



LAND STEWARDSHIP

Investing in The Natural, Social and Economic Capital of Industrial Land



Cover photo:

Northumberlandia is a unique piece of public art set in a 19-hectare community park.

The park's centerpiece is 'The Lady of the North', a human landform sculpture in female form. This £3 million project, privately funded by the Banks Group and the Blagdon Estate, was a 'restoration first' approach. This is taking an extra piece of land to create a new landscape for the community to enjoy while the mine is still operational. As such it provides a lasting legacy for the area. The Land Trust holds the site on a long term lease from the Estate and works with the local community to ensure that Northumberlandia provides social and health benefits locally, and as a tourist attraction, brings economic prosperity to the wider region. Management costs are principally funded from income earned on an endowment provided to the Trust by Banks.

Courtesy of The Land Trust, UK

For more information: www.northumberlandia.com and www.thelandtrust.org.uk

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Common Forum



NICOLE

Network for Industrially Co-ordinated Sustainable Land Management in Europe

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**“Land stewardship is key
in the transition towards
a Circular Economy”**

1 PREFACE by Common Forum and NICOLE

In 2015 the United Nations signed the Sustainable Development Goals. These global societal challenges comprise among others zero hunger, good health, clean water and sanitation, affordable and clean energy, climate action, liveable cities, responsible consumption and production and life on land. It's evident that land, and the use of soil and land services, are crucial to achieve these goals¹. The ambition is high and the time schedule is tight. 2030 is tomorrow!

The current way of production, use of resources, land and natural capital is not sustainable. Transitions in energy, mobility, circular economy, food production and city development are needed. This paradigm shift cries out for a change in mind set. We need to transform towards a restorative and circular economy, based on value creation and where public and private stakeholders cooperate to achieve public and private goals. Land restoration, land use and land management (land stewardship) are the key in this transform.

All these transitions make a strong appeal on land and its services. Therefore the already high pressure on land is expected to further increase. At this point the aspect of re-using brown-and/or grey-fields for industrial or commercial purpose instead of consuming precious natural or agricultural land plays an essential role. As land is mostly privately owned and services are often also used to achieve the SDGs, public-private cooperation is essential. Often solutions lay in tailor made arrangements,

based on a joint long term vision and commitment on area development, transparency and trust. Common Forum as a public network underlines the importance of sharing good experiences and joint knowledge development.

With this booklet we underline the need for inspiring examples and showcases in which land and soil functions are multi-functionally used.

At this point NICOLE (Network for Industrially Co-ordinated sustainable land management in Europe) comes into play, eager to share examples of sustainable practices. Within NICOLE we regularly ask ourselves questions like: "How can industry contribute even better to sustainable land management"? And: How to apply land stewardship in practice"? Given the many societal challenges facing us, the answer is not always simple or straightforward, and a challenge in itself. It requires regular discussions with local or regional authorities and other stakeholders. It's about converting the societal demands for industrial products and services to societal benefits in the broadest sense. After all we owe it to the communities that we operate. Giving something back to society and nature seems natural.

Our industrial members, supported by the service providers and the academic members, are committed to create value by connecting industrial land management to societal, ecological and economic challenges.

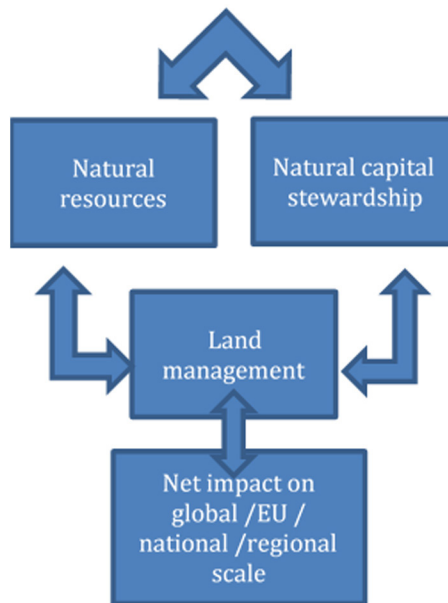


Figure 1.1 Source: INSPIRATION-H2020

Land Stewardship is still at an early stage in its development and there is more to it, than can be described in this booklet. 'This booklet is a first step to show how the concept of land stewardship can be helpful in the creation of an approach to sustainably use and protect our soils. Nicole and Common Forum acknowledge the added value of the concept of land and soil stewardship and also agree that there are points of discussion e.g. legal matters. Both want to explore how this concept may lead to new insights in soil policy. This exercise could lead to a joint position paper on land stewardship. The cases provide a promising start.

