



NOISIEL PARK

Assessing returns on landscape management



Introduction

Noisiel Park provides a 90 hectare green lung at the heart of Noisiel, one of the main town centres of Marne-la-Vallée, the New Town located on the East side of Paris, France, that is also home to Eurodisney. The park is managed by the local authority, the SAN du Val Maubuée, and freely accessible to the public.

Whilst this major urban green space provides a quality setting for the local economy and attracts many users, including local residents, visitors as well as a rich wildlife, none of these benefits have an obvious 'price' or 'value'. In a context where investment decisions are evermore scrutinised for quantifiable economic returns, how can a local authority such as the SAN du Val Maubuée justify the continued expenditure required to maintain and develop this green asset?

As part of its Interreg-funded *Euroscapes* work programme to develop a borough-wide landscape management plan, the SAN du Val Maubuée thought to apply economic valuation methods to assess the range of services delivered by Noisiel Park. The goal was to help compare costs and benefits associated with the park, thus providing additional information to help inform funding and landscape management decisions.

To conduct this assessment, the SAN du Val Maubuée used the *Green Infrastructure Valuation Toolkit* (the toolkit). Developed in the UK, the toolkit provides a flexible framework for identifying and assessing the potential economic and wider returns from investment in natural assets and landscape improvements. Its application to Noisiel Park estimated the direct and indirect economic impact from this landscape asset to be worth £11 million at present value.

Green infrastructure valuation toolkit

The *Green Infrastructure Valuation Toolkit* helps estimate the benefits of green infrastructure across 11 categories:

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| 1. Climate change adaptation and mitigation | 7. Labour productivity |
| 2. Water management | 8. Tourism |
| 3. Quality of place and communities | 9. Recreation and leisure |
| 4. Health and wellbeing | 10. Biodiversity |
| 5. Property values | 11. Land products |
| 6. Investment | |

This framework is not perfect – for example, some areas of benefits such as transport are yet to be incorporated – but it provides a good starting point and has been tested widely.

A set of tools has been developed within each of the 11 categories to look at how the range of green infrastructure benefits deriving from a landscape asset or investment can be valued:

- In monetary terms - applying economic valuation techniques where possible to scope out potential economic impacts (i.e.: those directly affecting GVA) and assess wider economics benefits (i.e.: value of non-market goods/services).
- Quantitatively – for example with reference to number of jobs or visitors, amount of air pollution removed, temperature impact, etc.
- Qualitatively – referencing case studies or important research where there appears to be a link between green infrastructure and economic, societal or environmental benefits, but where the scientific basis for quantification and/or monetisation is not yet sufficiently robust.

To ensure results are easy to interpret and compare, monetised findings are expressed in terms of Net Present Value (NPV). This captures the sum of the present and discounted future flows of net benefits of a particular asset over its entire lifetime. A discount rate is used to reduce future benefits and costs to their present time equivalent.

The toolkit was released as a prototype in February 2011 under a Creative Commons license and can be accessed for free at www.bit.ly/givaluationtoolkit. This link also provides more information on the toolkit's development and contact details to join the network of users collaborating to improve the current prototype.

