

Urban Economic Indicators for Green Development in Cities

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This paper is part of the European Union project on the Development of Urban Green Spaces to Improve the Quality of Life in Cities and Urban Regions (URGE).[†] The paper aims to describe urban economic indicators for the evaluation of existing urban green structures and green spaces by using a taxonomy of indicators and to develop an economic framework for the development and management of green spaces in cities. A functional typology of urban green spaces based on a set of indicators of the Organisation for Economic Co-operation and Development (OECD), which is described as pressure–state–response (PSR) indicators, is used for the determination of the relevant economic dimensions, criteria and indicators of urban green space. From an economic perspective, there are four relevant dimensions of urban green spaces that refer to the functions that have an impact (directly or indirectly) on environmental sources, welfare and quality of urban life, financing and management of urban green. This economic framework provides an opportunity to discuss the complex relationships of the multi-dimensional structure of urban green spaces. It provides also a useful framework for the social, ecological and planning perspectives, policies and management issues.

- Urban green
- Environmental economics
- Economic dimensions of urban green
- Economic criteria
- Sustainability indicators

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CITIES ARE HUMAN-MADE ARTEFACTS AND ARE OFTEN OPPOSED TO NATURE. IN THE history of urban development urban planners have tried to create urban spaces that also incorporate elements from nature (see MacHarg 1971). This has become common practice in most cities. Nevertheless, urban green space is under permanent pressure and therefore it is of strategic importance to create an analytical and taxonomic framework for mapping out the importance of green space in cities. Public and private decision-makers need proper information about the value of urban nature in trading off the advantages and disadvantages of human actions that may affect this natural urban environment (Bingham *et al.* 1995).

In the URGE project (the European Union project on the Development of Urban Green Spaces to Improve the Quality of Life in Cities and Urban Regions), urban green spaces are considered as an important contribution to the sustainable development of cities. The research group recognises the potential of green spaces to improve the quality of urban life, but is also aware that this potential is not being realised, as current management practices have to be considered as sub-optimal. Therefore, the project includes the elaboration and testing of an interdisciplinary catalogue of methods and measures, based on experience from various European cities. This catalogue comprises criteria with which to evaluate ecological, economical, sociological and planning issues. The participating cities will select two green spaces each that will be used as case studies in order to test the applicability of the criteria. The comparison of the results of these analyses will enable the consortium to evaluate the green spaces, according to their contribution to the quality of life in urban areas. This will allow conclusions to be drawn about the effectiveness of national and regional policies and their implementation. The knowledge gained will be used to improve existing green spaces and to optimise urban green policies in Europe (URGE 2001, go to www.urge-project.org).

This paper deals with the question of why people are interested in urban green spaces from an economic point of view. It is for this reason that economic indicators have been developed to give us precise information to discover the extent of demand and supply for the functions of urban green spaces. The economic value of nature can be defined as the total amount of welfare that nature generates for society. These are not just financial measures. One can distinguish economic values and financial values. Financial values indicate how much one must pay for a good in the market (market prices). Economic values, in contrast, also take into account externalities (both positive and negative) that do not involve money transfers.

There are different economic valuation methods that can be used to determine the value of urban green spaces (Nunes *et al.* 2000; Turner *et al.* 1998). The economic valuation methods are distinguished by direct and indirect methods. The direct methods use the **stated preferences** as the basis of valuation, which means that they seek to elicit information on the trade-offs individuals would make when confronted with particular situations. The indirect methods base their valuations on the **revealed preferences** of consumers. They make trade-offs involving sacrificing some monetary benefits to limit the use of environmental resources or gain some environmental benefit. For the economic indicators that are not directly quantifiable, the aforementioned valuation methods will be used. Therefore, these methods are an important tool in developing an economic framework for the assessment of urban green space. The economic framework is part of the total framework that will be developed in the URGE project to improve existing green spaces and to optimise urban green policies in Europe.

This paper is organised as follows. In the next section, we present a widely used framework for the classification of indicators. We then describe and classify the economic indicators, before relating the economic indicators to the PSR (pressure–state–response) framework. In the final section, the policy relevance of the development of (economic) criteria and indicators and, in the end, the implementation of the URGE project as a whole will be described.

A typology of indicators

Concerning the study of indicators, a widely used framework is the pressure–state–response (PSR) framework of the Organisation for Economic Co-operation and Development (OECD 1993, 1998). This framework is based on three kinds of indicator: pressure, state and response indicators. The following definitions are based on Boyd (1997), van Delft (1997) and Rotmans (1997).

