Greenspace Planning and Management in Klang Valley, Peninsular Malaysia

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Abstract. In rapidly developing countries such as Malaysia, the importance of urban greenspaces is recognized, but due to rapid industrialization and urbanization, maintaining and developing greenspace is a major challenge. This paper analyzes the status of urban greenspace policy, planning, and management in Malaysia. For this purpose, information was collected about urban greenspaces and their governance, planning, and management, both at the national level and in six representative case cities in the most urbanized part of Malaysia, the Klang Valley. Data was compiled by means of a literature review, document analysis, and expert interviews with municipal officers in the selected cities. Results show the greenspace discourse in Malaysia has shifted its focus from one dominated by beautification to one concentrated on regarding greenspace as an essential part of the urban infrastructure. In spite of similarities in municipal greenspace management organization and legislation, each city has its own approach in terms of prioritized greenspace functions, greenspace planning, and collaboration with different actors and stakeholders. A shift is occurring toward greater involvement of nongovernment actors in governance and management. Challenges related to maintaining multifunctional greenspaces in a time of rapid economic development and urbanization call for better implementation of policy and legislation, and of balancing national visions with local needs.

Key Words. Environmental Governance; Greenspace Policies; Green Structure; Urban Greening; Urban Greenspace.

Many of the world's urban areas are rapidly expanding in population and area. In the past several decades, the Asia-Pacific region has experienced rapid urbanization brought on by a demand for higher wages, better quality education, housing, transportation, and health care (UNDP 2008). In 2006 for example, Malaysia had two-thirds of its population living in urban areas, up from only half in 1990. By 2030, it is predicted that approximately 75% of the Malaysian population will be urban.

In Malaysia, the capital city Kuala Lumpur (KL) developed from a small unknown place in the 1870s, to a booming mining town and subsequent capital of the new state of Malaysia. Kuala Lumpur has subsequently grown into a mega city, inheriting all the challenges associated with rapid, often unplanned urban growth. Kuala Lumpur saw its population increase from 977,102 in 1980 to 1,887,674 in 2007 (UNDP Malaysia 2008). Further growth can be expected, as the KL City Plan 2020 mentions a target population of 2.1 million by the year 2020 (Kuala Lumpur City Plan 2009).

In countries like Malaysia, urban greenspaces are particularly important for maintaining a high quality urban environment by offering recreational opportunities. In tropical cities, greenspaces are also very important for shading and cooling, and for mitigating the urban heat island effect and its impact in terms of e.g. air pollution (Mikami and Kubo 2001; Sani and Ahmad Badri 1988; Takano et al. 2002; Thaiutsa et al. 2008).

However, maintaining and developing a multifunctional and sustainable green infrastructure is a major challenge in a country like Malaysia. Greenspaces are susceptible to land use changes and degradation of their environmental and social qualities, as demonstrated by examples from the region. Cities such as Manila, Philippines, and Jakarta, Indonesia, have seen a steep decrease in the amount of greenspaces inside and around the city (Moriwake et al. 2000; Hakim, 2004). In Malaysia, land use changes in KL and surroundings during the last decades have been dramatic due to the establishment of commercial areas, and an overall conversion of forests and greenspace to built-up area (Teh 1989).

Maintaining and developing a sound and multifunctional urban green infrastructure, comprising a range of 'green' elements from large-scale peri-urban nature areas and forests, to city parks and street trees, requires proper planning, design, management, and legislation. Recent studies have looked at the status of urban greenspaces and their planning and management across the globe (e.g., Konijnendijk et al. 2005; Nilsson et al. 2007). Ottitsch et al. (2005), made a comparative analysis of urban greenspace policymaking and management in selected major European cities, identifying large differences and a lack of coordination in terms of legislation and regulations at different levels of land management. Comparative studies of greenspaces and their management have also been undertaken under auspices of FAO, exemplified by the work by Åkerlund et al. (2006) in west and central Asia. In an earlier FAO report, a case study by Webb (1999) addressed urban forestry in KL. However for the case of Malaysia, a country with increasing emphasis on city greening (Sreetheran et al. 2006), there is a lack of studies and comparative data on the amount of urban greenspaces and their planning and management.

To help fill this gap and support future policy and practice, this paper analyzes the present status and challenges of urban greenspace planning and management in Malaysia, exemplified by a comparative study of greenspaces and their planning and management in six cities in the most urbanized part of Malaysia, the Klang Valley.

METHODS

Overall Approach

To obtain insight of current urban greenspace planning and management in Malaysia, two levels of government were addressed: the national level and the municipal level. For the former, international and national literature as well as policy and legislative documents were studied. For the latter, a case study approach was applied, involving the heavily urbanized and industrialized Klang Valley of peninsular Malaysia. Six of the region's cities were selected for further analysis. These cases, which are considered representative cases for the region (Yin 2009), were analyzed by means of literature study, document analysis (e.g., of greenspace policies, if available), and expert interviews with public greenspace managers.