The cover photo is an illustrative example, showing that industrial sites, even when still operational, can bring social, ecological and economic benefits to the community. Surely they can do so after functional industrial use and site closure. However, this calls for proper land stewardship from the onset of site operations, with a strong focus on prevention.

We are happy that the Common Forum and NICOLE share the same aspirations on land stewardship and we decided to join forces to write this booklet. We trust that the examples in the booklet speak for themselves and will inspire other landowners to follow suit. For the benefit of their businesses, the environment, and the societies in which they operate.

This booklet aims to bring the circular economy within reach for land managers by introducing concepts of Land Stewardship. Visualizing the additional benefits in terms of natural and social capital is an important support during decision-making. As there is no acknowledged value scale for the valuation of natural and social capital of land, this booklet gives a brief explanation of the meaning of these dimensions for the value of land. Methodologies for expressing the economic value of land are only introduced as a reference.

Land Stewardship opens up a whole new 'land' of opportunities, examples of which are given in this booklet, thereby closing the circular loop.

Margot de Cleen,
Co Molenaar,
Chairs WG 'Soil as a Resource',
Common Forum

Lucia Buvé,
Umicore,
Chair of NICOLE



“In its broadest sense, Land Stewardship is the recognition of our collective responsibility to retain the quality and abundance of our land, air, water and biodiversity, and to manage this natural capital in a way that conserves all of its values..”

Canadian Centre for Land Stewardship www.landstewardship.org ²

2 LAND STEWARDSHIP, industrial land as a valuable resource

The land we work and live on is the best example of a circular, non-renewable resource. Soil is next to water one of the most reused resources on earth. With countless pressures on the land, there is an obvious restriction on the use of green fields, and the availability of “fresh” land is rapidly becoming scarce. The value land represents is therefore irreplaceable. It is a source of geo and ecosystem services contributing to private and public welfare; it supplies various resources, it is the basis for food production, energy supply, building and construction and production of drinking water, etc.

This chapter explains the scope of Land Stewardship and addresses some legal matters.

Scope

Land Stewardship (LS) has a wider scope than Sustainable Land Management (SLM)³ or Brownfield (BF) redevelopment. Where SLM focuses on the sustainable use, protection and management of land, LS also looks at the understanding of the natural and social values land represents, both at sites in transition/redevelopment as at sites in continued use. The land use cycle that was developed in the EU-project HOMBRE illustrates and offers a reference for the different phases of a site. Sustainable Remediation⁴ and Redevelopment mainly apply to land in (anticipated) transition, whereas Land Stewardship covers the full cycle. The ultimate ambition of HOMBRE is to work towards a world with zero Brownfields. Instead Brownfields should become areas of opportunities that deliver useful services for society, instead of derelict areas that are considered useless.

Long-term horizon

LS contributes to health and welfare, and the conservation or increase of land value. It is part of the circular economy

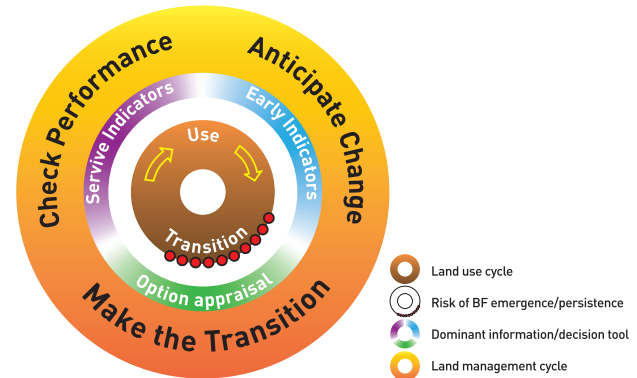


Figure 2.1 HOMBRE land use cycle



Figure 2.2 Land Stewardship stakeholder model [Source: EC.Europe.EU; Caring together for nature]

and has a long-term horizon: LS means caring for long-term usability and health of the land for future generations and long-term economic stability. And above all, within the contours of LS, the management of land should be socially equitable, environmentally sustainable and economically beneficial.

