

GENERAL INFORMATION

PETUS description of tool in use	
Name of the case	Urban Green space Differentiated Management
Name of the tool	Main tool: – Differentiated Management Other tools: – Computer tool – Data collection/monitoring – Inter-services communication
Country	France, Bretagne, Rennes
City / region Total area (km ²) Population Density (people/km ²)	Rennes: university town of 212 000 inhabitants which extends on 50 km ² . Rennes density: 4093 people/km ² Region: Bretagne
Tool user's profile a. Organisation name (municipality, NGO, national or regional department, company, etc.) b. Field of activity c. Detailed contact/feedback (project website, e-mail, address, tel., fax)	The project and its practical application have been carried out and coordinated by the green space services of Rennes municipality. Pierre LHOUMEAU, Head of the "garden and green spaces department" of Rennes municipality. 5, bd de la Duchesse Anne 35000 Rennes - France Telephone: +33 2.99.28.56.62 Email: jardins@ville-rennes.fr
Reviewer, date	INSA-Lyon, France, last update Feb 2005
Short description of the case	
<p>Rennes is a university city of 212 000 inhabitants which extends on 50.22 km². With more than 7.94 km² of green space, 100 000 trees, 660 family gardens, Rennes is a green city. The control of Rennes spatial development has highlighted its land planning policy. Its objectives are to “build the city on the city” instead of leaving urbanisation taking up urban spaces, and to take into account and reorganise what is existing, especially for green space developments. In that way the municipality has chosen to implement a differentiated management of the green asset to enhance its maintenance and lastingness. The differentiated management is the conception, management and implementation of ecosystems (which are under the different level of human influence) and correspond to different social needs.</p> <p>This approach results in a specific development of the green space, in close link with their characteristics (fauna, flora, biological potential, localisation, functionality...). 7 class of green space types are defined indicating the adapted maintenance. Computer tools allowing monitoring and definition of indicators, and inter-services communication have supported the project.</p> <p>The experience shows benefits; it helps to meet the needs of an increasing social demand for nature in city centre (social dimension), without increasing the cost of this service by rising local taxes (economic dimension). The environmental issue is also taking into account by cultivation practices which are directed to increase green space biological potentialities, to ensure multiplication of shelters to favour fauna and flora as well as to manage natural resources more sparingly. However some improvements can</p>	

be underlined like the collection of updated data and the improvement of governance process.

This case was chosen because it represents a good example of green space management. Differentiated management, and the way that the municipality of Rennes implements it, present the basic characteristics of sustainable projects, especially those from sustainable city. Indeed it develops a system of relations between ecological, economic, social and equity issues. The ecological aspect comes from the implementation in the city of a mix between natural and horticultural biodiversity. The proportion between these 2 categories of biodiversity varies from park to park, according to a regular ladder (from rustic park to "sophisticated" park"). The mix of biodiversities gets closer to the "economic optimum". The social aspect is taken into account if the different landscapes that the range of parks proposes, satisfies the different public demands. Finally, The equity aspect (which considers the distribution of created wealth by the project) is strengthened because the whole urban population has the same free access to the city parks, whatever social conditions.

The choice of implementing the differentiated management has allowed developing a more wild nature, to limit the water and soil pollution, to increase the fauna and flora biodiversity in reducing global costs.

This case study can be related with the PETUS key-problem of the "Green-Blue" section: Efficient functioning of green spaces

Sector	Waste	Energy	Water	Transport	Green/blue	Buildin g & Land Use
					X	
Scale of project	Component	Building	Neighbourhood	City	Region	
				X		
Status of project	Starting up	Ongoing	Finished	Start date	End date	
		X		1980's		
Key words						
Green space management, differentiated management, indicator, monitoring						
Project a. Object (building, city park, wind farm, etc.) b. Type of activity (regeneration, renovation, new development, etc.) c. Type of product (plan, scheme, design project, etc.)	a. Object: Green space b. Type of activity: New way of management c. Type of product: Municipal garden service organisation and management.					
Tool a. Character (according to WP3final0704.doc) b. Benchmarks (qualitative or quantitative) c. Availability (paid/ free)	a. Character: Indicators and Monitoring, guidelines b. Benchmarks: qualitative c. Availability: free					
Decision-making process a. Stage of the tool implementation (preliminary, midterm, etc.) b. Level (political, technical, etc.) c. Public participation	a. Stage of the tool implementation: All b. Level: technical c. Public participation: consultation, information, public meetings.					
Other (optional, if needed)						

A. Detailed description of project and tool

1. Description of context

The legal framework on a national scale concerning urban green space management is weak even non-existent.

