Managing for Multifunctionality in Urban Open Spaces: Approaches for Sustainable Development

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ABSTRACT. Landscape management plays a key role in improving the quality of urban environments and enhancing the multifunctionality of green infrastructure. It works to guide the efficient and effective management of green spaces for sustainability and the well-being of users. However, while most researchers have emphasised spatial planning as a basis for developing green infrastructure to promote new strategic connections in urban green space, they have simultaneously ignored the impact of management. Against this background, this paper argues that if our towns and cities seek to maintain the well-being of citizens while also achieving sustainable environments, they must engage in effective landscape management to improve their green infrastructure. It is not enough to simply design or maintain parks and green spaces so as to keep up their physical condition; rather, green infrastructure work should be adapted to the understanding and implementation of managers, users and stakeholders in an integrated management process in order to provide more services for sustainable development. A selected study in Sheffield investigated the management planning required for sustainable development. It is beneficial to learn the experiences of management planning in Sheffield, a city which has rich management practices for green and open spaces. This study will analyse how management planning helps local authorities and managers to improve multifunctional green and open spaces in the context of sustainable development. As a result, the study also explores the framework of management planning with regard to the transferability of the existing practices in Sheffield. It also attempts to provide a primer for sustainability impact assessments in other cities with a considered knowledge exchange.

KEYWORDS. ***Management planning, green infrastructure, multifunctionality, sustainability, knowledge exchange.***

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1. INTRODUCTION

Landscape management plays a key role in improving the quality of urban environments and enhancing the multifunctionality of green infrastructure. Moreover, it has already been recognized in most literatures that multifunctionality is a widespread goal in landscape architecture, especially in green infrastructure development. Ecological, economic, socio-cultural, historical and aesthetic functions in landscaping are widely promoted, but their attainment and integration are limited by the constraints of local political environments, a lack of knowledge and a great deal of complexity (Selman and Knight, 2006). Urban expansion, meanwhile, has led to many landscape functions being changed from rural to urban. Many plans, policies and management challenges can arise from these interactions, including external pressures on the changing areas' multiple functions due to land development, habitat fragmentation and land-use transfers, among other issues.

In this paper, an attempt is made to explain how landscape management has been used to promote sustainable development in Sheffield.

1.1. Background

A significant challenge for our cities, sustainable development is seriously influenced by green and open spaces within those urban areas that are planned and managed. Urban green spaces play a key role in maintaining sustainable development and the liveability of an area (Levent and Nijkamp, 2004). The quality and viability of cities depend largely on the design, management and maintenance of urban green areas and open spaces. At the same time, good quality green space plays a vital role in enhancing the quality of urban life. Such space helps to make an area more attractive to live in by providing opportunities for people to relax, exercise, play sports and meet with friends (ODPM 2006). In terms of urbanization, we are facing rapid urban expansion, which brings with it numerous sustainability issues. In this context , enhancing the quality of the environment has become a common sense goal that goes hand in hand with promoting sustainable and low-carbon development. This notion has been promoted in several respects, including low-carbon economic activity and low-carbon liveability, among others. Moreover, in the UK, many practices promote the enhancement of green infrastructure with multifunctionality for sustainable development. The concept of multifunctionality has been considered an important notion in landscape research and has been particularly impactful in Europe. Furthermore, the term has achieved growing international currency.

This is an opportunity for the development of satisfactory urban environments for sustainable development. It also poses a challenge to management systems currently used to promote

multifunctionality in urban green spaces. In the UK, especially in Sheffield, there have been many cases in which it was possible to promote green infrastructure though management planning. Thus, this study seeks to learn from the experiences of management planning from cases in the UK.

The following section therefore explains some key concepts which are important for understanding how landscape management should be considered in practice.

1.2. Urban green space

Urban green space exists in and surrounds urban areas. The idea of urban green space is understood to refer to all publicly owned and publicly accessible open spaces with a high degree of cover by vegetation, such as parks, woodlands, nature areas and other green spaces in urban areas (Schipperijn et al., 2010). Such space plays a critical role in supporting urban ecological and social systems and providing important services in urban areas (Levent and Nijkamp, 2004).