A framework for analyzing environmental governance and policy has been developed by van Tatenhove et al. (2000); and Van Gossum et al. (2011), for a recent application. The so-called Policy Arrangement Model (PAM) provides a structured approach to analyzing and understanding policy arrangements as the temporary stabilizations of the substance and organization of the particular policy domain. Another central concept in the PAM is that of political modernization in terms of shifting relations between state, market, and civil society in various political domains. The model states that policy arrangement can change according to four dimensions, namely 1) actors and their coalitions involved in the policy domain; 2) division of resources between the actors; 3) rules of the game; and 4) current policy discourses. In this paper, 'actors' are described as organizations actively taking part in greenspace management and planning, while stakeholders involve organizations and individuals that have an interest in greenspaces, but do not actively take part in their planning and management.

In this paper, elements of PAM are used as frame for analysis. Focus is primarily on actors and discourses, and to some extent rules of the game in terms of regulations and rule acceptance. Moreover, the concern of political modernization is addressed in terms of shifting relations between actors, and a possible increasing role of civic society and businesses in greenspace planning and management in particular.

Malaysia does not have a single official definition of 'urban greenspace', but Mazlina and Ismail (2008) present a broad definition of greenspace that includes forests, parks, pocket parks, playing fields, home gardens and even water bodies. However, 'open space' is defined by the Town and Country Planning (Amendment) Act 1995, (Act A933) under Section 2(f) as "any land whether enclosed or not which is laid out or reserved for laying out wholly or partly as a public garden, park, sports and recreational ground, leisure place, walk or as public place." The focus of this paper is on municipally-owned greenspace, although elements of privately-owned greenspace will be touched upon.

National Level

At the national level, written sources ranging from scientific publications to policy documents were analyzed to obtain an overview of the status of urban greenspace policy, planning, and management in Malaysia. The focus was on identifying relevant policy arrangements in terms of actors involved, discourses reflected in policy documents, and rules of the game in terms of legal arrangements and the formal roles of different actors.
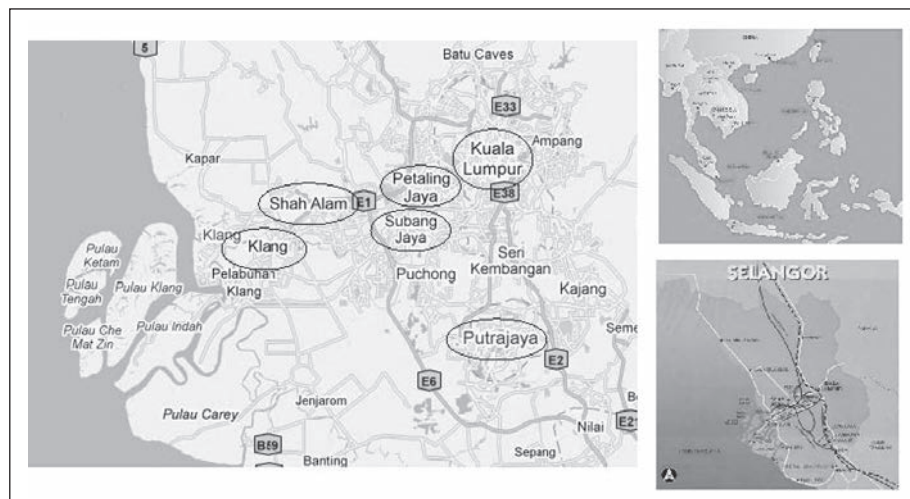
Case Studies

Klang Valley is an area comprising KL and its suburbs, and adjoining cities and towns in the state of Selangor (Figure 1). The conurbation is the heartland of Malaysia's industry and commerce. According to the most recent census, the population in the Klang Valley comprises 4.7 million. Rapid urbanization at 4.8% per annum is expected in the area, which translates to a total population of 8 to 9 million people by 2018 (Kuala Lumpur City Plan 2009).

Kuala Lumpur, Putrajaya, Petaling Jaya, Subang Jaya, Shah Alam, and Klang were selected as representative

Table 1. List of questions for interviews with municipal greenspace officers.

City and greenspaces information	What is the total municipal area, population, percentage of green spaces and m² of greenspace per inhabitant for your city?
Importance of greenspace	What are the main functions and benefits of green spaces in your city?
Actors involved	Which municipal organization(s) are responsible for planning and management of the city's green spaces? How is the "greenspace organization" structured (subunits, number of staff, etc.)? Are there other public actors, such as state institutions, that are involved in greenspace planning and management? Name these organisations.
Legislation	Do local regulations, ordinances, etc. exist for greenspaces, trees, nature areas, etc.? If so, please provide examples of these (e.g., tree preservation orders, local nature protection areas, zoning regulations for open space). How do these local regulations connect to national-level legislation for green space?
Planning & management	Can you describe present planning and management of green spaces? Which formal documents exist?
Stakeholders	Are the following groups involved in greenspace planning and management: 1) business / companies; 2) interest groups; 3) the general public; 4) other? Which instruments/procedures are used for involving stakeholders [if any; e.g., consultation procedures, surveys, sponsoring schemes (for businesses)]?
SWOT analysis	What are the most important Strengths, Weaknesses, Opportunities and Threats regarding the city's greenspaces and their planning and management?