- ▶ **Pressure indicators** describe the driving forces behind the development and utilisation of urban green. Certain flow quantities (e.g. emissions, use of raw materials and energy) or interventions in the environment (e.g. construction of infrastructure) that place a burden on the environment are mapped out by means of these pressure indicators. However, they can also represent social, economic and ecological driving forces stimulating the development and utilisation of urban green; in the present case often being positive economic driving forces.
- ▶ **State indicators** pertain to the quality of the environment per se; they are also called environmental quality indicators. These indicators represent the current state-of-the-art of urban green space and do not have a direct influence on the quality of such space.
- ▶ **Response indicators** are used to describe the quality of the environment in relation to the effects of human action. They represent human intervention in response to ecological and societal impacts. In other words, response indicators represent the effects on urban green space, such as the output of products or effects of policy decisions.

These steps form part of an environmental (policy) cycle, which includes problem perception, policy formulation, monitoring and policy evaluation. Figure 1 presents the PSR framework, applied to urban green spaces.

It should be noted that several authors have extended the PSR model of the OECD. The TARGETS (Tool to Assess Regional and Global Environmental and health Targets for Sustainability) group uses the pressure–state–impact–response framework (PSIR). They have split the ‘state’ part into state indicators and impact indicators in order to accommodate information about changes in the various functions of (sub-)systems from changes in the state of the system. The state indicator here represents the physical, chemical and biological changes in the state of the biosphere as well as changes in human population and resource and capital stocks. The impact indicator represents human intervention in response to ecological and societal impacts (Rotmans *et al.* 1997).

The European Environment Agency (EEA) describes a DPSIR model, where the D stands for ‘driver’ indicator and represents the economic and social activities and processes. The DPSIR framework consists of a chain of causal links from driving forces, which lead to pressures and a state having impacts on, for example, human health and ecosystems and which finally lead to political responses (Klatte 1997).

Classification of the economic indicators

From an economic perspective, the different criteria of urban green space can be classified into four relevant dimensions. These are, successively, the socioeconomic dimension, the environmental dimension, the merit dimension and the financial dimension. The classified dimensions and the accompanying criteria are shown in Figure 2.

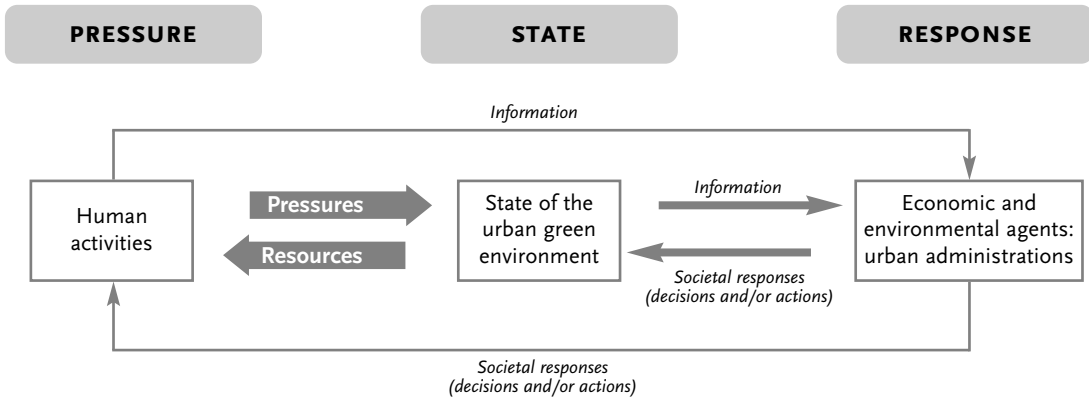


Figure 1 PSR (PRESSURE–STATE–RESPONSE) FRAMEWORK

Source: OECD 1993

The socioeconomic dimension contains the functions that have an impact on welfare and quality of urban life aspects (e.g. the employment function or the education function). The environmental dimension refers to scarcity elements that are linked to the physical surroundings and the environment (e.g. the regulation function or the ability of urban green space to improve the urban climate by absorbing pollutants from the air). The merit dimension shows the virtues of urban green space to the residents. It concerns external effects that are useful to visitors to the space (e.g. the barrier function, where the vegetation works as a windbreak or noise barrier). The financial dimension is related to the means of financing urban green space and the importance of such space to the local authorities.

Socioeconomic dimension

The socioeconomic dimension comprises utilisation (including accessibility, availability and multifunctionality), production, employment and education functions. These functions all have an impact on the socioeconomic quality of urban life.