Looking beyond the fences

LS of industrial sites has a broad scope. It means looking beyond the company's operations and beyond the fences, at the wider environment and society. A land manager who is aware of the social and natural capital a site represents, possesses a guiding principle for operating in a friendly way towards the environment in its broadest sense. It enables him to envision the additional benefits of investing in the land. For industrially used areas this includes managing and monitoring contaminated land to ensure the land can be effectively and efficiently used, improved and/or returned to another long-term use. Unused or underused industrial land can be used for example for societal benefits, such as storing water, storing energy, or production of biomass, or contributing to biodiversity goals. This also entails a continued effort to prevent new contamination.

Multi-actor approach

LS is a stakeholder-inclusive process (neighbors, authorities, NGO's, Media, Community, Bank, Insurance companies,...). Industrial companies need to communicate 'over the fence', create interactions with the surrounding community, and engage stakeholders in order to assess the potential of the site in the local and regional environment. Only this can lead to a full picture of the natural and societal value of a site, and the possibility to contribute to societal challenges and to help improve the natural habitat we live in.

Legal matters

Is Land Stewardship (LS) about awareness and common sense and not about liability or accountability?

Liability issues and accountability differ between countries. In several countries LS is applied as a policy instrument. The definition of LS provided by the 'Canadian Centre for Land Stewardship'² uses the description of "our collective responsibility"; the words 'liability' or 'accountability' were not chosen.

To achieve public goals, e.g. societal challenges with private means, land management is the key. LS is an instrument to successfully implement land management. As the instrument of LS is still under development and in order to stimulate its use, LS should in this phase be applied on a voluntary basis. It can be considered as an attitude that cannot be taken into account when evaluating a liability issue; it should be considered next and beyond it. In most Civil Law countries, the guardian of a good, such as a piece of land, can be held liable when the good contains a default that causes damage or if someone is harmed through soil. In most cases the law will consider whether a person has the duty or the obligation to guard that piece of land. The operator of a factory has the obvious status of guardian. According to old Roman legal tradition, every judge will consider the behavior of the guardian in a liability case, comparing it with a normal precautionous reasonable person, the so-called 'bonus pater familias'.

LS is not considered by a judge as it is 'soft law', not entailing any liability. Moreover, as is the case for sustainable development, LS is always changing and adapting to specific situations.



Therefore LS is unlikely to obtain an over-all legal definition. The Catalan Civil Code (2017) regulates LS contracts for the first time in Europe. It recognizes that a 'land stewardship contract' can be signed and that Public Private Partnerships, even the general conditions for a public procurement, could give LS the space it needs to move on. The scheme from the case study, provided by the Catalan Xarxa de Custodia del Territori LS network, and drafted with the Biodiversity Foundation, Spanish and Catalan competent authorities, sets a good example.

LS will not just be the attitude of one person to another, which is why the aforementioned definition uses the adjective 'collective' (responsibility). It is about collective awareness or in legal terms 'an easement' for the sake of the Globe, interfering with strict ownership.

In due time, the legal definition of 'Land', linked with duties and obligations, will surely become larger, thereby adopting the more holistic approach of Land Stewardship. As such 'soft law' will be created, allowing LS to evolve with, next and beyond the strict obligations of the law. At the same time, legal liability of the companies who nowadays embrace and implement the concept of LS, should neither increase or decrease due to the pro-active behaviour of these companies.

“Xarxa de Custòdia del Territori” A network for the land stewardship in Catalonia



The Xarxa de Custòdia del Territori (XCT) is a non-profit organization working to foster land stewardship as a conservation strategy for the natural, cultural and landscape resources and values of Catalonia and its environment.

Established in 2003, the XCT is a second-level organization made up of many different member organizations: over 150 associations, foundations, city councils, enterprises and persons contribute their views and work together to further develop land stewardship. Land stewardship materializes in voluntary agreements between the owners and managers of land, and land stewardship entities in order to maintain and recover the natural environment and landscape. Land trusts are public or private non-profit organizations that take an active part in preserving land and its values through mechanisms making land stewardship easier.

A main achievement:

The land stewardship contract has been recognized by the Catalan Civil Code (2017).

