EU Business and Biodiversity Platform

Workstream 2: Innovation for Biodiversity and Business

Temporary Nature innovation from Tractebel Engineering (ENGIE) – ANALYSIS OF THE OPPORTUNITY

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1 BASIC INFORMATION

1.1 Company and contact points

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1.2 Summary of the opportunity

TN is a promising innovation offering significant potential benefit to a wide range of businesses owning developable land, and offering substantial benefit to biodiversity as well as consequent gains in ecosystem services. The benefit could extend to an area of 10,000 km² or more across the EU. Legal and public perception constraints are tractable.

1.3 Description of the innovation

Development means that, in many parts of Europe, open green spaces become scarce. The dynamics of urban, infrastructural and industrial development result in a constant cycle of construction and demolition, with large areas often being left undeveloped for years. These undeveloped sites have, temporarily, no socio-economic purpose, and their maintenance costs money. The concept of ‘Temporary Nature’ (TN) represents an innovative approach to these sites. TN means that, in a given area, outside of a green zoning category, and pending realisation of the land use defined by its zoning category, the development of nature is temporarily allowed, and can later be removed, with maximum legal certainty for the landowner or project developer. TN can range from zero intervention on the site to active management for specific habitats and species (paid for by the developer).

Public private partnership

TN involves partnerships between the private and public sectors. The participation of governments/public authorities is of great importance to the existence and development of TN. First, public authorities should provide the framework (guidance, supervision, facilitation, approval of projects, etc.) for the realisation of all TN projects. Second, regional and local authorities play an important role in communicating the concept. By encouraging TN, authorities can give an extra dimension to their responsibility for promoting a green living environment. Third, public-private partnerships can enable the accessibility of certain areas for the public, allowing to link recreational, educational and scientific aspects to the TN project. The ‘Green Deal Temporary Nature’ in the Netherlands explicitly refers to ‘public-private partnerships’.
Figure 1 Temporary Nature © Tractebel Engineering (ENGIE) 2015

Figure 2 Temporary Nature © Tractebel Engineering (ENGIE) 2015
2 SCALE OF THE POTENTIAL OPPORTUNITY FOR BUSINESS

2.1 Estimate of the potential market size in Europe to 2020 and beyond

The innovation has potential to benefit all businesses owning developable land, pending development. The extent of such land in the EU is difficult to assess. The company cites 17000 ha of such land in Belgium. England has 66000 ha of ‘previously developed land that has potential for redevelopment’¹ and a 2005 report gave a figure of 128000 ha for brownfield² sites in Germany.³ While definitions of such land vary from country to country, these figures suggest that, across the EU as a whole, the area of such land runs from several hundred thousand to one million or more hectares.

Tractebel Engineering (ENGIE) estimates that TN offers reduced management costs of €2000/ha. Applied to 1 m ha, the savings to business across the EU would amount to €2 billion/year. The benefit likely to arise from reduced risk of development being delayed or blocked by the establishment of a protected species on the site could be even higher than this; a single blocked industrial development could imply the loss of tens if not hundreds of millions of €.

2.2 Costs and availability of substitutes

TN is an alternative to the current approach, which is either to do nothing (with the risk that protected species may become established, blocking or delaying eventual site development) or actively managing the site to suppress the establishment of nature in general, and prevent the establishment of protected species in particular. The do nothing approach can carry significant costs if nature spontaneously establishes itself on the site, should this then result in delays in, or blocking of, subsequent development. This can be the case where, for example, species protected under EU or national legislation become established. Obtaining permission to develop the site can then require costly changes to project design to avoid and/or minimize impacts on the species, and/or to restore the species on site following development, and/or to translocate individual animals and/or implement compensation schemes. For example, in England, developers have experienced costs of several thousand pounds for each great crested newt Triturus cristatus (a species protected under the Habitats Directive) found on a development site and costs running to several £100,000s where translocation is required.⁴ Active management of sites to prevent establishment of nature can carry significant costs in terms of recurrent management interventions, equipment (e.g. fencing, mowing/cutting equipment) and materials (e.g. herbicide) costs.

2.3 Contribution to tackling risks facing business (including policy risks)

TN tackles in particular the policy-related risk that species and/or habitats that are protected under EU or national legislation become established on undeveloped sites which are awaiting development, and that the presence of the species/habitat then causes a delay in, or blocks, subsequent development and/or results in costly measures to avoid or minimize impacts on the species/habitat and/or or provide compensation for impacts. There may also be cases where the establishment of nature on a site does not involve species/habitats that are protected by (European or national) law, but where this nature attracts local community

¹ http://www.sustainablebuild.co.uk/brownfieldsites.html
² The term ‘brownfield’ is used in this paper to describe land previously used for industrial purposes or some commercial uses. Such land may have been contaminated with hazardous waste or pollution.
or other stakeholder interest which then results in opposition to, and consequent delays in, subsequent development, together with added costs, for example for survey, enquiry and/or litigation.

2.4 Financial viability of the opportunity (source of profit, risk/reward balance)

The financial viability of TN relates to the relative costs of TN compared with the existing alternatives, and to the relative risks/rewards associated with TN compared with the risks/rewards associated with the alternatives.