Figure 1. Location of the Klang Valley and the case study cities included in the survey. Clockwise from the top right: maps of Malaysia, location of Klang Valley, location of case study cities (sources: Google Maps, Asia Maps, and Selangor Maps).

case studies, offering a good picture of cities in the valley. Like other cities in the Klang Valley, the cities are experiencing rapid increases in population, as well as in industrial and technological development. While Klang, Petaling Jaya, Shah Alam, and Subang Jaya can be regarded as typical for most cities in the region, KL and Putrajaya have been included because of their dominant role in the valley, as well as their status of capital city and the new governmental center, respectively.

The data was collected according to a simple comparative framework for analyzing greenspace policy and planning inspired by Konijnendijk (1999) and Ottitsch et al. (2005). The framework considers different key elements of greenspace planning and management, under the headings: city information, area and functions of greenspace, policy and legislative framework, actors and stakeholders involved, greenspace plans and activities, and an assessment of greenspace planning and management by means of SWOT analysis.

Policy documents, legislative documents, and other relevant written sources were identified and examined at the city level to assess the present status of, and challenges faced by greenspace planning and management. As a supplement to this, expert interviews were undertaken with one municipal greenspace officer in every case study city. This was conducted during the first months of 2009. The city's Park and Recreation Department or Park and Landscape Department was contacted (depending on the local organization), with the request to provide the name of an officer with good overview of the city's public greenspaces and their planning and management. These experts then answered a set list of questions, including a question in which respondents were asked to mention strengths, weaknesses, opportunities, and threats regarding greenspace planning and management in their city. During May 2009, the respondents were contacted again as a follow-up to the original mailing and to obtain more information. This second contact was by e-mail or by telephone, thus giving respondents an opportunity to answer interview questions by telephone.

RESULTS

Urban Greenspace Planning and Management in Malaysia

Policy arrangement and actors

There are three levels of governance in peninsular Malaysia: federal, state, and local. From a planning perspective, municipal plans need to be assessed by the state level before the plan is submitted to the federal level. At the federal level, three important bodies examine the plan: the National Physical Planning Council, the Town and Country Planning Department and the Regional Planning Committee. Through this planning set-up, the government trusts that land use will be duly arranged for all private, municipal, and other public areas, with consideration of environmental, social, and economic interests (Halimaton 2007).

The efforts of the Federal Town and Country Planning Department were strengthened by the establishment of the Public Park Supervision and Coordination Division in 1990. This division acts as an advisory body to the state governments, local governments, and other government agencies with regard to planning, and also provides services such as landscape design to various other governmental bodies (Jamil 2002).

The country's Town and Country Planning Act 1976 (Act 172) and the Town and Country Planning (Amendment) Act 1995 (Act A933) emphasize the importance of open space as one of the social infrastructures that should be provided in a development area (Sreetheran et al. 2006).

Generally the requirement for open and recreational space is planned in the Structure and Local Plans as well as the layout plan of a development by the planning authorities at state and local levels. As mentioned, 'open space' in Malaysia is defined by the Town and Country Planning (Amendment) Act 1995. However, there is no specific definition for 'greenspace', as open space is a broader concept.

The National Urbanization Policy (NUP) embodies an attempt by the Federal Town and Country Planning Department to guide growth as outlined by the 9th Malaysia Plan and the National Vision. The NUP was formulated to increase the effectiveness in the quality of urban services for the creation of safer, modern, and attractive towns. One of its six 'pillars' concerns the creation of liveable urban environments with clear identity, with emphasis on environmental conservation and quality of urban life (National Urbanisation Policy 2006).

Another important policy actor is the National Landscape Department (NLD), established in 1996 under the Ministry of Housing and Local Government. It was entrusted with the responsibilities of landscaping and greening the country, based on the approval by Economic Planning Unit (EPU). National Landscape Department (NLD), preparing a National Landscape Policy and initiating the formulation of Landscape Master Plan for all cities in the country (Kuala Lumpur Landscape Master Plan 2002). These

plans should be referred together with the Structure Plan and Local Plan in any proposed development in the city.

The management of the environment in urban areas is obviously related to and very much influenced by the environmental management policies at the national level. At this level, the Environmental Quality Act of 1974 with its various environment-related legislation, bylaws, and guidelines administered by different government agencies and local government, is of particular importance. Despite these regulatory measures, myriad outstanding concerns remain, for example, in relation to the management of land degradation, air, noise and water pollution, and depletion of urban greenspace.