Networking:

The philosophy and methodology of the XCT generate benefits for each of its members and for the organization as a whole. At present there are approximately 765 LS agreements in Catalonia, covering 40,000 Ha (1.25% of the territory of Catalonia).

Case and photo kindly provided by MediTerra, Spain on behalf of Xarxa de Custòdia del Territori
<http://www.xct.cat/ca/index.html>



**“Land Stewardship is of all times:
As long as there have been people,
they knew they had to care for their
land in order to survive”**

3 Stakeholder Involvement and decision-making

LS is a concept that looks at a site's life cycle in a broader holistic manner, thereby incorporating values for society at large.

This chapter shows that for successful LS it is critical to develop an understanding of the key stakeholders and their roles, and to define what opportunities should be included in decision-making, and in what way options should be appraised. For the appraisal process, many schemes from the sustainable remediation⁴ arena are available, incorporating consensus building on agreed indicators, and appraising or valuating techniques. Natural and social capital are additional elements for LS.

Pro-active stakeholder engagement

While traditional land management is typically led by decisions primarily driven by the site owner (according to regulation requirements), LS entails dialogue, collaboration and proactive stakeholder engagement, to be defined by specific planning considering site complexity, and expected community end goals.

Taking into account physical and time boundaries

An important aspect of optimizing land stewardship is to understand the natural system and the ecosystems services it does and could provide (the natural capital) to multiple stakeholders and to understand the drivers and interests. To see the current impacts (positive and negative) and the opportunities for change, it is important to consider the parcel of land being evaluated in the context of multiple spatial and time scales: the overall property, adjacent property owners, down gradient hydrology, the local landscape context (watershed and community), regional, and international/global context. But also short and long term goals, ambitions and gains.

Equally important, a range of synergy options should be

evaluated, possibly leading to mutual gains. Examples include ecological, operational, organizational, community, regulatory, partner, and financial aspects.

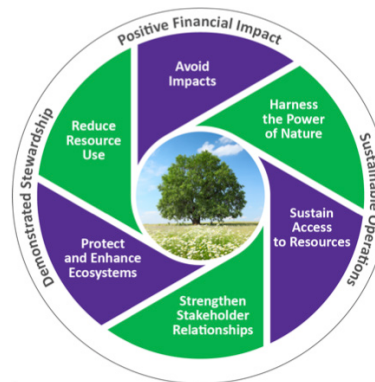


Figure 3.1. To maximize benefits, it is important to use a natural systems lens and consider the perspective of both the landowner and stakeholders. Source: Jacobs

In all cases, two lenses should be used, focusing on the landowner and the other stakeholders. The latter can often be missed, with potentially key needs of other stakeholders not being identified. Using a standardized set of checklists can help force the perspectives necessary to comprehensively understand the land stewardship options and opportunities.

Communication is key for effective partnership

Communication from land manager to public is a fundamental initial step (as presented in NICOLE's booklet "Communication on contaminated land")⁵. Open, multi-way conversation, and the ability to collect input from stakeholders (in form of surveys, brainstorming meetings, role plays, public debate, voting, etc.) in an efficient and manageable manner, is key to LS success and to promote best possible function of infrastructures and industrial sites.

This still requires appreciation and respect of mutual responsibility and accountability (land owner, approval authorities, versus neighbors, general public having an indirect or potential impact from the site conditions and redevelopment). It also implies fostering social engagement experiences and partnership frameworks such as, for example:

- Triple A approach; Ambition, Alliance and Action
- Public-private partnerships
- Long term funding for managing green open spaces
- Green deals

Identifying and prioritizing criteria

NICOLE, in its sustainable remediation road map⁶ defines an easy, scalable approach to identify and prioritize environmental, social and economic criteria, and to weigh them qualitative-quantitatively to support sound and transparent decision-making. This requires a step-wise process to include:

- Engaging stakeholders,
- Discussing options and indicators,
- Evaluating and recordkeeping.

Decision-making and value creation; a flywheel

The same approach can be leveraged and extended to LS, making sure natural capital potential impacts and benefits are considered along the way. While a number of multi-criteria decision making, footprinting, Life Cycle Analysis, and Net Environmental Benefits Analysis (NEBA) scientific tools are available to support each LS option, to be ranked for pros and cons and for value creation for diverse stakeholders, the completeness and transparency of the adopted approach is far more critical to the overall success.