Utilisation

The first socioeconomic criteria of urban green spaces are related to the utilisation of urban green, which is one of the most important reasons to develop such spaces. This function consists of two almost inextricably linked elements: visiting and using the space. Visitors are usually people who go to the park to enjoy nature, to relax or to walk in a safe place with their children. The things visitors do in the park cannot easily be done elsewhere. Users are people who use the park to jog, to eat their lunch or to walk the dog. The things they do can more or less easily be practised at other places but they prefer the green area. Urban green spaces are extremely suitable for a large set of recreation types. This multifunctionality is of great importance; the number of users of the different functions could say something about the successfulness of the green area.

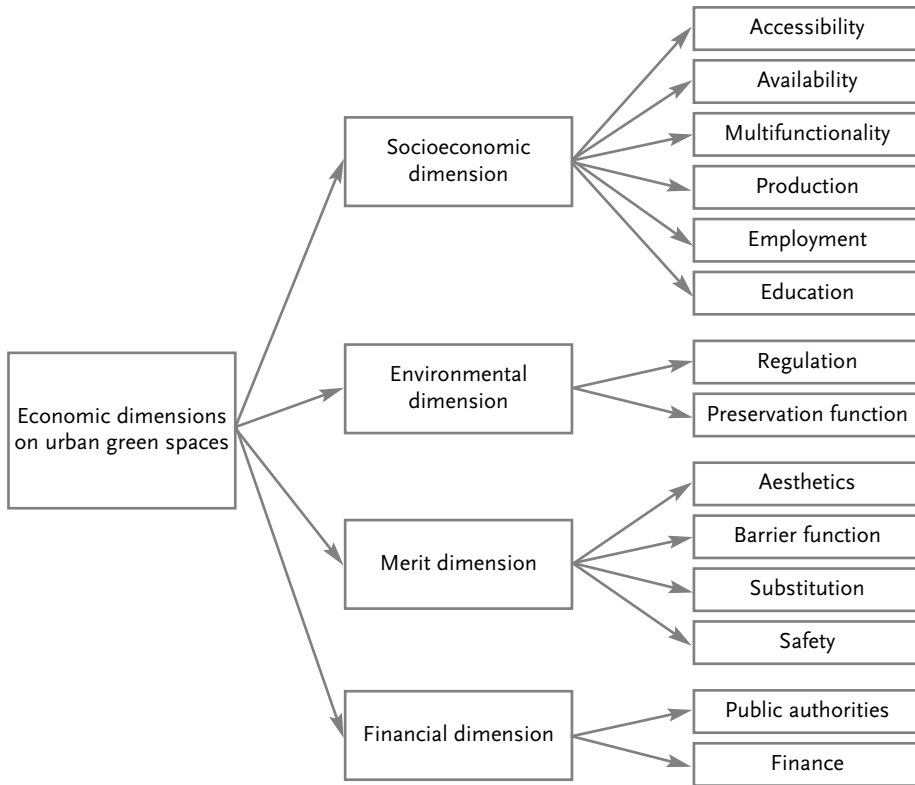


Figure 2 ECONOMIC DIMENSIONS OF URBAN GREEN SPACES, AND THE ACCOMPANYING CRITERIA

Visiting and using depend on the quality of the natural and cultural environment for their continued success. Therefore the issues of accessibility and availability are of vital interest, such as distance to and accessibility of the area (e.g. infrastructure, public transport; Stanners and Bourdeau 1995). But visiting and using can also threaten the environment (Stanners and Bourdeau 1995). First, when there are too many people in a park this will disturb the peace and quiet and will cause damage, waste and malodour to the urban green space. Second, urban green spaces tend to break up the connectivity between different urban functions and therefore increase car usage (Elkin *et al.* 1991, cited in Haughton and Hunter 1994; Jacobs 1961, cited in Haughton and Hunter 1994) and other indirect effects, especially when the park is very attractive. The undesirable impacts of visitors and users are largely site-specific and vary according to the type of setting, size of area, the number of visitors, the seasonal pressures, resource use, waste disposal and how well the area is managed (Stanners and Bourdeau 1995). In general, it is argued that the use of urban green spaces has mainly positive economic effects and negative environmental effects. The total effect is dependent on several factors, as have been discussed above.

Production and employment

Another criterion for the socioeconomic function of urban green spaces is production: a green space is essentially able to deliver products such as wood and fruit. One can also

think of compost and energy as elements of urban green production. Employment also belongs to the socioeconomic criteria, since it is important for development, maintenance and governance of the area. It is important to realise that, especially in recent years, urban green space has been designed in such a way that the number of 'green employees' is kept as low as possible. Furthermore, employment is required for the facilities that are attracted by urban green space, such as catering.