Changing greenspace discourse

The Malaysian government's growing concern for the provision of proper recreational space and particularly public parks has led to the adoption of various policies and establishment of a range of institutions. The development of public parks in Malaysia started at the end of the 19th century, during the colonial era. Greenspaces such as KL's Lake Garden Park (from 1888) were primarily meant to cater to the needs of British colonial society. The greenspace discourse changed when Malaysia gained independence in 1957. The new government started focusing on urban greening and beautification efforts as an instrument for nation building. Obviously, KL as new capital was given special attention, resulting in a number of new public parks. However, it was not before the 1990s that urban greening really became a matter of state concern in Malaysia's effort to become a Garden Nation by 2020. The national-level discourse changed further, seeing greenspace as part of the social and environmental infrastructure of cities, as for example described comprehensively by Jamil (2002) and Sreetheran et al. (2006).

As described above, the changing greenspace discourse was reflected in the work of e.g. the National Landscape Department, with the greening of cities and development of public parks and recreational areas featured as important elements of the National Landscape Policy (Kuala Lumpur Landscape Master Plan 2002). The notion of green infrastructure is clearly present in the plan, e.g. to the stressing of establishing greenway linkages.

Municipal Greenspace Planning and Management

Case study cities and their greenspaces

Key data about the six case study cities and their greenspaces are provided in Table 2. KL has the largest population (almost two million inhabitants), while Shah Alam covers the largest land area (more than 29,000 ha). In terms of greenspace provision, major differences can be noted, with Putrajaya having the highest share of greenspace (37%), while Subang Jaya has the lowest share (7.3%). There are large differences in greenspace provision per inhabitant, with Putrajaya offering almost 1000 m² per inhabitant, as compared to KL's 13 m².

The differences obviously relate to the respective history and development of the cities. Kuala Lumpur's mining history, for example, is linked to the bold efforts of local authorities to transform a disused tin mining lake into the Titiwangsa Public Park. Moreover, as the capital of a young nation it has been the forerunner in greening efforts. Putrajaya was founded only in 1995 as

Malaysia's new administrative capital, with an extensive green infrastructure at its base (Perbadanan Putrajaya 2006). As a government center, it has a rather low permanent population, with many people commuting to the city to work. Among the other four towns, Subang Jaya's green infrastructure includes a large natural forest reserve, although this area is owned by the federal government. Klang has a much longer history than most other case study cities, having been a historical royal town and seat of the sultans. Present greenspaces partly date from royal times.

Functions and benefits of greenspace

Table 3 shows that prioritized functions and benefits of greenspace are similar for the case study cities, i.e. the discourse focuses on similar roles of greenspace. All cities put emphasis on environmental services such as cooling of the air, water regulation, and pollution reduction. Biodiversity and offering a habitat to flora and fauna are also seen as important. The social services offered by greenspace, such as providing opportunities for recreation, relaxation, and sports, are also emphasised by all cities. Subang Jaya is one of the cities where social and community services are explicitly seen as the first priority. Occasionally, greenspaces are booked for sport days by local kindergartens and for wedding ceremonies. To date, the municipality has not charged for this. People in Klang do need to pay for this type of service, for example when renting a field for field hockey, badminton, or football.

Only three cities, namely KL, Putrajaya, and Klang, mention economic benefits of greenspace, such as renting out (parts of) greenspaces for events and commercial activities. The issue of contributing to a good, green city image was mentioned by respondents in KL and Klang. Kuala Lumpur promotes the role of its green infrastructure in its vision to become a Tropical Garden City. The green image in Klang refers mostly to giving local residents a feeling of being surrounded by green areas, thus generating positive feelings.

Interestingly, Putrajaya placed particular emphasis on the educational role of greenspace in terms of raising public awareness and research. However, the educational function still ranks after environmental and social functions.

Table 2. Data on greenspace, total area, and population for the case study cities in the Klang Valley, peninsular Malaysia (based on information provided by the cities/respondents).

Cities	Inhabitants	Area of greenspace (ha)	% of total city area	m² of greenspace per inhabitant
Kuala Lumpur	1,887,674	2,436	15.5	12.9
Putrajaya	50,000	4,931	37	986.2
Petaling Jaya	631,212	9,720	8	154.0
Subang Jaya	1,000,000	16,180	7.3	161.8
Shah Alam	584,340	29,030	12.9	496.8
Klang	1,004,194	5,730	16.1	57.1

Legislative and policy framework

Information about main greenspace policies, legislation, and actors in the six case cities is offered in Table 3. Most of the selected cities fall under the national Town and Country Planning Act 1976 and Local Government Act 1976. The cities have applied these as guidelines when planning local areas, with the aim of conserving and improving the physical environment. Planning is also aimed at promoting health, safety, order, amenity, convenience, and general welfare, as well as efficiency

and economy in the process of development and the improvement of communications.