The Urban Green Spaces Taskforce (2002) in the UK has adopted a definition of urban open space which also includes elements of the townscape such as boulevards, plazas, pedestrian areas, streets and squares. This definition covers the whole urban area and urban fringe and includes many types of land ranging from formally designated areas to more natural areas such as parks, playing fields, golf courses, sports pitches, cemeteries, allotments, woodlands, institutional grounds, private gardens and corridors along river banks (Barber, 2004, 2005; ODPM, NAO 2006; Schipperijn et al., 2010). The Urban Green Space Task force (2002) has also provided a typology of urban green space with many types of land uses in urban areas (Table 1), which can also be extended to the rural-urban fringe. Similarly, China has a national level standard for the classification of green space (Table 2).

As ‘the green lungs of cities’, urban green spaces contribute to people’s physical and mental health by providing breathing space to take time out from the stresses of modern life (Nicol and Blake, 2000). They impact people, communities and quality of life through their value for people in terms of aesthetics, education and the amelioration of negative aspects of urban life, such as noise reduction, pollution reduction and temperature regulation. Urban green spaces can provide a range of benefits and offer many useful opportunities for people in different ways. They also help to define and support the identities of towns and cities, which can enhance their attractiveness with many values, such as by providing boundary landscapes separating neighbourhoods of distinct socio-economic characteristics (Levent and Nijkamp, 2004; Welch, 1995).

Urban green spaces can also be considered as multifunctional systems which are important for sustainable development, including recreational purposes and other features important for human

well-being.

In the view of some academics, urban green space is understood as an important contributor to sustainable development and quality of life (Levent and Nijkamp, 2004). Horwood (2011) has pointed out that urban green space is a broad subject of interest to diverse fields, with links to policy issues such as healthy living, ecology, climate change mitigation, property value uplift and community cohesion.

Furthermore, it is considered a resource for sustainable development, including recreational purposes and other aspects significant for human well-being (Bullock, 2008; Davies et al., 2008). For instance, as recreational resources, urban green spaces might provide attractive backdrops to urban development, safe and exciting play areas for children and reserves for urban wildlife (Bullock, 2008).

Table 1. Green spaces typology in England (PPG 17)

Land use code	Typology suitable for planning purposes and open space strategies	Land use code	More detailed classification for open space audits and academic research
1	Park and gardens	1.1	Urban parks
		1.2	Country parks
		1.3	Formal gardens (including designed landscapes)
		1.4	Private gardens
2	Provision for children and teenagers	2.1	Play areas (including LAPs, LEAPs and NEAPs)
		2.2	Skateboard parks
		2.3	Outdoor basketball goals
3	Outdoor sports facilities (with natural or artificial surfaces)	3.1	Tennis courts
		3.2	Bowling greens
		3.3	Sports pitches (including artificial surfaces)
		3.4	Golf courses
		3.5	Athletics tracks
		3.6	School playing fields
		3.7	Other institutional playing fields
		3.8	Other outdoor sports areas

Land use code	Typology suitable for planning purposes and open space strategies	Land use code	More detailed classification for open space audits and academic research
4	Amenity green space	4.1	Residential
		4.2	Business-related
		4.3	Transport-related
5	Allotments, community gardens and urban farms	5.1	Allotments
		5.2	Community gardens
		5.3	City (urban) farms
6	Cemeteries and churchyards	6.1	Churchyards
		6.2	Cemeteries
7	Natural and semi-natural urban greenspaces, including woodland or urban forestry	7.1	Woodland (coniferous, deciduous, mixed) and scrub
		7.2	Grassland (e.g. downland, meadow)
		7.3	Heath or moor
		7.4	Wetlands (e.g. marsh, fen)
		7.5	Open and running water (like spring)
		7.6	Wastelands (including disturbed ground)
		7.7	Bare rock habitats (e.g. cliffs, quarries, pits)
8	Green corridors	8.1	River and canal banks
		8.2	Road and rail corridors
		8.3	Cycling routes within towns and cities
		8.4	Pedestrian paths within towns and cities
		8.5	Rights of way and permissive paths
9	Civic Spaces	9.1	civic and market squares
		9.2	other hard-surfaced areas designed for pedestrians

Table 2. Standard for classification of urban green space, China
（城市綠地分類標准，CJJ/T85-2002，中国）