Outcome of appraisal needs to be properly communicated and made available for continuous improvement (plan-do-check-act) across the project life cycle towards completion, evaluation and reporting, thus offering an opportunity for corporate social responsibility, positive image for industry and authorities, and a flywheel example for other projects and joint knowledge development.

TERRA (Total Evaluation Responsible Remedial Approach)

In 2014 Bekaert initiated the TERRA (Total Evaluation Responsible Remedial Approach) process for a site, historically contaminated with chlorinated solvents. Remediation is necessary according to the Flemish soil legislation.

In a tiered process along the NICOLE Roadmap for sustainable remediation, and well within the framework of the Joint Position Paper with Common Forum, Bekaert sat together with internal and external stakeholders, including the authorities (OVAM-Public Waste Agency of Flanders), to identify the major sustainability indicators and options for the site.

In a series of 4 workshops the indicators were prioritized (what parameter is really of significant importance to the different stakeholders) and options were scored and evaluated. Indicators like “Responsible care” and “Community acceptance” were highly ranked and played a decisive role in the appraisal.

Together, the stakeholders agreed on a remedial option based on appraisal of different options towards the selected prioritized indicators.



Case kindly provided by Bekaert, Arcadis and ERM



**“We all rely on the goods and
services provided by Nature”**

4 NATURAL CAPITAL: How to create more natural value

Understanding the status and value of natural capital assets across NICOLE Members land portfolios is becoming critical in optimising decision-making. Assessing ecosystem services and the natural capital that underpins them helps NICOLE Members better understand their own dependencies on natural capital assets and the benefits that accrue locally and more widely from their effective stewardship.

This chapter proposes using a standard framework for identifying the different types of natural capital on sites, estimating the financial value of the ecosystem services provided, and comparing how these values change under different land management scenarios. The chapter provides examples that show how taking a natural capital approach can help secure investment in improved land stewardship and make better long-term management decisions, while improving partnerships across the portfolio.

Why taking a natural capital approach?

There is an increasing awareness and understanding among industry that natural capital is a factor that materially affects an organisation's ability to create value.

This has driven the need for governments and businesses to find means of integrating the value of natural capital into decision-making. With increased stakeholder focus on organisations' contributions to the environment and society, there is increasing pressure on the private sector to not only improve the sustainability performance of their facilities and assets, but also to demonstrate and effectively communicate this to their stakeholders. Taking a natural capital approach is an effective means of achieving this.

What is natural capital?

When we talk about natural capital, we mean the elements of nature that directly or indirectly produce value to people,

including ecosystems, species, freshwater, land, minerals, the air and oceans, as well as natural processes and functions (figure 4.1 and box 1). Natural capital is a broad term that includes many different components of the living and non-living natural environment, as well as the processes and functions that link these components and sustain life.

Box 1: Definitions

"Those elements of the natural environment which provide valuable goods and services to people, such as the stock of forests, water, land, minerals and oceans."

[UK Natural Capital Committee]

"The stock of renewable and non-renewable resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people."

[Natural Capital Coalition].