Kuala Lumpur and Putrajaya have a special status as Federal Territories, implying that they need to submit their planning and management reports or proposals to the Ministry of the Federal Territories for review. These federal territories have their own extraordinary policy and legislation, such as The Federal Territory (Planning) Act 1982 in the case of Kuala Lumpur. Putrajaya was established under the Perbadanan Putrajaya Act 536, 1995, which has the purpose of managing and administering the Federal Territory of Putrajaya.

Most of the cities surveyed have also applied the Street, Drainage, and Building Act 1974. Its Act 133 elaborates on several roles of local authorities regarding drainage, maintenance of municipal roads as well as public buildings in west Malaysia. These subjects of concern have close links to urban trees and greenspace. Specifically related to tree maintenance and safeguarding is the Tree Preservation Order (35A – 35H) from the Town and Country Planning Act 1976. The legislation includes guidelines prohibiting the felling of trees with a girth exceeding 0.8 meters.

Apart from implementing national policies, the cities have also adopted their own municipal policies and bylaws. Shah Alam City Council, for example, adopted the Shah Alam City Council Bylaws 2005 as an instrument for providing green area guidelines and for protecting city parks. Similar legislation for small parks has been adopted in Petaling Jaya, Subang Jaya, and Klang (all in 2005). Even though the various Acts have different names, they all have similar purposes. In Klang, a special act was adopted in 1993 on the issue of vandalism, including mentioning of vandalism in the parks. Nature protection legislation is also of importance for municipal greenspace. Local nature protection areas were designated in Putrajaya, for example, within the Putrajaya Structure Plan 1995 (Act 8), under the Policy and Green Area Act. In a piece of innovative legislation emphasising the importance of greenspace, Subang Jaya and Klang require 10% of all new commercial and housing development schemes to be made into greenspace. Greenspace in this context includes road shoulder and road median.

Main greenspace functions recognized	Kuala Lumpur	Putrajaya	Petaling Jaya	Subang Jaya	Shah Alam	Klang
Social aspects						
▪ Recreation and sport activities	X	X	X	X		X
▪ Relaxation		X		X		
▪ Event activities – sport day, culture or wedding ceremonies	X			X		
▪ People coming together / family gathering	X	X				X
Educational aspects						
▪ Research		X				
▪ Information		X				
Environmental aspects						
▪ Air quality	X	X				
▪ Noise reduction	X		X			X
▪ City cooling	X	X	X			X
▪ Greening the city	X					
▪ Water catchment area				X		
▪ Nature protection	X	X			X	X
▪ Enhance the living environment		X				
▪ Buffer zone – as a clearance area				X		X
▪ Habitat flora and fauna		X				
Economic aspects						
▪ Rent an area / a field to public		X				X
▪ Profit sharing (with commercial park such as fees)	X					

Table 3. The importance of green space functions as recognized by greenspace planners and managers in the case study cities, Klang Valley, peninsular Malaysia.

Actors and stakeholders

Different municipal organizations are responsible for greenspace planning and management in the cities (Table 3). In KL, the 1,000-staff Landscaping and Urban Cleaning Control Department plays a leading role, contributing to the city's ambitions to become an attractive (tourist) city. The department comprises several divisions, namely Administrative Division, Park Division, City Cleansing and Control Division, and Agriculture and Horticulture Division.

Urban greenspace governance (i.e., decision making) and management does involve a wider range of actors than just the responsible municipal departments and units. The influence of national-level actors, such as the National Landscape Department, has already been mentioned. A series of knowledge institutions (universities and research centres) also play an important role, as advisors to city councils on planning, management and design issues. The Institute of Landscape Architects Malaysia has also contributed to knowledge generation and transfer. These institutes have been carrying out tree inventories and assessments, but also greenspace planning and design work. Private landscaping firms are active as well, although the expert interviews indicated that the services of private landscape firms were not frequently used.

Private businesses have also become active in greenspace policy, or at least greenspace management. KL is a city with considerable involvement from companies that sponsor, for example, tree planting programs, greening campaigns, and the establishment of running tracks. In Putrajaya, one of the leading banks takes care of some of the city parks through a sponsoring agreement, while several companies in Petaling Jaya have provided

sponsoring for the creation of new greenspaces, for example near their own buildings. In Shah Alam and Klang, companies have "adopted" municipal parks. Increasing interest in social corporate responsibility plays a role, as reflected in the Toyota Eco Youth program, a joint effort by the car manufacturing and the Ministry of Education to enhance environmental awareness and respect among pupils at the secondary school level.

Stakeholders with an interest in greenspaces include NGOs. Many of these protect greenspaces by embarking on protests when they feel that nature is under threat. However, NGOs can also take a more active role by offering constructive suggestions for greenspace planning and management or even becoming an actor. In Putrajaya, the Youth Environmental Heritage Foundation has created and organized tree planting and environmental activities, among other events. Several parks in Putrajaya have their own "friend groups." These groups help municipal authorities by informing them if something happens in the parks. In Klang and Shah Alam, several interest groups are active through cleaning activities and tree planting programs.