Code/Name 類別名稱					
1 大類		2 中類		3 小類	
G1	Public par 公园綠地	G11	Comprehensive parks 綜合公园	G111	Urban parks 全市性公园
				G112	Regional parks 區域性公园
		G12	Community parks 社區公园	G121	Residential 居住區公园
				G122	小區游园 Petty street gardens
		G13	Specialized parks/ theme parks 專類公园	G131	Children's parks 儿童公园
				G132	Zoos 動物园
				G133	Botanical gardens 植物园
				G134	Historical gardens and parks 歷史名园
				G135	Famous scenic parks 風景名胜公园
				G136	Amusement parks 游樂公园
				G137	Other theme parks 其他專類公园
		G14	Linear parks 帶狀公园		
		G15	Street greens 街旁綠地		
G2	Productive plantation areas 生產綠地	G41	Green spaces attached to housing estates 居住綠地		

Code/Name 類別名稱				
1 大類		**2** 中類		**3** 小類
G3	Green buffers 防　綠地	G42	Civic green spaces 公共　施綠地	
G4	Attached green spaces 附屬綠地	G43	Industry green spaces 工　綠地	
		G44	Warehouses 倉儲綠地	
		G45	Transport greens 對外交通綠地	
		G46	Green spaces attached to urban roads and squares 道路綠地	
		G47	Civic green spaces 市政　施綠地	
		G48	Green spaces in special fields 特殊綠地	
G5	Other green spaces 其他綠地			

Data source: Ministry of Housing and Urban-Rural Development of the People's Republic of China (MOHURD) (2002), Standard for classification of urban green space (CJJ/T85-2002), China

1.3. Landscape multifunctionality

The notion of multifunctionality is a complex idea in urban landscapes which refers to the integration of different functions within the same or overlapping land units at the same time (Ling et al., 2007). The idea has been particularly influential in Europe, where it has strong resonance with protective and creative measures being promoted through the European Landscape Convention. Many researchers have summarized multifunctionality as five key landscape functions in urban landscapes:

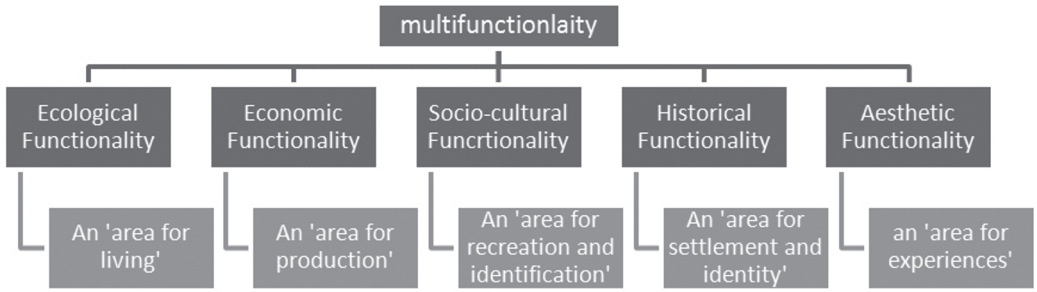


Figure 1. Five key landscape functions in multifunctionality (Adapted from: Brandt et al., 2000; Ling et al., 2007; Selman and Knight, 2006)

The Countryside Agency & Groundwork Trust (2005) (which has since been renamed Natural England) has defined ten key functions to promote in the UK urban fringe over the last few years (Table 3).

Table 3. 10 key functions that the CIAT can fulfil.
These functions can be combined within 'multifunctional' landscapes ensuring that a range of benefits are derived from the same area of land, and this is an important means of achieving sustainable development locally and regionally:

1.	A bridge to the country
2.	A gateway to the town/urban area
3.	A health centre
4.	A classroom
5.	A recycling and renewable energy centre
6.	A productive landscape
7.	A cultural legacy
8.	A place for sustainable living
9.	An engine for regeneration
10.	A nature reserve

Data source: Countryside Agency & Groundwork Trust, 2005

Landscape multifunctionality is thought to support both sustainable land use and development respectively. In landscape research, 'the concept of multifunctionality is getting increasing attention not only in the landscape sciences but in society in general, since it seems to be an important aspect of sustainable development'(Brandt and Vejre, 2003). Therefore, multifunctional

approaches seek to respond to the large number of demands on the environment in the urban fringe and countryside. On the other hand, like the notion of sustainable development, it is commonly considered a term that refers to the notion of achieving a balance between the economy, the environment and society.