Education

The final socioeconomic criterion of urban green space is education. Urban green spaces and especially places such as school gardens and animal farms play an important role in the basic education of schoolchildren with regard to environment and nature. Many courses are given in or about school or working gardens and city parks. Urban green space can also be a study object for academic education and research in the area of, for example, genetics, geology, biology, medicine, agriculture, forestry and evolutionism (Huetting 1970). In particular, urban green spaces such as botanical gardens play an important role in education.

The above-mentioned criteria of the socioeconomic dimension can be measured by means of the indicators listed in Box 1, which will not be described in further detail. More detailed information can be found in the main report on economic indicators of the URGE project (Goede *et al.* 2001).

Environmental dimension

The environmental dimension contains functions that are linked to the surroundings and the environment: the regulation and the preservation functions.

Regulation

Many experts argue that nature in cities is essential to the quality of life in cities, providing a sensory stimulus for residents, and a connection with nature, which makes them more environmentally sensitive in their behaviour (Goode 1990; Hough 1984, cited in Haughton and Hunter 1994). Urban green space moderates the impact of human activities in, for example, absorbing pollutants, and releasing oxygen (Hough 1984, cited in Haughton and Hunter 1994). Owing to this purification ability some environmental problems will be reduced and others will be prevented. In general this is called the regulation function of urban green spaces. This function relates to the capacity of natural and seminatural ecosystems to regulate essential ecological processes and life-support systems which, in turn, contributes to the maintenance of a healthy urban environment by providing clean air, water and soil (De Groot 1994). All in all, urban green spaces improve the urban climate and are able to maintain the balance of the city with the natural urban environment (Stanners and Bourdeau 1995).

Preservation

The second function of the environmental perspective is the preservation function. Urban green spaces preserve the natural and cultural local heritage because it provides, on a local scale, habitat for a diversity of urban wildlife (such as birds and insects) and conserves a diversity of urban resources (such as trees and plants). Urban green further prevents a dusty and dry microclimate, and the provision of oxygen by trees and plants is literally of vital importance for our survival (Priemus 1999). From an anthropocentric perspective, local biological diversity helps to supply human beings with an array of free ecosystem services (Xue and Tisdell 2001), which protects and improves urban life for present and future populations. The presence of green space is a precondition for

UTILISATION**Accessibility**

- ▶ Number of residences within a maximum walking distance of 500 metres from the urban green space
- ▶ Number of residences within a maximum public transport travel time of 10 minutes from the urban green space
- ▶ Number of entrances to the urban green space around the perimeter of the park
- ▶ Number of parking places related to the total number of average visitors by car per day during weekends

Availability

- ▶ Total area of the urban green space concerned as a percentage of the total area of urban green space
- ▶ Area of urban green space per resident
- ▶ Area of urban green space per visitor
- ▶ Number of visitors to urban green space as a percentage of the total urban population

Multifunctionality

- ▶ Number of permanent functions in relation to the total area of the park
- ▶ Number of occasional functions in relation to the total area of the park
- ▶ The sum of the intensity of use of permanent functions in relation to the total area of the park
- ▶ Intensity of use of occasional functions in relation to the total area of the park

PRODUCTION

- ▶ Number of products delivered by urban green space per square kilometre of urban green space
- ▶ Total 'green' profit as a percentage of the average 'urban' profit

EMPLOYMENT

- ▶ Number of 'green' jobs per square kilometre of urban green space
- ▶ Number of 'green' jobs per visitor to the urban green space
- ▶ Contribution of the salary costs of 'green' jobs to urban income

EDUCATION

- ▶ Number of students following some kind of 'green' education as a percentage of the total number of students in the city
- ▶ Costs of education and research projects with regard to (urban) green per square kilometre of urban green space
- ▶ Area of children's farms in the city as a percentage of the total area of the city
- ▶ Total hours of (practical) education spent per year on green issues at elementary and grammar schools as a percentage of the total hours of education

Box 1 CRITERIA AND INDICATORS OF THE SOCIOECONOMIC DIMENSION

sustainable development (Priemus 1999) that meets the needs of today's generation without compromising the ability of future generations to meet their own needs (Boyd 1997). This preservation function is explicitly present in urban green spaces such as botanical (and zoological) gardens.

The above-mentioned criteria of the environmental dimension can be measured by means of the indicators presented in Box 2 (Goede *et al.* 2001).