Involvement by the general public is also represented by the Laman Cantik Putrajaya Award, a competition in Putrajaya to find the best green courtyard, which leads to landscaping, gardening, and tree planting activities by the public. In Klang, the public engages in tree planting in residential areas. Among the six cases, Subang Jaya is an exception in terms of a seeming lack of private sector and NGO involvement. However, the local community does take an active part in greenspace planning and management. So-called residential communities are very vocal in expressing their greenspace needs and preferences.

Greenspace plans and activities

All cities studied have plans and activities in place for the planning and management of urban greenspaces, but vary in scope and level. KL has rather ambitious plans, for example, under its Tropical Garden City 2020 vision. According to KL's draft City Plan 2020 (Kuala Lumpur City Plan 2009), the city aims to provide an integrated network of greenspaces by linking the major parks in the city, both through natural and man-made connectors, which include rivers, utility reserves, roadside landscape areas, and pedestrian walkways, targeting the neighborhood as well as the general city level. Moreover, KL aims to increase its public park and open space area to 10% of its area by 2020.

Improving connections between the city's different greenspaces is a recurring theme when evaluating the case study cities. Petaling Jaya is in the process of connecting its 440 open spaces, under the Petaling Jaya Action Plan Green Corridor Network 2009. Creating a green network, with green connectors, greenways, and a central park, is an ambition in Shah Alam as well, as the city takes the Garden City of Letchworth, UK, as an example. Putrajaya has focus on enhanced accessibility of greenspace, as part of its Intelligent Garden City vision, which aims to combine greening with becoming a knowledge center.

Greenspace activities are often part of Local Plans, as in the case of Subang Jaya, where planning targets include, among other tasks, creating a unique city design and a desirable, healthy, and competitive city with various land uses and land use functions. Klang's new Master Plan aims to improve control over management and enhance public maintenance for city greenspaces. Finalization and implementation of the plan has proven to be difficult, however, as the required land inventory takes time and has shown that land thought to be under public ownership is in fact privately-owned.

Challenges to Municipal Greenspace Planning and Management

Using a SWOT-analysis, the municipal officers in the six cities were asked to assess the status of greenspace planning and management and shine their light on future developments. The existing focus on greening as part of an overall city development strategy was mentioned as a strength by three cities: KL, Petaling Jaya, and Klang. In fact, this strength could also be seen as an opportunity, as the full potential of greening as a part of city development has not yet been realized. Other strengths mentioned for specific cities were, among others, the extensive existing green cover (Putrajaya), the existence of a tree inventory (Petaling Jaya), and the historically strong links between humans and nature (Klang). Other strengths mentioned included, for example, chances for better control of parks.

The respondents agreed on main weaknesses in present greenspace planning and management: lack of funding is generally seen as a main concern. Other weaknesses mentioned (but only by individual cities) include lack of legal protection, land ownership (many of the open spaces in Klang are privately-owned), and the presence of hawker stalls in the greenspaces of Petaling Jaya.

Regarding opportunities for greenspace planning and management, the visions, policies, and ambitions of cities to become more competitive and sustainable were mentioned. Listed threats included the current financial crisis and lack of public awareness, as well as confrontations with land management administrations regarding alternative use of greenspace areas. Issues such as dog walking (mentioned in the case of Subang Jaya) are a weakness rather than a threat.

DISCUSSION AND CONCLUSION

The study has identified specific characteristics of the Malaysian context, but many of the findings reflect experiences from across the world. Urban greenspace cover in Malaysian cities shows the same variation as in cities in other parts of the world. Pauleit et al. (2005) offer an overview of European assessments that show cities with greenspace cover ranging from only a few percentage points to more than 50%. Probably more relevant is a study by Palijon (2004) that shows a range of greenspace cover from 4.4% to close to 40% for a series of Asian cities. However, assessments have not used the same definition of greenspace, in terms of what type of green areas to include, only public spaces or also private.

Regarding greenspace functions, Malaysian cities place high emphasis on environmental services, which seems obvious because of the need to create comfort in hot climates and deal with major stormwater challenges related to tropical rains. Other authors have also mentioned the importance of environmental services in an industrializing and developing country context (Palijon 2004; Konijnendijk and Gauthier 2006). In Europe, greater emphasis seems to be placed on the social values, including health aspects, of urban greening (Ottitsch et al. 2005; Nilsson et al. 2008), while the economic benefits of nearby greenspaces on real estate prices have been given increased attention (see Tyrväinen et al. 2005).

The policy and legislative framework for greenspace planning and management in Malaysia is largely based upon the British system and thus it is not surprising that similarities

with European and North American cities can be noted. Elsewhere in Asia, the legislative base for urban greening shows large variation. While some countries have a strong legal basis for urban greening (e.g., in terms of tree protection orders), others hardly have any legislation in place (Palijon 2004). Malaysia seems to be among the better examples here. An interesting aspect in some Malaysian cities is the 10% greening rule for new developments; it is a type of arrangement that has also been explored and implemented in Singapore (Hin et al. 1997), Europe, and North America (Beatley 2004). However, greenspace ordinances and tree ordinances are still scarce in Malaysia, and their development and approval takes very long.