1.4. Green infrastructure

Green infrastructure consists of the network of multifunctional open spaces, waterways, trees and woodlands, parklands and open countryside within and between our cities, towns and villages (Natural England, 2007). According to Benedict & Mcmahon (2006), green infrastructure refers to an interconnected green space network including natural areas and features, public and private conservation lands, working lands with conservation values and other protected open spaces. It is planned and managed for its natural resource values and for the associated benefits it confers to human populations. The North West Green Infrastructure Think-Tank (2006) has stated that 'green infrastructure is the region's life support system – the network of natural environmental components and green and blue spaces that lies within and between the northwest's cities, towns and villages which provides multiple social, economic and environmental benefits.

They also pointed that green infrastructure has its own physical components. These include hedges, outdoor sports facilities, coastal habitats, grassland and heath land, cemeteries, churchyards and burial grounds, agricultural land allotments, community gardens and urban farms, moorland, village greens, degraded land, private gardens, ponds, wildlife habitats, parks, lakes, fields, open countryside, woodlands, street trees and open spaces. These elements perform a vast range of functions and deliver many benefits (Landscape Institute, 2009) and need to be protected over the long term. This requires long-range planning and management (Davies et al., 2008).

According to these definitions, green infrastructure provides a framework that can be used to guide future growth and future land development and land conservation decisions to accommodate population growth and protect and preserve community assets and natural resources.

The Northwest Green Infrastructure Think-Tank (2006) has stated that the growth of green infrastructure is underpinned by policy and planning integration, landscape multifunctionality and organizational cooperation. It relies on an understanding that multifunctionality is central to the green infrastructure approach to planning and management (Landscape Institute, 2009). The functions are multiplied and enhanced significantly when the natural environment is planned and managed as an integrated whole. Hence, a managed green network, habitats and places may provide benefits which exceed the sum of the individual parts.

Some researchers also think that green infrastructure functions as a life support system as a strategically planned and managed green network (TEP 2006; Horwood, 2011; 2007). As a life support system, green infrastructure provides multiple functions and environmental services to a community. These include employment, recreation, physical health and mental well-being, social interactions, contact with nature, drainage and flood management, climate change adaptation and pollution control (TEP 2007). Therefore, green infrastructure has been described as a contested term based on competing understandings. In general, thinking on green infrastructure has moved from ecology to economics. In fact, green infrastructure has been summarised as referring to multifunctional green networks with diverse emphases meant to provide a range of benefits (Horwood, 2011; Landscape Institute, 2009). Within related academic and policy documents, green infrastructure has multiple and diverse definitions, with the concept being defined slightly differently each time. This fluidity results in changes and shifts in the meaning of green infrastructure in response to the wider context in which it is defined. Thus, the concept is considered as a broad idea to help achieve more sustainable conditions in the urban environment.

Briefly, as a broad concept, green infrastructure has been recognised in both planning and management, with some key notions held in common. It is considered to be a term which promotes landscape planning and management as a multifunctional agenda (ECOTEC, 2006). Green infrastructure covers most of the popular ideas in landscape research, including greenway, greenbelt and ecosystem services. In this viewpoint, new and existing green spaces and green networks can be properly designed, conserved and integrated into planning and management. This agenda provides new opportunities to develop investment in cities and create sustainable approaches for bridging national and regional priorities when investing in economic renewal and environmental improvement (ECOTEC, 2006).

1.5. Landscape management and implementation

Landscape management is used by owners and managers to achieve the efficient and effective management of green spaces, which include urban and rural green spaces. As Welch (1995) has pointed out, traditional management of parks has always tried to ensure appropriate and high standards of maintenance and a diversity of things to see and participate in, such as floral entertainment, music, drama, dance, open days and education programmes. Moreover, modern management of green space might include more attention to physical to mental aspects that go far beyond mere horticultural care. It could help managers to achieve their goals and ensure that people get much leisure enjoyment and benefits from green space.