REGULATION

- ▶ Amount of pollution in the air and around the park compared with an area with no urban green spaces in the neighbourhood, measured per unit area or volume
- ▶ Amount of massive vegetation in the urban green area concerned

PRESERVATION

- ▶ Annual discounted future savings of costs for protection of urban wildlife and urban resources per square kilometre of urban green space
- ▶ Presence of botanical gardens or children's farms in relation to the total population of the city

Box 2 CRITERIA AND INDICATORS OF THE ENVIRONMENTAL DIMENSION

Merit dimension

The merit dimension is a collection of aesthetic, substitution, barrier and safety functions. The functions are usually related to external effects and they grant merits to the quality of urban life of the different user groups of urban green spaces.

Aesthetics

In the discussion of the merit functions we assumed that urban green spaces are beautiful and therefore have an aesthetic appeal. The presence of urban green spaces in a city increases the quality of life, not only because of their beauty but also because the aesthetic quality of urban green spaces enables people to orient themselves in space and time. With regard to orientation in space, green space enhances people's awareness of their environment and of their relation to the further (urban) landscape. Orientation in time has to do with historical developments and the variation of seasons (MLNV 1995). Through all this, urban green spaces give neighbourhoods their own identity, which makes them more attractive to live in. Urban green spaces can additionally be seen as a compensation for low-quality areas.

Barrier function

In general, city parks are places of peace and quietness. This is because urban green spaces provide a barrier function; they provide a noise barrier and can function as visual screening (Dole 1989, cited in Haughton and Hunter 1994). This is especially the case if urban green areas function as a buffer zone between parts of the city. Tree foliage, both in the case of individual street trees and larger groups of trees, can also serve as a shelter from solar radiation. This additional benefit is highly appreciated, particularly in regions with higher temperatures. Also, elements such as windbreaks and the camouflage abilities of urban green spaces increase the quality of neighbourhoods.

Substitution function

The third important element in the merit perspective of urban green spaces is the substitution function. Urban green spaces can be seen as an alternative for the shortcomings in other areas. If people who use the green spaces have no opportunity to carry out certain activities elsewhere, they are called 'captive users'. We consider three 'positive' alternatives and one 'negative' alternative. Urban green space is a 'positive' alternative for (Satterthwaite 1999):

- ▶ Occupants of multi-storey apartments that have no gardens or balconies
- ▶ Low-income groups that have no access to clubs (such as sport clubs) or that do not have the financial means to go on holiday
- ▶ People who do not have access to use of a car

The 'negative' alternative has to do with the fact that open and green spaces are under continuous threat because of the more competitive uses of limited land resources (Stanners and Bourdeau 1995). In particular, in cities where a housing shortage exists, this is an important disadvantage of urban green spaces that will decrease its value. Therefore, it is important to recognise that, once an area is built up, it is almost impossible (and expensive) to remedy a lack of open space (Hardoy *et al.* 1999).

Safety

The final element of the merit perspective has to do with safety. This can be seen from a positive and a negative side. The positive effect of urban green spaces is that it provides safe playing fields for children (Jacobs 1961, cited in Haughton and Hunter 1994), which can reduce accidents as fewer children play on roads or in other unsafe areas. Such provision can also contribute much to children's physical, mental and social development (Hart 1997). However, urban green spaces can also be a source of crime and therefore be unsafe, especially at night. Urban green space is often seen by some criminals as an attractive place for doing illegal business. Also, the homeless may choose to sleep there, which some users may not be comfortable with. This has to do with the camouflage abilities of urban green space; a park with many bushes and dark places is more 'dangerous' than open space. In contradiction with what has been written before, from this point of view the visual screening and camouflage (barrier) function of urban green spaces has a negative influence on the merit perspective to the described users, with an exception to the criminals.

The above-mentioned criteria of the merit dimension can be measured by means of the indicators presented in Box 3 (Goede *et al.* 2001).

Financial dimension

The fourth and final economic dimension of urban green spaces is the financial dimension. The financial dimension contains the criteria relating to public authorities and the finance function. These functions have importance to government authorities and to investment partners.