In terms of the urban greenspace discourse, urban greenspace planning and management have gained prominence in peninsular Malaysia, a picture which emerges both from an analysis of national-level policies and from case studies in Klang Valley. However, in spite of an emerging policy and planning framework, there is still a lack of comprehensive greenspace policy at the municipal level. This, together with a lack of planning and management expertise and concerns, such as lack of funding and high pressure on urban land, has led to municipal agencies facing difficulties in maintaining and developing a sustainable, multifunctional urban green structure. There is also evidence that these municipal agencies have difficulties in interpreting and implementing existing (national) greenspace policies, something which indicated that the "rules of the game" are not always clear.

The respective roles of different (public) actors are not always clear either, and policies at the federal and local levels do not always match. Although municipal authorities take a leading role in greenspace planning and management in Malaysia as in e.g. Europe (Konijnendijk 2003), the Klang Valley case studies show that there is quite a range of municipal depart-ments/units involved, from a specific Parks Department to Engineering, Building and Architecture departments. Moreover, greenspace departments are often hidden in a larger unit with broader interests, as in the case of Europe, where greenspace responsibilities frequently are placed in a unit under a public works or engineering department (Randrup and Persson 2009).

In terms of political modernisation, a shift seems to be occurring from public to private actors. Although public actors at both federal and local level still steer policy and management, private actors such as businesses and NGOs have gained more prominence in greenspace governance. Increase in private-sector involvement through sponsoring of greenspaces in Asia is also mentioned by Palijon (2004) and Webb (1999). Here, Asia seems to follow a worldwide trend of increased private funding of greenspace (e.g., The 21st Century Park… 2009). The increasing role of NGOs in greenspace planning and management in Malaysia also confirms studies from Europe (Ottitsch et al. 2005) and other parts of Asia (Hin et al. 1997).

In the light of this political modernization and change in governance, there seems to be room for improving the interaction and understanding between public agencies at municipal, regional, and state level, as well as other stakeholders. Kleinschmit et al. (2009) have recently described a trend towards more inclusive forms of governance in forest and natural resource management. Specifically for urban greenspaces, the importance of partnership and collaboration has been stressed in cities such as Hong Kong (Jim 1993) and Singapore (Hin et al. 1997). New partnerships between private and public institutions, based on good existing examples, can be used to improve the planning and management of greenspaces, enhance stakeholder support, and improve funding.

Regarding the challenges facing greenspace planning and management in Malaysia, lack of funding for greenspace devel-

Table 4. Information about relevant green space policies and leading management actors in the six case study cities, Klang Valley, peninsular Malaysia.

City	Municipal organization	Main management service	National Policy	Green policy on city level
Kuala Lumpur	Kuala Lumpur City Hall (DBKL)	Park and Control Planning Department Planning Department Architect Department Engineering Department	The Federal Territory (Planning) Act 1982 (Act 267)	Policy on Green areas for the Federal Territories(final reviewing and hearing)
Putrajaya	Perbadanan Putrajaya (Ppj)	Landscape and Park Department Town Planning Department	Town and Country Planning Act 1976 Local Government Act 1976	Putrajaya Structure Plan 1995 (Act 8) – Policy and Green Area Act
Petaling Jaya	Petaling Jaya City Council (MBPJ)	Landscaping Department Environment and Health Department Engineering Department	Town and Country Planning Act 1976 Local Government Act 1976	Petaling Jaya City Council By Laws 2005
Subang Jaya	Subang Jaya Municipal Council (MPSJ)	Landscape and Town Service Department	Town and Country Planning Act 1976 Local Government Act 1976	Subang Jaya City Council By Laws 2005
Shah Alam	Shah Alam City Council (MBSA)	Park and Recreation Department Planning Department Building Department Engineering Department	Town and Country Planning Act 1976 Local Government Act 1976	Shah Alam City Council By Laws 2005
Klang	Klang Municipal Council (MPK)	Park and Recreation Department	Town and Country Planning Act 1976 Local Government Act 1976	Klang Municipal Council By Laws 2005 Klang Municipal Council By Laws 1993 (Vandalism)

opment and management stands out as a major weakness. This is a common issue throughout the world (Pastuk, 1999; Ottitisch et al. 2005; Randrup and Persson 2009). However, opportunities exist in terms of cities' ambitions to be more sustainable and competitive, which is similar to developments elsewhere. The structural greening of Chicago, IL, U.S. has been an important way of improving the city as well as its image and competitiveness (Beatley 2004).

Although the presented study was limited in scope and did not include interviews with actors other than municipal officers, methodological triangulation and the use of six representative cases should provide some external validity, at least at the level of the Klang Valley. Moreover, the project does offer an insight in how urban greening activities are arranged in Malaysian cities at large.