Management efforts can substantially impact the quality of parks and urban green spaces. CABE (2004a) has pointed out that the quality of parks and urban green spaces does not rely

solely on their initial planning and design, but rather depends mainly on how the initial quality is managed and maintained. According to the management process, the quality of parks and urban spaces can provide sustainable development for healthy living by various means, such as by providing enjoyable outdoor environments for patrons and aesthetic amenities for residents; by ensuring public safety for residents, commercial tenants and customers; and by protecting the health of residents, workers and customers.

Moreover, management of landscapes is also viewed as means for helping to enhance biodiversity and sustainable development (Dzialak et al., 2011). Landscape management is a complex, multi-faceted task which is used to ensure an ecologically sustainable future and to develop sustainable communities. According to this notion, sustainability issues arise from difficulties associated with integrating humans and their activities into the structure, functions and ecology of the landscape (Dzialak et al., 2011). It requires that solutions be found to integrate key ecological issues within the context of regionally important social and economic concerns (Dzialak et al., 2011). Thus, landscape management provides various opportunities by providing ways to integrate and solve issues relating to the sustainable development of urban green space.

Furthermore, landscape management is also recognized as an important means for enhancing multifunctional green infrastructure (Barber, 2005, 2007; Landscape Institute, 2009). It is important to achieve multiple benefits from different landscapes to different degrees, and such benefits are always considered by different local authorities such as the 'leisure' and 'environment' departments (Barber, 2004). Hence,multifunctional landscapes are usually managed to enhance and achieve multiple functions and benefits in urban green spaces. According to this purpose, Barber (2007) has promoted the CLERE model as a management tool (which has been previously described in the multifunctionality section) to help to identify skills shortages and define the structure and management process.

Good management can help to fortify successful parks and green spaces. Moreover, maintenance as a basic part of management could affect the a given park's physical condition. Practitioners in Scotland (Scottish Government, 2008) have stated that open space maintenance relates to a set of defined tasks which aim to preserve the condition of the spaces in question. Normally, maintenance is mainly considered to refer to ground maintenance which includes cutting and tending grass (including re-turfing and reseeding but not the initial turfing or seeding) and tending trees, shrubs, hedges, flowers and other plants. With management, ground maintenance and development are combined and work together on green issues. Adaptive management styles aim at acting in accordance with nature, instead of imposing high-input maintenance on urban green spaces. This involves not only maintaining conditions, but also importantly suggests a long-term perspective, with flexibility to respond to a range of issues, such as community needs, local economic development, biodiversity needs, quality, safety and

competing uses (Scottish Government, 2008). In this regard, landscape management is generally considered to be dependent on how people understand, evaluate and interpret landscapes.

Additionally, CABE (2010) has suggested that unified management and day-to-day maintenance together could deliver high quality and efficient services. For example, one issue that separates management and maintenance is a lack of communication and familiarity with day-to-day operations. When these services are integrated, they are more likely to have shared priorities and are generally better able to achieve their visions of service.

Moreover, CABE (2004b) has also indicated a belief that maintenance and management could be improved to prevent antisocial behaviours, such as vandalism, as well as insufficient usage and cleanliness. For instance, CABE (2004b) has promoted the idea that good maintenance and management make people feel safe in urban green spaces with wardens and better lighting. On the other hand, these can also be combined with high quality design and planning and are also considered to be linked to community well-being (CABE, 2004b).

In conclusion, landscape management refers to the important role of authorities and managers in improving, not just conserving, urban biodiversity. As such, managers must be concerned with enhancing biodiversity and improving the quality of urban environments and should focus on changes in urban life, including changes in leisure patterns in landscape spaces for people. In other words, management aimed at enhancing biodiversity is important, not just for protecting the green space, but also for providing good quality of life for people.

2. CASE STUDY: GREEN AND OPEN SPACE STRATEGY IN SHEFFIELD



Figure 2. Location Map of Sheffield

Data source: Map from:
http://upload.wikimedia.org/wikipedia/commons/e/e2/Sheffield_outline_map_with_UK.svg

The city of Sheffield is one of greenest cities in England, and has over 170 woodlands, 78 public parks and 10 public gardens (as Figure 2 shows). Moreover, it is the only city in England to include part of a national park and almost 11 km2 of water, resulting in 61 percent of the comprising green space. The Peak District National Park, the first national park in England, is located in the southwest of Sheffield.