Public authorities

By public authorities we mean the priority position of urban green spaces on the agenda of policy-makers or public urban authorities. Although this in the first place may be a negative indication (most often, cases are only discussed when problems have been signalled), we assume that this in the end has a positive influence on urban green spaces. The more attention paid to urban green spaces in urban policies, the more budget will

AESTHETICS

- ▶ Price and rent differences between houses or companies with and without an urban green space in the neighbourhood
- ▶ Average price and rent of houses or companies with urban green space in the neighbourhood per unit house/office
- ▶ Average household income around the urban green space as a percentage of the average urban income

BARRIER FUNCTION

- ▶ Number of trees, and their size, in the urban green space per unit area of urban green space
- ▶ Noise level in the urban green space compared with the noise level outside the park
- ▶ Number of days with a temperature above 25°C

SUBSTITUTION FUNCTION

- ▶ Price and rent differences between houses or companies with and without gardens or balconies
- ▶ Number of 'captive' visitors as a percentage of the total number of visitors to the urban green space
- ▶ Distribution of income of the visitors to the urban green space

SAFETY

- ▶ Annual number of incidents in the park compared with the annual number of urban incidents
- ▶ Annual costs of crime prevention and control with regard to urban green compared with the total costs of crime prevention in the city
- ▶ Level of criminality of parks inside the city centre compared with parks outside the city
- ▶ Level of criminality of small parks compared with that in larger parks, per square kilometre

Box 3 CRITERIA AND INDICATORS OF THE MERIT DIMENSION

be released for urban green spaces and the higher the quality of urban life will be. As already mentioned, urban green space has, by its nature, a public character and is therefore financed mainly by public partners such as urban or national authorities. Therefore, the level of budget and the actual expenditure of urban authorities on urban green spaces are also an important element of the public function. It is obvious that the more money that is reserved and, in the end, efficiently spent on urban green spaces, the better it is for the quality of urban green.

Finance

The finance function of urban green spaces is necessary as money is needed to develop and maintain urban green spaces. There are different ways to finance an urban green area. One can think of private financing, such as sponsoring, but also public–private partnerships. Indirectly, the public function is connected to the amount of green taxes or tourism taxes the people or visitors have to pay. Sometimes, an entrance fee is charged when entering a botanical garden, for example.

Box 4 shows the indicators that belong to the above-mentioned criteria of the financial dimension. For more detailed information on the indicators, see Goede *et al.* 2001.

PUBLIC AUTHORITIES

- ▶ Number of hours planned or spent on urban green policy as a percentage of total hours planned or spent on policy
- ▶ Budget for urban green spaces as a percentage of the total urban budget
- ▶ Urban green budget per square kilometre of urban green space
- ▶ Actual expenditure on urban green space as a percentage of total urban expenditure
- ▶ Actual expenditure on urban green space per square kilometre of urban green space
- ▶ Number of usage possibilities for the authorities
- ▶ The amount of budget per 'green' job

FINANCE

- ▶ Number of alternative means of financing the space
- ▶ Amount of budget or expenditure on development per square kilometre of urban green space (from public and/or private sector)
- ▶ Amount of budget or expenditure on maintenance per square kilometre of urban green space (from the public and/or private sector)
- ▶ Amount of budget/expenditures for revitalisation per square kilometre of urban green space (from the public and/or private sector)
- ▶ The level of green taxes and tourism taxes
- ▶ Annual income from any entrance fee to the green area

Box 4 CRITERIA AND INDICATORS OF THE FINANCIAL DIMENSION

Economic indicators relating to the PSR framework

Since the PSR framework is a widely used framework, it is interesting to see how our economic indicators fit into this framework (see Fig. 3). By doing this, the criteria are divided into different groups, which provides us with new ideas about the criteria. This can be useful in developing an interdisciplinary catalogue of criteria, which combines the criteria of all four perspectives and is one of the goals of the URGE project.

Already, at first sight, it is clear that not only the economic criteria but also the relationship between the other relevant perspectives (ecological, economic, social and planning) may be represented very well by the PSR framework. The three main boxes ('human activities', 'state of the urban green environment' and 'economic and environmental agents: urban administrations') can be seen as belonging to the three other perspectives, whereas the economic criteria represent the flows between the boxes.

The box 'human activities' belongs to the social criteria, and the box 'economic and environmental agents: urban administrations' has a direct relationship with the planning criteria. Although the box 'state of the urban green environment' has a clear relationship with the ecological criteria, the economic criteria are partly represented by this box as well. Examples are the aesthetics, accessibility, availability, multifunctionality, safety and the barrier function. They represent a given state of the art and not a flow between different disciplines. The other criteria can be expressed in flows and are therefore related to the arrows within the framework.