Rennes urban green space differentiated management falls within a sustainable development policy (environmental safety, recognition of the inhabitant's social request to have local natural green space, maintenance expenses discount). The differentiated management is the conception, management and implementation of ecosystems (which are under the different level of human influence) which correspond to different social needs. It is not an opposition of the horticultural management of green spaces: it is a method which allows, in the same city, managing a range of different green spaces area, from the most "sophisticated" flowery parks to the most rustic spaces.

Its objective consists in meeting the needs of an increasing social demand for nature in downtown, without increasing the cost of this service by rising local taxes.

2. Description of project

Rennes is a university town of 212 000 inhabitants which extends on 50.22 km². With more than 7.94 km² of green space, 100 000 trees, 660 family gardens, Rennes is a green city (data 2002).

Since 1980's, the city has adopted a new approach- the differentiated management. Thus, it has started to modulate green space management in order to develop an extensive management of some spaces, in rupture with usual intensive practices which is the rule in France impregnated by the pattern of "jardins à la française". The intensive management is characterised by a strong human intervention (use of pesticides, fertilizers...). On the opposite, the extensive management (hands-off management) is defined by few human interventions.

Thus Rennes municipality was one of the first French cities to be aware, from 1966, of different conceptions for the management of its green spaces (even if in 1966 we could not talk about "differentiated management" spread on the whole city). In practice, it has been chosen to test a more free management on one specific park (rustic aspect).

This approach results in (tab. 1, fig. 2 & 3):

- a specific development of the green space, in close link with their biological potential, geographical localization, their use and their history (maintenance adapted to each case according to Rennes context);
- a soft management of the vegetal compositions and landscape units;

Greenspace type	Class	Definition and maintenance type	Area % (Data 2001)
Flower stand	0	Flower stand located apart from a greenspace (neat maintenance)	0,01 %
Greenspace with marked horticultural vocation	1	Horticultural greenspace, very "artificial", located in a very attended public place (maintenance very neat and significant flower)	1,43 %
Greenspace with simple horticultural vocation	2	Traditional horticultural greenspace with neat aspect (limited maintenance and flower)	7,65 %
Greenspace enabling cohabitation of horticultural and spontaneous vegetation	3	Greenspace with simple design, rustic, regularly maintained. Possible association of horticultural and spontaneous vegetation, small shrub flowering (rosebushes)	41,79 %
Rustic extensive greenspace	4	Rustic natural greenspace with moderate maintenance (maintenance similar to rural areas)	34,63 %
Greenspace - pastoral vocation	5	Pastoral greenspace, with rustic aspect, supporting an extensive maintenance (basic maintenance)	8,96 %
Other spaces	6	Non-vegetation spaces, agricultural land	5,53 %

Table 1: Green space classes of Rennes according to differentiated management (source: CERTU, 2001)

Differentiated management makes it possible to improve the offer of green space available in the urban fabric without increasing the service expenses. In 1977, 393 ha were managed by the municipal gardens services, and in 1997, 780 ha (the double) without increasing the local taxes. More, between 1979 and 1989 (in 10 years), management costs of the green space with marked horticultural vocation (class 1) and green space with simple horticultural vocation (class 2) have decreased to 25% due to mechanization efforts. This diminution is around 60-65% for rustic extensive green space and pastoral vocation green spaces (class 4 and 5) which is due essentially to differentiated management implementation (less human intervention, less use of fertilizers...).