As a selected case study, the city of Sheffield has had rich experiences in green space management over the last few decades. This study investigated the management planning conducted by the city for sustainable development. It is beneficial to learn the experiences of management planning in Sheffield, a city which has rich management practices for green and open spaces. In 1993, the Sheffield City Council published a long-term Parks Regeneration Strategy. The strategy proposed major changes in the way parks and green spaces are managed (CABE, 2005). This strategy policy promoted various spheres such as improving management for people, wildlife and heritage, working with partnerships and communities to review and determine service standards, developing the range services to support activities, making the best use of existing green spaces, and bringing more resources to services. Through this strategy, the Sheffield City Council achieved various developments for the city's managed parks and green spaces. After its expiration, the Sheffield Parks Regeneration Strategy was replaced by Sheffield's Green and Open Spaces Strategy.

In 2010, the Sheffield City Council produced a document to guide the management of green and open spaces. The Green & Open Space Strategy (GOSS) is a planning document which includes a series of planning proposals to improve the quality of green and open spaces for further sustainable development. At the same time, it also emphasises the quality of management and lists a series of actions to be taken for green spaces.

The document covers all the green and open spaces in the Sheffield region, including countryside and urban areas. It differs from specific management plans which are more typically focused on small, individual sites.

In addition, the strategy provides a framework for the planning, management and improvement of all types of green and open spaces in Sheffield, including both urban and rural areas. It consulted wider outcomes and management approaches, such as setting up management foundations to provide leadership for strategic and collaborative management, long-term planning and budgeting and developing management plans for each type of site. On the other hand, the strategy also promotes wider partnerships with communities, bringing more opportunities and adopting a stronger approach for a range of benefits.

As shown in Figure 3, quality management aims to achieve benefits for people and places and in terms of the environment and sustainability. Indeed, the SGOSS has four themes for its efforts to improve green and open spaces in Sheffield: 'People', 'Places', 'Environment and

Sustainability' and 'Quality Management'. According to these four themes, the council seeks the development of green and open spaces with multifunctional senses. Fortunately, this strategy realized a whole range of benefits and opportunities that green and open spaces can offer (Sheffield City Council, 2010).



Figure 3. Open and green space strategy programme in Sheffield

Data source: Sheffield City Council, 2010

The theme of People in this strategy was aimed at bringing residents and their communities closer together through popular and well-used spaces. Much like the management of multifunctionality (Barber, 2005), green spaces help to strengthen the spirit of community amongst resident populations with shared interests. Activities and social impacts are helpful to improve the quality of green spaces. People's understanding, therefore, encourages local authorities and managers to seek more opportunities. At the same time, this theme aims to encourage people with healthy lifestyles to get more benefits from green and open spaces.

In addition to the above, the strategy also advocated education and learning through more natural experiences in contexts different from those of the classroom. According to this theme, green and open spaces are recognized as a green network to encourage diversity and inclusion. Therefore, providing for local needs, events and cultural projects is strongly promoted by this strategy.

Moreover, the theme of People reflected an understanding of the roles of multifunctional green spaces in community and social respects. As previously noted by Barber (2005), green and open spaces also enable a wide range of recreational activity for residents and are largely free to users.

Therefore, the GOSS also included clear policies to encourage and promote community involvement and social benefits from these spaces through the theme of People.

In order to improve every green and open space for successful and efficient usage, this strategy also developed the Places theme. It planned four priorities for related actions, such as making sites accessible and safe, achieving quality by design, valuing local character and heritage and realizing economic value (Sheffield City Council, 2010). Along with these priorities, the local council also wished to provide safe and welcoming spaces for people, as well as easy access to these spaces. Therefore, the strategy aimed to achieve quality designs for different types of green spaces that were appropriate to the local and wider areas.

In practice, the environment and sustainability have been recognized as important factors for developing green and open spaces in Sheffield to the extent that it is recognized as the greenest city in Britain. The notion of multifunctionality (Barber, 2005) has dictated that green spaces serve as ecosystems to provide services to the urban environment. This strategy recognizes that green spaces support important plants, animals and habitats. Moreover, as ecosystems that provide services, the strategy recognized that green and open spaces have abilities for absorbing and storing water and carbon dioxide, filtering pollution and providing shade and cooling.