Noisiel Park features and beneficiaries

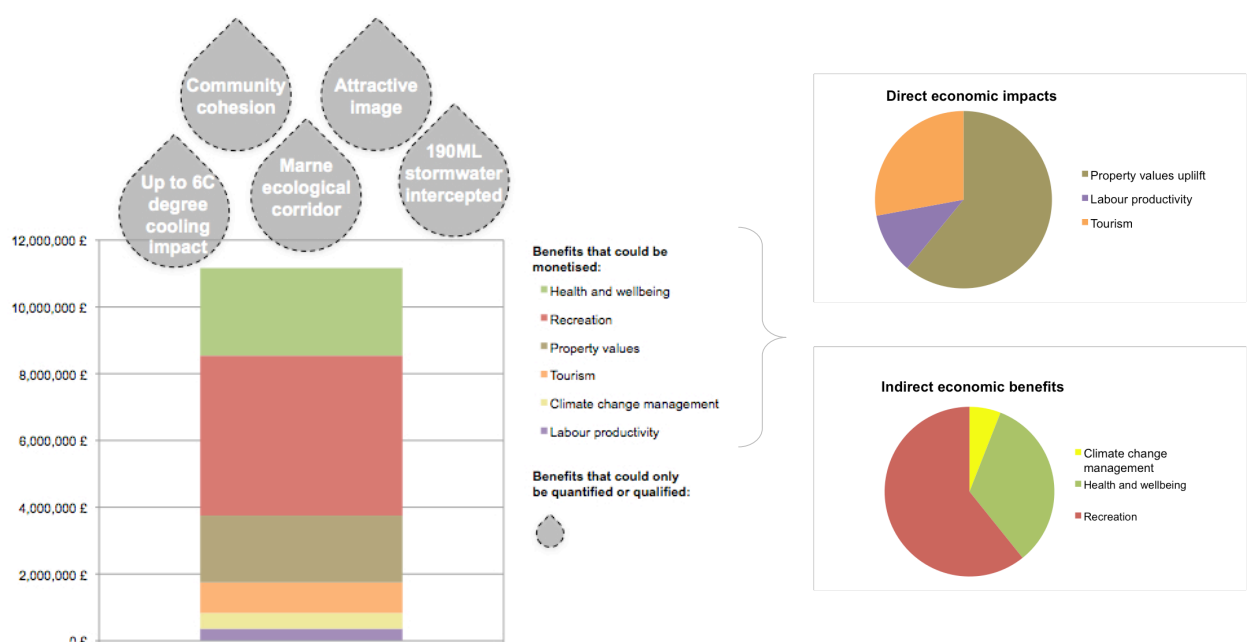
Located on the banks of the river Marne, Noisiel Park comprises a series of large meadows (40ha) and woodlands (50ha), framing large view on the distant surrounding landscape. The park also features 15 kilometres of internal paths open to pedestrians and cyclists. The park was initially developed in the mid 18th century as the estate of Noisiel Castle. It was remodelled in the 19th century with the creation on the estate of Meunier Chocolate factory, now a landmarked building. The estate's grounds were transferred in public ownership and opened to the public in the 1970s, when the New Town of Marne-la-Vallée was being developed. The park is now part of a wider green network including the Vaires Pond, on the opposite side of the River Marne and a regional hiking/cycling network.

Noisiel Park's beneficiaries include local residents living nearby (2,100 people within 300 meters, and 4,500 people within 1 200 meters) as well as shops and businesses located in the surroundings (20 within 300 meters and 70 within 1 200 meters).

The park is also estimated to attract approximately 150,000 users every year. During weekends and school holidays, a significant proportion of visitors come from the neighbouring departments of Seine-Saint-Denis and Val-de-Marne, making of Noisiel a destination for local tourism.

Noisiel Park assessment results

Using the *Green Infrastructure Valuation Toolkit* to assess the benefits generated by Noisiel Park has highlighted monetisable returns in six areas: health, recreation, property values, tourism, climate change adaptation and mitigation, and labour productivity. Some of these monetisable returns represent direct contributions to the local economy and Noisiel's gross value added (property values uplift, tourism impacts, increase in labour productivity) while others (Climate change management, health, recreation) are indirect economic benefits.



Climate change adaptation and mitigation

Noisiel Park's large expanses of grasslands and woodlands have a noticeable impact on urban temperatures. In summer, the Park's cooling effect can reach up to six Celsius degrees, providing a major source of comfort and liveability for the city.

In addition, benefits from the value of stored carbon in trees (110 tons of carbon dioxide per year) are calculated at £470,000 at present value. This figure does not account for the carbon stored and sequestered in other forms of vegetation than tree or in soils.

Water management

The Park's permeable landscape intercepts nearly 190 Mega litres of rainfall per year. However, since Noisiel is almost entirely serviced by separate sewer systems, this storm water volume reduction does not affect local sewer treatment plant costs and capacity. The impact on flood attenuation for the river Marne would require a more in-depth study than that permitted by the *Green Infrastructure Valuation Toolkit* to be assessed.

Quality of place and communities

The park's impact on local environmental quality is to a large degree already been described in relation to climate change adaptation, health, property values and investment. Despite of the absence of volunteer groups or regular community events associated with the park, its impact on social interactions is clearly demonstrated by the number of visitors who come to gather around a picnic, play ball and relax. However, quantifying, or placing a monetary value on this was not possible.