Moreover, this management has widened the scope of parks and gardens, has introduced new landscapes and new natural rural habitats in the city (meadows, ponds, etc). Rennes has set up biological corridors and green malls in order to increase the diversity of natural infrastructures. This green frame has been used to extend pedestrian and cycle paths, to increase the presence of natural elements in the urban fabric.

This new conception of differentiated management is more ecological. The cultivation practices are directed to increase green space biological potentialities, to ensure multiplication of shelters to favour fauna and flora as well as to manage natural resources more sparingly.



Figure 2: An example of class 1 (see Tab. 1) greenspace: Tabor Park (source CERTU, 2001)



Figure 3: An example of class 4 (see Tab. 1) green space: Gayeules pond. The high grass edges which girdle the pond are not mown in order to preserve ecotones (source CERTU, 2001)

3. Description of tool

① Differentiated Management

The differentiated management of green space is discussed in the previous paragraphs. It concerns at the same time the project and the tool. Indeed, the differentiated management can be seen as a mean (tool) to implement sustainability, and the urban project consists in his implementation.

② Computer tools

There is an alphanumeric file since 1984 however it is not enough updated (lack of human means).

This alphanumeric file contains all relevant information concerning different green parks: areas, type of flora/fauna, time spend by municipal technicians on each green space, quantity of fertilizers used... For example an inventory of the plants that have been spontaneously settled (and which were in the past undesirable) has been done in 1994. 1572 samples have been tested, 378 species identified, and only 38 species have been classified as "undesirable".

The green space service express the need of a GIS (Geographical Information System) as well as new software that enable inter-services communication. They are about to hire someone to update all the data.

③ Data collection / monitoring

The software tools make it possible to establish cost calculation of maintenance and to highlight the average annual maintenance costs for each defined class (1, 2, 3...).

For a panel of 30 different test-sites, the gardeners have to complete a data collection: they have to indicate the maintenance duration, the different products used (pesticides...) and their quantity. Results analysis (cost/hectare or hour spend/hectare) are used to assess other sites costs or to monitor new sites.

There is also a monitoring of biodiversity: inventories have been done with the help of the botanical garden team. The difficulty comes from the fact that gardeners are not botanists, neither ecologists, and that complementary competences have to be defined and integrated within the service (internal training) or associated with external cooperation.

④ Inter-services communication

The different management services of the municipality of Rennes (greenspace, water, roads... departments) do not need any charters or agreements to have an efficient communication basis, because all the services have the same manager. They consult one another to avoid redundancy in their interventions, which increases the efficiency and enables money and time savings. However, a charter of cleanliness was signed in a neighbourhood, and, besides green space and cleanliness services, it implicates the municipal office of HLM (low rent housing) that is responsible for cleaning buildings halls and exterior side. Besides, workgroups including elected representatives and different technical services meet every week to discuss and validate urban planning projects. They propose solutions that will be decided by the municipal council.

B. Tool Implementation

1. Experiences

Here is discussed at the same time improvements gained by using the differentiated management and the tools that have allowed its implementation.

① Environmental dimension

Water: Its preservation is ensured by a reasoned and integrated management (reduction in the frequency of watering and water quantities), by a protection of the springs and drinking water collecting areas, and by a source control of green waste production and/or pollutants emissions. The immoderate use of manure, pesticides, and weed-killers is a significant source of water pollution in urban environment. The moderate use of pesticides and the use of alternative techniques should tend to decrease this type of pollution.

Soil: The differentiated management of green space has a driving effect. It enhances the territory development and enables the urban landscape preservation.

Vegetation wastes: Those vary according to the type of vegetal structure, the quantity decreases with a minimum maintenance and with the rational use of manures. Green wastes are collected, crushed, sold and transported to a closed city (Nantes) for composting. The question of 'in-situ' storage/composting unit, to reduce transport impacts (costs and pollution), was not examined.

Biodiversity: Green space management integrates protection and increase of the biodiversity (news hedges with various layers, herbaceous edges on pond banks - see. fig. 2).

② Economic dimension

In ten years, between 1979 and 1989, maintenance costs fell by 25% for spaces with marked horticultural vocation (class 1) and those with simple horticultural vocation (class 2) thanks to a mechanisation effort, and from 60 to 65% for the extensive green space and those of a rustic vocation (classes 4 and 5), thanks to differentiated management. The economical aspect is more noticeable for these last types (fig.1).