Hence, the Sheffield City Council has realized that green and open spaces form a core part of Sheffield's infrastructure. In order to support the green network policies of the Core Strategy, this strategy encouraged the establishment of green connections for people and wildlife. To that end, it has also encouraged people to use and visit local green and open spaces. These links and green and open spaces are thought to act as a green connection network which extends out beyond the city boundaries and ultimately connects with additional areas. Hence, this network, as part of a regional network of green infrastructure, has been promoted in the Sheffield Green and Open Strategy to deal with sustainability and multiple services.

Thus, this strategy recommended a series of policies to adapt to climate change, to sustain the quality of the environment, to improve nature and biodiversity, and to provide connections for people and wildlife (Sheffield City Council, 2010).

The council appreciated that quality management is important for achieving full potential for people, places and the environment in Sheffield. Hence, the GOSS supports a strategic quality context for the planning of the city's green and open space assets in the Sheffield area. In this context, the management theme has to deal with coordinating the work of a wide range of partners, managers and owners. Furthermore, it also concerned with meeting challenges to ensure secure resources for long-term management and maintenance. Thus, the strategy proposed that 'owners, managers and providers are seen to be working in a coordinated way around a common Sheffield Quality Standard and with a stake in achieving the long term strategic outcomes' (Sheffield City Council, 2010, P. 48).

In this regard, the Quality Management theme included five priorities for action: providing leadership, achieving more with partners, developing quality standards, improving skills and competencies and securing funding and investment. For example, it is impossible for a single local authority to own and manage all the green and open spaces in Sheffield. Therefore, the management of green and open spaces is coordinated with owners and managers. In order to achieve effective and efficient quality management, one central organization was expected to act as a leader and take responsibility for management and for providing oversight and consistency in both standards and management planning. Moreover, the strategy also planned to set Sheffield Standards as a baseline to work toward and to ensure that all interested parties received the same provisions.

Based on the above policies and proposals, the strategy has a strategic plan with a twenty-year schedule. The local council realized that delivering on its vision would require long-term work and has promoted sub-goals to be achieved within a short time scale and in a step-by-step manner. Therefore, the long-term strategic plan is required and used to maintain resources and provide direction for managers and partners.

In summary, Sheffield's Green & Open Space Strategy has delivered a series of themes to improve the quality of green and open spaces so that they offer a wider range of benefits. According to the GOSS, the Sheffield City Council has realized wide spheres to manage and improve their green and spaces. The sustainable management of landscapes is a complex, multi-faceted task which seeks to ensure an ecologically sustainable future and sustainable communities. Thus, the spheres included in the council's strategy consider everything from ecosystem services, social impacts, and community involvement to quality management and secure budgets. In this case, Sheffield's Green & Open Space Strategy provides direction for local authorities, managers and partners for future sustainable development.

In the management of sustainable landscapes, sustainability issues arise from difficulties associated with integrating humans and their activities into the structure, function, and ecology of the landscape. The practices of Sheffield, however, have considered how management requires solutions to integrate key ecological issues within the context of regionally important social and economic concerns. Through the development of a green and open space strategy in Sheffield, local authorities and managers have set a framework for managing and developing their spaces in a sustainable way.

3. CONCLUSION

The purpose of this paper was to explore new opportunities for enhancing landscape multifunctionality as a means of ensuring sustainable development through landscape

management. The paper has taken the view that multifunctionality is a common goal in landscaping efforts, especially in green infrastructure development. Ecological, economic, socio-cultural, historical and aesthetic functions in landscapes are widely promoted, but their attainment and integration are limited by the constraints of a politicized environment, a lack of knowledge, and a great deal of complexity (Selman and Knight, 2006). Moreover, urban expansion has led to many landscape functions being changed from rural into urban functions. Many plans, policies and management challenges can arise from these interactions, including external pressures on the changing areas' multiple functions due to land development, habitat fragmentation and land-use transfers, among other issues.

Management practice is then understood to imply management planning that allows policy makers, scientists and stakeholders to identify the functions of green spaces at a glance. In Sheffield, such practice undergirds the development of sustainable green and open spaces. According to an analysis of the Green and Open Space Strategy, it also attempts to provide a primer for sustainability impact assessments. Through this study, the framework of management planning has been investigated to explore the transferability of existing practices in Sheffield. It also provides a primer for sustainability impact assessments which could be promoted in other cities with a considered knowledge exchange.

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