Health and wellbeing

The park's 15-kilometre path network fosters walking and cycling. Evidence shows that regular practice of these gentle physical activities helps reduce the mortality rate of the population concerned. Using the statistical value of life applied by the UK Government Department for Transport, this impact can be estimated at £263,000 per year, or £2.3 million at present value. This estimate does not reflect the savings in health spending: there is evidence that people who regularly use a green space are less subject to cardiovascular disease or depression.

The park's vegetation, and especially its trees, also contributes to improve air quality. Each year, approximately 360kg of carbon monoxide, 1.3 tons of sulphur dioxide, 1.2 tons of nitrogen dioxide, 3 tons of particulate matter (PM10) and 3.2 tons of ozone are absorbed. If alternative air pollution removal measures had to be implemented to achieve comparable results, costs would amount to approximately £350,000 at present value. This monetization of the park's impact on air pollution removal does not reflect the associated health benefits and savings associated with the likely reduction of respiratory illnesses.

Property values

Well laid out and kept parks and green spaces are proven to enhance property values in the neighbourhood. Work undertaken by Dunse for the Royal Institution of Chartered Surveyors (RICS) used Aberdeen as a case study area. It found that the overall premium for a property next to a park, relative to a similar property 450 metres away, is positive across all house types. The price premium ranges between 0.44 per cent and 19.97 per cent depending on house and park type. Given suburban nature of Noisiel's Housing Market and the relatively high level of green provisions in the area, it was estimated that the uplift generated by the park would range between 3% and 6% consistent with the mean values found in the Aberdeen study in relation to amenity green space and local parks. The total value of this was estimated to be between £1.5 and £3 million at present value. More detailed market analysis would be needed to make a more precise estimate.

Investment

There is anecdotal and qualitative evidence that high environmental quality is an important location factor to some businesses. Investing in green infrastructure can both improve the quality and the image of an area or a specific site, leading to new investment and employment. Noisiel Park is unarguably an important positive contributor to Noisiel's reputation as green suburb. A more detailed analysis than that permitted by the Green

Infrastructure Valuation Toolkit is required to quantify the magnitude of this impact on business investment decisions.

Labour productivity

As part of a wider network of green links and connections, Noisiel Park allows a proportion of the local population to reach their work place by foot or by bike. Such commuting methods are proven to help reduce risks of physical or mental health issues that contribute to absenteeism from work. 2003 Research from the World Health Organisation (WHO) in the US showed that physical activity programmes involving 30 minutes of exercise a day reduced short-term sick leave by between 6 and 32 percent. The benefit for Noisiel's local economy is worth £17,000 to £93,000 a year. Based on the mean value, this amounts to £365,000 at present value.

Tourism

Noisiel Park contributes to Noisiel's attractiveness as a destination for local tourism, combining attractive scenery (the river Marne), heritage (Meunier's landmark chocolate factory is immediately adjacent to the park) and wildlife. Around 5,000 people a year come from the surrounding municipalities come to enjoy the Park's country feel for an afternoon or or the whole day, or as a part of a combined visit to the chocolate factory. There is anecdotal evidence that the park also helps sustain business tourism: the Hotel des Deux Parcs situated next to one of the park's main entrance hosts regular conference and events, using its quality setting as a prominent draw. Visitors' expenditures are a contribution to the local economy and help support jobs in the service sector. These benefits are estimated to be worth approximately £100,000 a year, or £820,000 at present value.

Recreation and leisure

An estimated 130,000 local residents use Noisiel Park for recreation every year. Surveys conducted with users of comparable urban parks in the metropolitan area of Boston in the United States have concluded an average £0.96 willingness to pay per visit - the amount people say they would be willing to pay if they had to in order to continue being able to use parks for recreation. Using this average willingness to pay as a reference, the value of Noisiel Park's recreation benefits can be estimated at £62,000 per year, or £4.8 million at present value.

Biodiversity

The park is a heaven for ordinary nature as well as for protected and endangered species. It also plays an important role to ensure habitat connectivity along the river Marne ecological corridor. Data and tools currently available do not allow to easily quantify or assign a monetary value to these biodiversity benefits.

Land Products

The park does not include an orchard or community fruit food growing space. Green waste generated is recycled, and wood cuttings donated to members of the general public. However, the volumes involved could not be easily assessed.