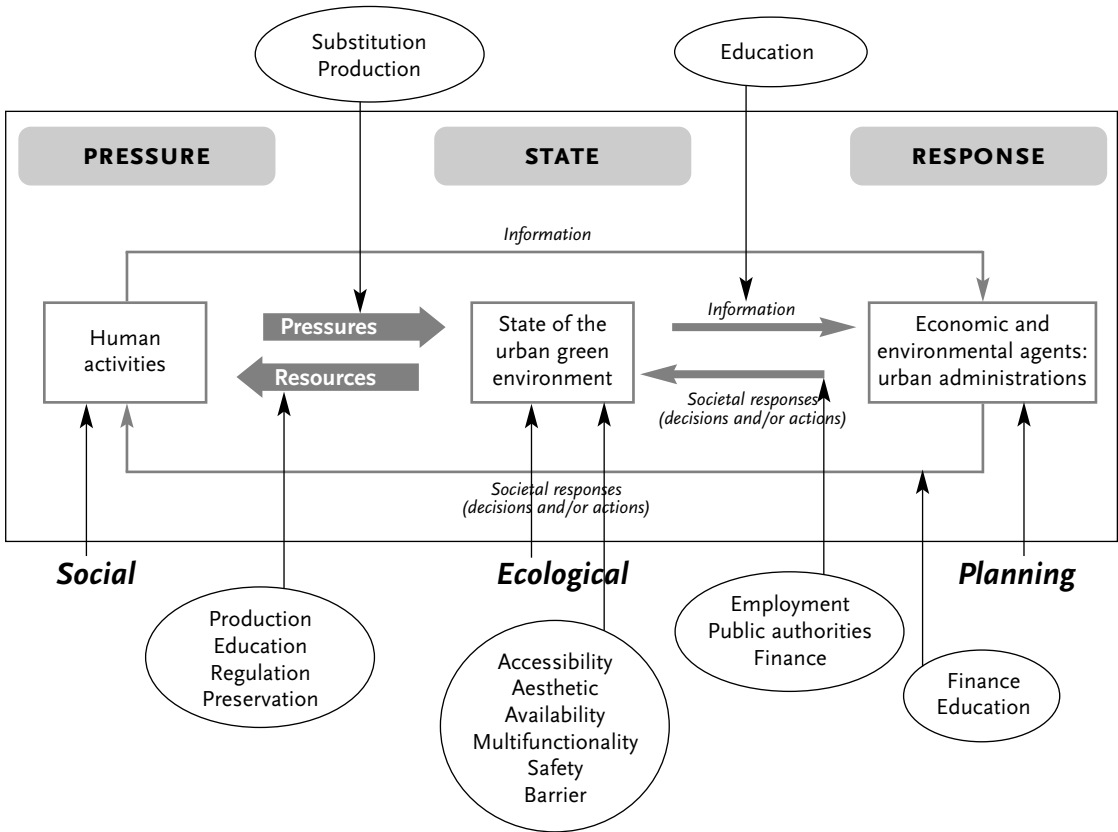


Figure 3 THE ECONOMIC INDICATORS IN THE PSR (PRESSURE–STATE–RESPONSE) FRAMEWORK
 Source: adapted from OECD 1993

The ‘state of the urban green environment’ allows other functions to be practised, such as the education function carried out by, for example, researchers as represented in the **information** flow between the ‘state of the urban green environment’ and the ‘urban administrations’ (the URGE project is a good example).

The **resource** flow contains the production, education, regulation and preservation criteria, since they are all a kind of ‘product’ or ‘result’ of the urban green space: production is a source of products; education is a source of information; the regulation function is a source of fresh air and silence; and preservation is a source of elements that could be preserved by urban green.

There are **pressures** and driving forces, however, as well. Substitution, for example, can be seen as a form of pressure on urban green environments, because some people have to use the urban green because there is no other alternative (i.e. garden) to meet their needs. Production can be a pressure on urban green space if the production is not sustainable.

The public and financial criteria can be seen as **societal responses** of the urban administrations, influencing the state of the urban green environment. They respond by means of expenditure and time spent on planning. They also respond by employing more (or less) people to maintain or develop the green areas. The finance function can

also be seen as a societal response influencing human activities: for example, by increasing or decreasing entrance fees to urban green spaces. Education belongs to this group as well, since provision of courses or school gardens by the municipality has an influence on human activities.

Finally, one could say that ‘economic and environmental agents: urban administrations’, which we have assigned to planning, is indirectly related to all of the economic criteria. The criteria as presented in Figure 2 all have an indirect relation with planning criteria. For example, if the indicators of the ‘state of the urban green environment’ need to change (e.g. the creation of more entrances, increasing the safety of a green space), this has to be realised through the planning mechanism. It is very important to realise this but, since it is not a direct flow, it is not represented in another external box with economic indicators.

