the concept of community-based green space management as a logical elaboration of 'community forestry' beyond the 'traditional' contexts in which it has been used. Importantly, community-based green space management acknowledges delocalisation of communities; the importance of green spaces involving different kinds of (tree) vegetation, also in peri-urban or urban settings; and the primacy of participatory governance structures or self-governance practices that are based on location- and time-specific cultural interactions of communities of practitioners with their forested environment.

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