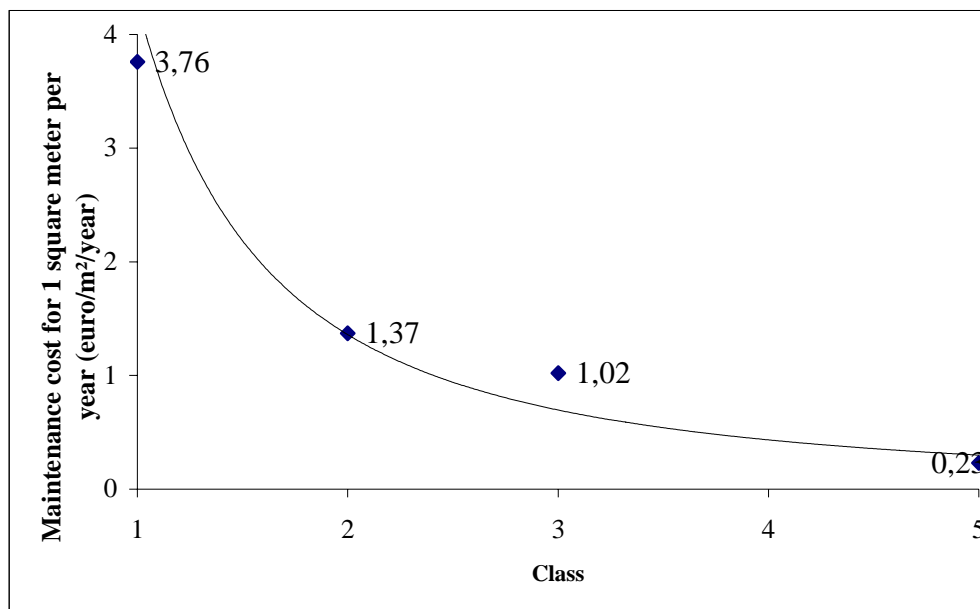


Figure 4: The average square meter maintenance cost per year – Tendency (source CERTU, 2001)

Personnel productivity is a relevant indicator to measure the profits released by a differentiated management compared to horticultural green space management. It passed from a ratio of 1.01 ha/employee/year (386 employees - taking all categories together - for 393 ha) in 1977 to 2.06 ha/employee/year (378 people for 780 ha) in 1997.

Differentiated management proves to be a partial response to the economic problems of the cities (reduction in manpower and credits).

③ Social dimension

Taking into account social request related to park and historical gardens attendance as well as aesthetic and cultural links which make the charm of parks and gardens in the downtown area of Rennes.

- Recreation: the possibility of practising sports, recreational activities in open air, relaxation activities in green space close to one's residence (parks, gardens, public gardens, sports field,

etc.), to be in permanent contact with diversified natural spaces (lawns, meadows, forests, etc.) take part in the improvement of inhabitants life.

- Education, training: the presence of nature in the city familiarizes young people with nature. School camps are organized, on site practical work via school. The children become aware of the stake, which will make them more responsible when they reach adulthood.

Some people have adopted differentiated management in their own private gardens. They increased the range of shrubs and decorative plants, "copying" the principles of design and in "imitating" vegetal compositions developed, here and there, by the city of Rennes.

④ Governance

See below "transparency of decision making process"

2. Barriers for the tool implementation

Two main barriers to a good green space differentiated management are as follows:

- The inhabitants, at least in France, remain attached to a model dominating of structured and ordered garden. This is why the installation of a differentiated management must be progressive, graduated, to proceed by small successive steps, to take into account the social context and surrounding urban fabric.
- Green space is an urban equipment of general interest. It has social, cultural, ecological, and landscape functions. Differentiated management implies a minimum of support from the inhabitants. This implies information and dialogue which have to be unceasingly renewed with residents, users, associations, teams of gardeners and local councillors.