Some of the criteria are related to more than one element of the PSR framework and are therefore represented in more than one group of criteria. For example, production can be a pressure and a resource. A framework such as this makes clear that certain indicators are not only positive *or* negative, but also can be positive *and* negative. Some activities can be carried out in different ways or they can influence different actors. Production can be a resource, since it provides certain products such as wood or compost. But if the production is not sustainable, biodiversity can decrease, which is a pressure on the state of the urban green environment. Thus, because of the complexity of the relations between the different functions and criteria, the criteria can belong to different groups of the PSR model.

Policy relevance

The use of urban green space is a new but important topic of social science research work. The aim of the URGE project is to improve the future management of green spaces in cities and urban regions by providing methods and procedural guidelines on how to include ecological, social and economic demands in the process of planning and maintenance by the planning authorities. However, the criteria and indicators that are developed by the URGE project should not be seen as a ‘prescription’ or ‘blueprint’. It is obvious that each city has different conditions and characteristics, and the needs or demands for urban green space can differ between cities. The project aims to identify the differences and similarities in the use and judgement of green spaces in European cities, which may lead to recommendations for a more transparent and operational European urban green policy. Therefore, each city may deploy this ‘umbrella policy’ for its particular needs, and city-specific urban green policy should be developed by urban administrations. Urban administrations may then choose and implement the relevant policy for their cities, supported by the guidelines of European urban green policy.

However, in this process, many questions related to the planning and implementation process may be raised. How can the economic indicators help to develop green spaces in cities? What are the planning tools for urban green development? What are the potentials for and the expected restrictions on planning processes of an application of the proposed framework? The answers to these questions could be given by evaluating the ‘good practices’ and previous experiences of European cities.

When we ask ourselves these questions, we can *a priori* offer an answer in terms of the potential of an application of the proposed framework for aiding planning processes, according to the taxonomy that we applied on urban economic indicators. The taxonomy shows that the economic indicators are related to ‘response indicators’ or, in other words, according to our evaluation framework, to ‘planning criteria’ that contain ‘economic and

environmental agents: urban administrations'. Clearly, economic indicators provide a basis for policy tools and technical planning tools for urban administrations. These administrations can regulate their planning rules according to these indicators. Furthermore, they can regulate the services that they offer according to the demands of users in terms of transportation and the number and diversity of functions in urban green areas. They can use this framework not only for macro-level planning but also at the urban design level in terms of the number of entrances and the provision of several functions, such as cafés and restaurants, parking places, etc. However, economic indicators are related also to 'pressure indicators'. Certain economic conditions can also increase the pressure on the environment. Proper urban policies (e.g. education) may decrease this 'pressure'.

In terms of the restrictions of an application of the proposed framework on planning processes, the first problem that we have faced while applying this framework to Dutch and other European cities is with collecting the relevant data. The difficulties in collecting data stem from the lack of data and the varying classification categories or different measures that the cities used, creating difficulties with comparison. Another problem related to data collection is the administrative structure of the cities. The existence of several urban administrations within the cities requires the collection of data from different sources, which is a very difficult task. These difficulties decrease with the willingness of the urban administrations to participate in these kinds of project.

The next steps of the URGE project will include the combination and integration of the various criteria and indicators in the different perspectives (ecological, economic, social and planning). Some of them will overlap, others will not, but it will be necessary to deploy them unambiguously. These integrated criteria will be used in a case-study approach to European cities to create the necessary information. In this experimental stage we may face various difficulties, even contradictions, which may then lead to the necessity to improve the criteria and indicators used so far. However, this experience will provide an opportunity to develop a common language among the different disciplines involved in green planning and management.

All research and policy efforts for improving green space quality in cities and urban regions of Europe will impact on the quality of locations, both on a small and on a large scale. Providing attractive and accessible green spaces of high ecological value creates benefits to the competitiveness of the urban location in a broader (inter)national perspective. Improving green space quality in cities or conditions for urban quality of life depends on the successfulness of urban policies. Co-ordination both between urban administrations and between urban administrations and administrations at a higher level is the most important condition for successful policies. The other important condition concerns future perspectives in terms of short-term and long-term planning policies. Sustainable cities and sustainable living conditions for future generations require long-term policies rather than promising short-term actions. The short-term and long-term benefits and costs of providing better quality of life should be compared and evaluated. The preferences and the priorities of the urban administrations will play an important role in their planning and management processes, and the successfulness of urban policies will be influenced by their choice.

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