TN itself may imply a do nothing approach (passively allowing establishment of nature) or active management (to support establishment of nature). The alternatives are again a do nothing approach, or active management to suppress the establishment of nature on a site.

Assuming that TN will in most cases imply a do nothing approach, whereas the current alternative is in most cases active management to suppress nature, and assuming an average cost of €2000/ha for this management for an area of 1 m hectares across the EU, then the saving to business from management costs avoided would be in the region of €2 billion per year.

In terms of risk/reward balance, the principle risk in adopting a TN approach relates to the risk that the public, civic groups and/or government oppose subsequent development of the site. This risk can be avoided by up-front legal certainty that where TN is applied, the site owner has the right to subsequently develop the site on the basis of its condition at the moment prior to application of TN. Even when the developer has this legal certainty, the public and/or civic groups may seek to delay or block development when particular species and/or habitats become established, particularly where these have a local amenity value or otherwise have high societal values attached to them. Communication about the temporary nature project when starting it up and during the whole life span of the project is essential to tackle this risk. Conversely, a developer’s commitment to TN may offer reputational reward for the developer (credit for environmental responsibility), which may contribute to sustaining or extending the developer’s license to operate or otherwise translate in to bottom line benefits (e.g. through enhanced sales).

The risk/reward balance of the alternatives is likely to be inclined more towards risk and less towards reward. The do nothing alternative carries heightened risk that nature will become established on a site, with the potential to delay and/or block subsequent development, with significant associated costs. In such circumstances, the do nothing alternative also carries risks of reputational damage, as local stakeholders, civic groups or government may contest the removal of nature from the site. Such reputational damage may curtail license to operate and/or have a negative impact on sales. The do nothing alternative also offers little in the way of reward.

The alternative of active management to suppress nature carries lower risk. By suppressing nature, it removes the risk that the spontaneous establishment of nature on the site delays or blocks development. However, it offers little in the way of reward. While low-key recurrent management to suppress nature (e.g. application of herbicides) is unlikely to attract negative press, it does nothing to burnish a company’s environmental reputation.

Assuming that active management to suppress nature is the current norm, the introduction of TN will elevate risk for the developer unless there is legal certainty and broad stakeholder understanding of and support for the approach. Given these conditions, TN should neither elevate nor reduce risk compared to active management to suppress nature, will reduce risk compared to the current do nothing approach, and will deliver enhanced reputational gains in relation to both existing alternatives.
2.5 Potential demand underpinning the opportunity (number of beneficiaries and values to them)

The potential demand underpinning this opportunity relates, as already indicated to all undeveloped sites, whether residential, industrial or related to infrastructure, pending development. As calculated above, the total area of such sites across the EU at any one moment is likely to be of the order of 1 m hectares or more. This obviously encompasses a very large range of potential beneficiaries, from large corporates to small SMEs, in a wide range of sectors including housing, retail, wholesale, various industries, and transport and energy infrastructure. The value to each beneficiary will be proportionate to the size of their landholdings, current management costs incurred to suppress nature, and the risk (at each landholding) that the spontaneous establishment of nature might lead to the delay or blocking of subsequent development.
3 SCALE OF REDUCED RISKS OR POTENTIAL GAINS TO NATURE

3.1 Scale (size and trend) of the externalities involved and urgency of response required

The externalities in this case are the costs to nature of not applying TN. They are externalities in the sense that the market does not capture the costs to nature. The size of these externalities is clearly considerable if one considers the area of undeveloped sites pending development across the EU, which we have estimated above to be in the order of 1 m ha (10,000 km²) or more at any one moment. Assuming that most of this land area is currently managed to suppress nature (to avoid/reduce risks associated with the spontaneous establishment of protected species/habitats), this means that there is a loss of 10,000 km² of land area to nature. In other words, it is not possible for the diversity and abundance of species to increase on this land area, nor for the area, distinctiveness and condition of habitats to increase and improve. If we assume that, on average, such sites await development for a period of 5 years, then the loss to nature amounts to a loss of 5 years of natural colonization and establishment on each of these 1 m ha, and all that this implies in terms of lost species diversity, lost wildlife abundance and lost ecosystem services. The loss will largely relate to species with high facility for rapid establishment and is likely to benefit more common and widespread species than more rare specialists, though some rare species may also benefit.5

The trend in the scale of these externality costs to nature is difficult to assess but, in the absence of the TN innovation, is likely to be relatively stable, with new undeveloped sites emerging at around the same rate that old undeveloped sites are developed. However, increasing emphasis in many countries on the use of brownfield (as opposed to greenfield) sites for development may mean that there is a decreasing trend in brownfield area and therefore in the related externality costs to nature.