C. Influence of the tool on the decision-making process

1. Description of the decision-making process/procedures

Workgroups enable coordination and transversality between technical services at a planification level as well as at a zone planning / green landscaping level.

2. Tool in decision-making process

Tools used for green space management allow a definition of task priorities (e.g mowing frequency), in order to insure coherence as far as the space differentiated management is concerned.

Benchmark: Rennes was one of the first French cities to implement, from 1966, a differentiated conception for the management of its green space, inspired by experiments carried out by some cities of Northern Europe (Germany, Netherlands, Scandinavian countries...). The benchmark used has been qualitative and not really quantitative (comparison of results) because it depends highly of the city context.

The experience of Rennes has been used also as an example for other cities in France.

3. Transparency of decision-making process

The public: public information about differentiated management implementation has been done through various means (municipal newspaper, radio programs, exhibitions, open days, guided tours, information signs, etc.). Dialogue has been organized using public meetings, investigations, discussions with citizens and associations. It was necessary to inform population about the park policy of the municipality.

There is no specific method that has been created to take the social demand (in regard with green spaces) into account. Standard methods have been used as it is mentioned above. Even if the garden service of Rennes municipality has tried to improve the consultation (it has tried to meet people in their residence but it is a very fastidious work) it is still difficult to mobilize all the green space users. Project holders expressed the need of more efficient tool concerning governance: “How can we motivate population to take part of the consultations? Is there simple solutions to make inhabitants participate?”

The personnel: Gardener's information and training are of primary importance for the success of differentiated management (professional practices and habits modification, acquisition of a good knowledge of biological balances, etc). The publicity campaigns were carried out using an audio-visual set up, guided tours, on-site meetings. Thus the personnel have maintained a regular assessment of the carried out tasks and of green space evolution.

D. Expert assessment/analysis/comment of the tool effectiveness

1. Assessment by tool users

There is a need of improvement, especially for the computer tools. This is planned, and it should take about two years to update all the data.

Users express also the need of improvement concerning public participation procedures (see above).

2. Reviewer's assessment

Green space service has become aware of their need of tools like indicators and monitoring, allowing the assessment of the green heritage sustainability. They need some help to manage the governance dimension. However they communicate a lot with other services, and they take into account their needs, which is not defined in any formal and institutional paper. It seems that the project continuity, ensured by the lastingness of the people in the services, is the key of this success.

This action does not have a strong irreversibility. Indeed the choice of implementing a differentiated management will have no irreparable effect if in the future Rennes municipality decides to change its greenspace management. It is a solution that lets future generations to make its own choice.

E. Additional information on the case study available

Websites

<http://www.ville-rennes.fr/>

References concerning the case but also the key words or problem (papers, articles, reports, laws, etc.)

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	<p>AIVF, 1994, p. 141-144.</p> <p>LE RUDULIER (Jean), <i>Présentation de l'expérience de la ville de Rennes</i>, Actes du colloque européen : « Vers la gestion différenciée des espaces verts », CNFPT, AIVF, 1994, p. 61-66.</p> <p>PEPIN (Denis), LEMAIRE (Christine) et collaborateurs, <i>Le code vert : pour des espaces verts plus naturels dans l'agglomération rennaise</i>, District de Rennes, AUDIAR, 1995, 52 p.</p> <p>SCHMIDT (Horst), <i>Bilan économique de la gestion différenciée</i>, Actes du colloque européen : « Vers la gestion différenciée des espaces verts », CNFPT, AIVF, 1994, p. 162-166.</p> <p>SCHNEIDER (Pierre) et LE BOZEC (André), <i>La production des déchets végétaux des espaces verts publics. Résultats d'une enquête nationale auprès des villes françaises</i>, Editions CEMAGREF, groupement de Rennes, 1995, 112 p.</p>
Other sources (Interviews, conferences, discussions, etc.)	
Contact details for further information	<p>For further information, please contact:</p> <p>Pierre LHOUMEAU, Head of the "garden and green spaces department" of Rennes municipality. 5, bd de la Duchesse Anne 35000 Rennes - France Telephone: +33 2.99.28.56.62 E-Mail: jardins@ville-rennes.fr</p>