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During recent years sustainability has been spelled out as a focus for spatial planning. But is sustainability an altogether new aspect? It can be argued that it is just focus of sustainability that has shifted as an effect of changed values and structure of society. As an example, the embellishment of cities with prestigious parks and planted avenues provided a suitable frame for the emerging bourgeoisie classes, the guarantors of a sustainable industrial future for 19th century western society. As always the ideals and ambitions of a certain period must be looked upon in the light of the conditions of that time.

The first play-grounds in Stockholm at the beginning of 20th century, poorly equipped as they may seem, helped to foster healthy new generations, a concern for a sustainable future. From the 40ies and some 30 years on, Stockholm park management advanced to be pioneers. The Parks Director of Stockholm during that period, Holger Blom, made Stockholm parks internationally renowned in several aspects: staffed play grounds, ambulating open air theatre with free entry, and a new design concept integrating social functions with exotic design features and nature romanticism.

Consequently Stockholm park planning has strong traditions, let alone somewhat squandered since the 70ies, but lately revived in a new outfit. The requirements of society have partly changed, but are partly the same. Just as during the 40ies to 60ies, the metropolitan area is strongly growing. During that period the metropolitan structure of Stockholm was laid out with numerous suburban centres along underground lines. Currently the Stockholm metropolitan region is growing by around 25.000 persons per year, expected to add another 450.000 persons to the present 1,9 millions during the next 20 years.

Other conditions have changed: higher transport demands, environmental concerns, lack of physical activity, few women home with their children, focus on private sphere and numerous immigrants bringing foreign cultures, just to mention some. Globalisation is another. Big cities compete about high competence establishments and company head-quarters. In that competition good urban environment is used as an asset for attractiveness. This is an international issue. Stockholm is not competing with other Swedish cities but with Copenhagen, Amsterdam, Hamburg etc.

Interesting park planning in Sweden is not only to be found in Stockholm, on the contrary. Other cities, notably Malmö in southern Sweden, has achieved much of interest. This presentation will however focus on Stockholm. Current green space planning in Stockholm contains some

interesting features. Moreover, the city has rather peculiar landscape conditions.

Stockholm, capital of Sweden, is by far the largest metropolitan region in Sweden and so the one most relevant to compare with planning conditions in other metropolitan regions. The city is located where the fresh water of lake Mälaren in the west pours out into the brackish water of the Baltic Sea in the east. Here extends the Stockholm archipelago of almost 30.000 islands, one of the great attractions of the region.

Also central parts of Stockholm is situated on islands. The city was founded at the narrowest sea passage in order to protect the towns and settlements around lake Mälaren from pirates coming from the Baltic Sea. Geologically Stockholm is located where a north-southerly boulder-ridge, deposited by a glacial river of the retreating inland ice, crosses an east-westerly fault-fissure lining the southern shore of the water. In the water crossing the boulder-ridge forms an island, on which original Stockholm was founded. The abundance of water surfaces in the city center is both a blessing and a curse. It provides aesthetic and environmental qualities but also causes problems for infrastructure.

The term sustainability is often described as resting on three legs, economic, social and environmental. However incommensurate if you try to handle the three by the same measures, they are all relevant to park planning. As described above, rich nature and green spaces add to the attractiveness of Stockholm, thus a contribution to economic sustainability of the city. A healthy environment may also provide economic value by means of public health and less cost for environmental hazards, thus demonstrating the interrelation between the three legs of sustainability. The second leg, social sustainability, appears to be the most difficult to integrate in spatial planning. Stockholm municipality has recently developed new methods aiming at handling social qualities of open space in spatial planning, called the Sociotope Map.

The method focuses on describing open spaces with regard to the use and appreciation of the inhabitants. Sociotope is here defined as “the use and importance of a specific place in a specific culture”. “Culture” is understood as those living and working in the area. The evaluation of open spaces discerns between three sizes: small local spaces (<0,5 hectares), medium-sized open space (0,5-50 hectares), and large open areas (>50 hectares).

The evaluation of areas in the Sociotope Plan is based on expert analysis and opinions of locals. The professional evaluation considers local and regional aspects, cultural values, irretrievable qualities and availability. The evaluation is added with on-site observations on two occasions. Opinions of inhabitants are collected by questionnaires to persons of varying age and social strata. Aspects include silence, calmness and security.

Based on the results a Sociotope Map is developed, reflecting use and attractiveness of open spaces. The map clearly reflects the importance of quality and availability of open space in contrast to quantity of areas. As an example, green space standards in some densely built central quarters with few but attractive parks and street plantations are much higher valued than the much larger but desolate green spaces in some suburbs.

The Sociotope Map is used as a basis for spatial planning in Stockholm. This is particularly important with regard to the current political ambition to encompass much of the expected population growth within existing urbanised areas, "building the city inwards" as formulated in the political statements. This is to avoid urban sprawl and to concentrate habitations enough to provide for good public transport, counteracting environmental problems as well as traffic congestion. It may also add urban quality to dispersed suburban developments and preserve an attractive country-side along the urban perimeter. But it will increase pressure to build on green spaces within urbanised areas. In that context the Sociotope Map can be an instrument to identify the most valuable parts of the green environment to be preserved.

The map not only takes into consideration public space but also private ground. Discerning between the two is relevant from a functional aspect, however not from an aesthetic and ecological point of view, where other characteristics of the areas are crucial. Butterflies respect no estate boundaries, just like frogs for which a public road through an ever so green area represents a major threat.