3.2 Feasibility of managing the biodiversity and/or ecosystem services and speed and predictability with which they respond to management

TN can involve either a ‘do nothing’ approach (simply allowing nature to re-establish itself on a site) or an active management approach (assisting the re-establishment of nature). The speed and predictability of the establishment of nature on a site, and of the development of a range of consequent ecosystem services, will vary greatly from site to site, depending on the biophysical conditions of the site, the ability of species to disperse to the site, and the range of anthropogenic pressures on the site that may constrain the establishment of nature. Active management can both accelerate the establishment of nature, and direct this establishment and ecological succession in specific directions, for example, towards wetland, grassland, scrubland or woodland. There is considerable accumulated knowledge on restoration ecology, including in relation to brownfield sites, which could be brought to bear for active management on TN.6

3.3 Assessment of scale of benefits to be realised - estimated in suitable metrics (monetary, quantitative, qualitative)

The scale of the benefits that might be realised for nature is directly related to the scale of the externalities outlined above. If TN is instituted, and assuming once more that each

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5 e.g. Natterjack Toad *Epidalea calamita* is a relatively rare specialist from open, sparsely vegetated habitats, which are at an early stage of succession; this is a species that can benefit from temporary nature in, e.g., harbours or sand extraction sites.

An undeveloped site is on average available for TN for a period of 5 years, then the gain for nature would amount to 10,000+ km² of land, each hectare of which enriched by nature that has had 5 years to colonize and establish itself. It is difficult to put a monetary value to this nature.

For a certain period TN can deliver ecosystem services to society. Even these temporary ecosystems can provide services that, inter alia: moderate weather extremes and their impacts; mitigate drought and floods; disperse seeds; protect people from the sun; cycle and move nutrients; control agricultural pests; maintain and increase biodiversity; generate and preserve soils and renew their fertility; contribute to climate stability; purify the air and water; regulate disease carrying organisms; pollinate crops and natural vegetation.

Aside from ecosystem services for society in general, the presence of (temporary) nature can have extra benefits for the landowner itself, e.g. in terms of water buffering, providing shade, reducing wind, improving local air quality. These can also save costs for the business manager, e.g. air conditioning costs, costs related to sickness of employees, costs related to local flooding after intensive rain.
4 EASE OF IMPLEMENTATION AND PRACTICAL OPPORTUNITIES FOR ENABLING GROWTH OF THE INNOVATION

4.1 Scalability and transferability of good practice
In Flanders region (Belgium) alone, approximately 17,000 ha of industrial sites remain undeveloped. With annual management costs (e.g. for mowing, spraying to impede development of natural areas that might attract protected species) of c. €2000/ha, TN could save industry €34 m/year (of which part could be used for management planning, nature management, communication, etc. for the areas involved).

4.2 Opportunity for public sector leveraging of private sector activity
The EC and member state governments can leverage private sector engagement in TN by providing the necessary legal certainty that where companies allow nature to temporarily establish itself on undeveloped sites, these companies will be permitted to remove any resulting gains to nature when development starts.

4.3 Proximity to any policy window offering opportunity for change
The current fitness check on the Nature Directives may offer a policy window to introduce a legal framework for TN at the EU level.

4.4 Presence of leaders or innovators and/or 3rd party brokers and intermediaries (can providers and beneficiaries be connected?)
Tractebel Engineering (ENGIE) are the innovators for TN. Where companies wish to provide active land management in support of TN, they can turn to the ecological consulting community which has growing experience in ecological restoration.

4.5 Feasibility of overcoming any barriers
Nature protection laws (particularly EU Habitats and Bird Directives) may present a barrier. Site protection will generally not cause a problem, because potential TN sites are usually outside Natura 2000 areas. Species laws can have a bearing on TN but these issues can be resolved, as has been demonstrated in the Netherlands and in Belgium, where the creation and removal of TN is regarded as a single act with permission for eventual removal being granted in advance of creation (in NL and Belgium, this did not require new legislation). The European Commission has recently expressed its opinion in favour of the concept of TN. Formal EU recognition of the validity of the TN approach would give added legal certainty and encourage wide uptake of TN in other member states. Pilot projects (in NL, BE) can help build awareness of the concept and help build good practice. Good public communication is important to avoid negative publicity when TN is eventually removed. Environmental organisations can help in this.
5 UNDERPINNING ECONOMIC CASE FOR THE INNOVATION

5.1 Existing cultural, regulatory or market management structures, including direction of travel

There is a general trend towards engagement of the private sector in environmental responsibility and in financing the restoration of nature. There is also an increasing political willingness for more flexible interpretation of the nature directives both to deliver better outcomes for nature and to reduce unnecessary constraints on business. These trends are generally supportive of TN as an innovation.

5.2 Underpinning rationale for the specific business model linked to market failures (public goods, information failures etc.)

The underpinning rationale for the TN innovation is that inflexible implementation of the current regulatory framework, is incentivizing companies to actively suppress nature on undeveloped sites, and that significant benefits will accrue both to nature and to businesses if TN is permitted, given up-front legal certainty for the developer that any gains to nature may be removed when development subsequently commences.

5.3 The economic case for actions to enable the business opportunities

There is a good economic case for actions to enable the business opportunities that would arise from the TN innovation, relating to: (a) the benefit that would accrue to business in terms of avoided land management costs and reduced risks; (b) the benefits that would accrue to nature in terms of species diversity and abundance, habitat area, condition and distinctiveness, and the consequent economic benefit likely to derive from consequent increases in ecosystem services (e.g. pollination, reduced flood risk, etc.).