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Résumé. Dans des pays en développement rapide comme la Malaisie, l'importance des espaces verts urbains est reconnue, mais en raison de l'industrialisation et de l'urbanisation rapides, le maintien et le développement de ces espaces verts constitue un défi majeur. Cet article analyse l'état de la politique, de la planification et de la gestion des espaces verts en milieu urbain en Malaisie. À cette fin, de l'information a été recueillie concernant les espaces verts urbains ainsi que leur gouvernance, leur planification et leur gestion, à la fois au niveau national et au niveau de six villes-types représentatives dans la potion la plus urbanisée du pays, la vallée de Klang. Des données ont été compilées au moyen d'une revue de littérature, d'analyse de documents et d'entrevues avec des responsables municipaux au sein des villes sélectionnées. Les résultats ont montré que le discours sur les espaces verts s'est transféré d'une vision dominée initialement par l'embellissement vers une vision directement orientée vers celui d'un espace vert comme élément essentiel à l'infrastructure urbaine. En dépit de similarités dans la gestion, l'organisation et la réglementation des espaces verts, chaque ville avait sa propre approche en terme de priorisation des fonctions associées aux espaces verts, de planification des espaces vers et de collaboration entre les différents acteurs et les surveillants. Un changement est en cours envers une plus grande implication des acteurs non gouvernementaux en regard de la gouvernance et de la gestion. Les défis relatifs au maintien d'espaces verts multifonctionnels dans une période de développement économique et d'urbanisation rapides exigent une meilleure implication des niveaux politique et législatif ainsi qu'un équilibre entre la vision nationale et les besoins locaux.

Zusammenfassung. In schnell sich entwickelnden Ländern wie Malaysia wird die Bedeutung von urbanen Grünflächen erkannt, aber wegen der rapiden Industrialisierung und Urbanisierung ist die Erhaltung und Entwicklung von Grünflächen eine große Herausforderung. Diese Studie analysiert den Status von urbaner Grünflächenpolitik, Planung und Management in Malaysia. Für diesen Zweck wurden Informationen über urbane Grünflächen und ihre Leitung, Planung und Management auf nationalem Level und in sechs repräsentativen Städten in dem höchst urbanisierten Teil von Malaysia, dem Klang-Tal gesammelt. Die Daten wurden zusammengefasst im Sinne einer Literaturübersicht, einer Dokumentanalyse und durch Experten-Interviews mit Verantwortlichen aus den ausgewählten Bereichen. Die Ergebnisse zeigen, dass die Diskussion über Grünflächen in Malaysia ihren Fokus von zunächst dominiert durch den Verschönerungsanspruch dahin verschoben hat, dass nun die Grünflächen als essentieller Teil der urbanen Infrastruktur erkannt werden. Trotz der Gemeinsamkeiten in öffentlichem Grünflächen-Management, Organisation und Legislation, hat jede Stadt ihren eigenen Ansatz in Bezug auf bevorzugten Grünflächenfunktionen, Grünflächenplanung und Kollaboratioen mit verschiedenen Interessensvertretern. Es tritt eine Bewegung zu größerem Einbezug von nicht-öffentlichen Akteuren in die Leitung und Management auf. Die Herausforderungen bezüglich der Erhaltung multifunktionaler Grünflächen in einer Zeit der rapiden ökonomischen Entwicklung und Urbanisation rufen nach einer besseren Implementierung von Politik und Legislation und einer Balance nationaler Visionen mit den lokalen Anforderungen.

Resumen. En países en rápido desarrollo como Malasia la importancia de los espacios verdes es reconocida, pero debido a la rápida industrialización y urbanización, el mantenimiento y desarrollo de los espacios verdes es un desafío mayor. Este reporte analiza el estado de la política de los espacios verdes urbanos, la planeación y el manejo en Malasia. Para este propósito, la información acerca de los espacios verdes y sus gobiernos, la planeación y el manejo, fue colectada a un nivel nacional y en seis ciudades representativas en las partes más urbanizadas de Malasia en el Valle Klang. Los datos fueron compilados por medio de revisión de literatura, análisis de documentos, y entrevistas de expertos, con oficiales municipales, en las ciudades seleccionadas. Los resultados muestran que el discurso de los espacios verdes en Malasia ha movido su enfoque de uno dominado por la contemplación a uno concentrado en mirar los espacios verdes como una parte esencial de la infraestructura urbana. A pesar de las similitudes en el manejo de los espacios verdes y la legislación, cada ciudad tiene su propia aproximación en términos de las funciones prioritarias de los espacios verdes, planeación verde, y colaboración con diferentes actores y poseedores. Está ocurriendo un movimiento hacia más actores no gubernamentales en el gobierno y manejo de los espacios verdes. Los desafíos relacionados con el mantenimiento multifuncional de los espacios verdes, en un tiempo de rápido desarrollo económico y urbanización, llaman por una mejor implementación de política y legislación, y de visones nacionales en balance con necesidades locales.