Availability is analysed by the method Space Syntax. This method takes into consideration not only actual distance but also quality of the connection, such as horizontal bends, changes of level and obstacles. Such studies has given evidence how availability to adjoining green spaces will reach much further into easily oriented grid-plan quarters than into suburban enclaves surrounded by entry roads.

Turning to ecological sustainability this became a major interest in Swedish landscaping 30 years ago. However, since then the focus of the ecological dimension has shifted. Initially it mostly dealt with plant sociology but has now become a more integral part of environmental planning, encompassing ecological services such as water quality, air cleaning, moisture and temperature, bio-diversity etc.

Planning in the Stockholm region addresses ecological dimensions on both local and regional scale. In 1995 a report on ecologically sensitive areas in Stockholm was published, indicating necessary measures both within the areas as in the surroundings to preserve their qualities. The report was subsequently integrated into the Green Plan of Stockholm. IAE:s accompanying most development plan are other means to preserve existing values. A third factor of importance is the national restrictions to build or make other ground works along shorelines, both above and below water.

On regional level the green structure of the metropolitan area has been addressed since more than 20 years. The green aspects in the regional planning has been illustrated as a green infrastructure with a number of radial green fingers, stretching from surrounding countryside towards the regional centre. Three types of areas are discerned in this structure: nucleus areas of great biological value, links between nucleus areas, and buffer zones of less quality, but important for the function of the green structure.

In the latest version of the regional plan, currently in the final phase of consultation, three types of green links are identified: 1. important links less than 500 metres wide, under the potential threat of development expansion and very important to maintain; 2. important links less threatened by development pressure, in some cases because they are formally protected nature reserves; 3. weak links in wider sectors, presently not subject to development threat but may have to be protected and strengthened in connection with development.

From this aspect a study of some interest regarding ecological links was made for the so-called Royal National City Park of Stockholm, a 27 km² large area along the north-eastern side of the city center. The area contains historic landscapes, palaces, museums and institutions, and a rich bio-diversity. An important task in the park is to protect and strengthen some weak ecological links in order to sustain the rich biodiversity. Of particular interest is a the large number of stately old oak trees, containing a particularly rich bio-diversity.

A computer-based study was performed, combining locations of old oaks with living requirements for specific species, such as habitats, mobility etc. The resulting maps showed existing links for the species concerned. Some of these links ran along narrow passages of the park, consequently indicating the importance to preserve those links for the long-term survival of the species concerned. Another pilot study at the urban fringe investigated how areas of high bio-diversity can be interlinked through surrounding “every-day landscape”, integrating agriculture and silvaculture as well as urban expansion, cultural heritage and recreation with bio-diversity.

During recent years also regional planning in Stockholm has focussed more on social aspects on green space planning. The green finger structure was in fact originally conceived not only on ecological grounds but also to sustain a green network for recreation. Recently, extensive studies have been accomplished regarding recreational and emotional qualities of the different parts of the regional green structure.

One aspect studied is the availability to silent areas, the ubiquitous noise being a major discomfort for many inhabitants in the region. To be able to rest and contemplate in silence is increasingly recognised as important by medical expertise. Silent areas are constantly shrinking in central parts of the region and so become less available particularly for less privileged with limited means of transport. The latest version of the regional plan focuses

particularly on the availability to the green infrastructure by marking out underground stations and bus terminals at a near distance (300 meters) to green areas.

There are three public levels dealing with green space planning in the Stockholm area. At local level the municipalities, including city of Stockholm, work with management and planning. The Stockholm municipality covers the central part of the metropolitan area with 800.000 inhabitants, a little less than half of the population of the metropolitan area. Stockholm county contains 26 municipalities, 16 of which are located at the metropolitan perimeter. Regional planning is managed by the County Council. Thirdly, national government through its regional representation, the County Administrative Board /CAP, contributes by its engagement in nature preservation.

A few years ago national government commissioned the CAPs containing the three largest cities in Sweden (Stockholm, Gothenburg and Malmoe) to develop plans for protecting valuable nature adjacent to the metropolitan centres. Formal protection requires the consent of local municipalities. In order to ease up the process national government offered economic support of local nature care, including installment and management of nature reserves. The result was 71 areas suggested for protection in the Stockholm, most of them located in the green infrastructure of the regional plan. Many are now under way to be installed.

An interesting aspect became apparent during the dialogic with the municipalities. Most of them consist of agglomerations surrounded by green areas, more or less regarded as expansion ground. However, during these discussions an inversed picture appeared. The green perimeter of the municipalities became the centre of interest when regarded together with the green perimeter of the adjacent municipality. In this work the municipalities had to change their views, disregarding the municipal boundaries, to handle the green spaces.

Compared with many other great cities Stockholm is green, and blue. The water embellishes and ventilates the city. But is also spreads out and complicates transports. Topography together with water surfaces are main features of the landscape, vegetation and green spaces also play important roles. The growth of population, increased pressure on central parts and environmental and social concerns cause conflicts between strong interests regarding open space and green areas.

Sweden has a strong tradition of democratic participation. This also affects planning, clearly reflected in planning legislation. Strong pressure groups threaten to distort that order. The general interest to sustain green space planning will require both technical, tactical and pedagogical skills to meet that challenge. Hopefully the instruments I have demonstrated may help also in other metropolitan areas in similar situations, making green space planning contribute to a sustainable urban future.