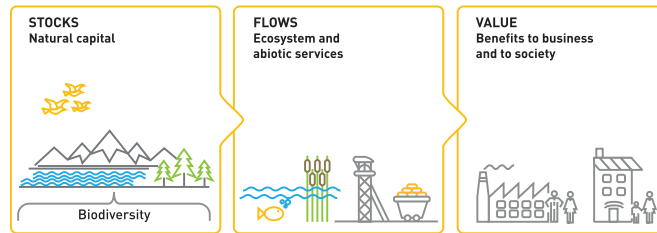


Figure 4. 1 The natural capital. Source: Natural Capital Coalition

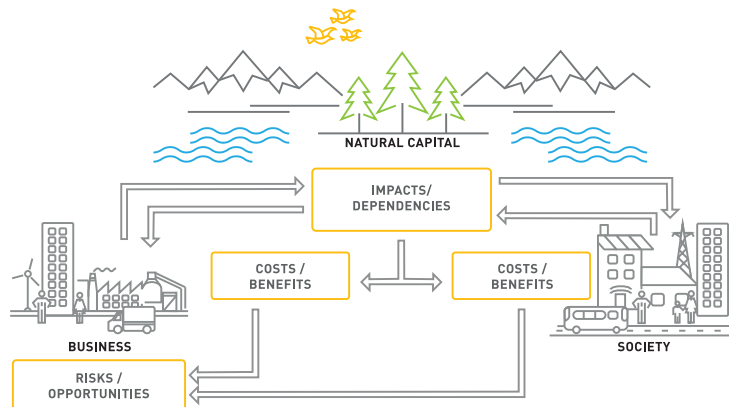
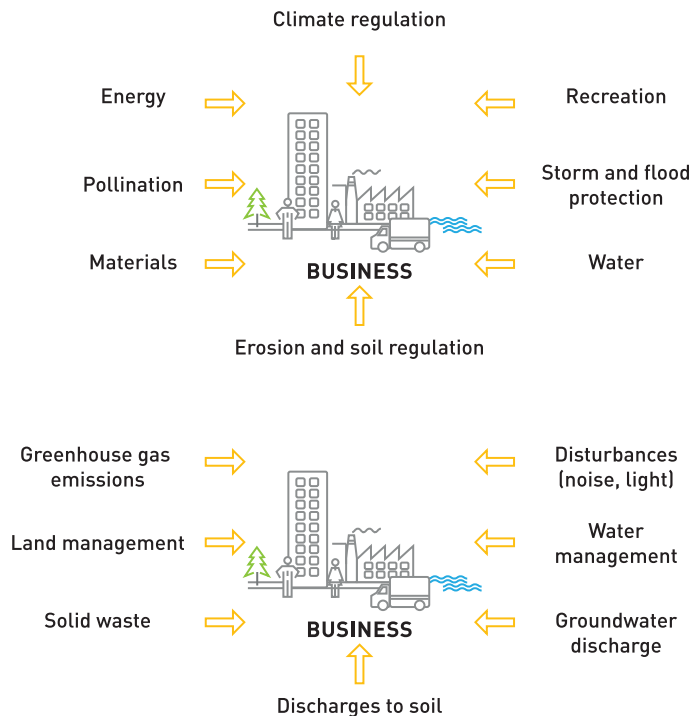


Figure 4.2 Natural capital and society. Source: Natural Capital Coalition



In describing natural capital, we often talk in terms of assets. Any capital asset has the capacity to produce various goods and services. Natural capital is simply those assets provided by nature with the capacity to generate goods and services. In fact, natural capital can be regarded as the source of all other types of capital: whether manufactured, financial, human or social.

The benefits provided by natural capital include clean air, food, water, energy, shelter, medicine, and the raw materials we use in the creation of products. It also provides less obvious benefits such as flood defence, climate regulation, pollination and recreation. Value lies at the heart of the natural capital concept. Accordingly, assessing the value of changes in natural capital and services it provides is fundamental in business decisions to enhance land stewardship. By incorporating natural capital into your decision-making ensures you are future proofing your business for significant risks and opportunities (figure 4.2 and 4.3).

Figure 4.3 Business impacts and dependencies on natural capital. Source: Natural Capital Coalition

Natural Capital Assessment

Some of the goods and services that we derive from nature, such as timber, food and fibre, are traded in markets and ascribed a price. Others, such as clean water, climate regulation and flood protection, are not and are often treated as 'free'. Natural capital valuation is an approach that assigns values to natural capital assets and its services including those not traded in the marketplace. Monetization is one way of valuing natural capital helping industry to incorporate the value of natural capital into decision-making processes by using a common and well-understood metric. Full monetisation is not always necessary and a quantitative or even qualitative natural capital assessment might suffice.

The Natural Capital Protocol is a framework designed to help generate trusted, credible, and actionable information for business managers to inform decisions. The Protocol aims to support better decisions by including how we interact with natural capital through a standardized way of identifying, measuring, and valuing impacts and dependencies on natural capital. Several methods fall under this standard. There are many different interpretations of what valuation means and how to apply valuation evidence in practical decision making contexts for improved land stewardship.

Businesses are increasingly recognising the need to reflect the value of natural capital assets in their accounting systems to help support the long-term protection and sustainable use of the natural environment. Incorporating natural capital into business accounts can help companies to better recognise and manage risks to their business and promote business continuity. At the same time it contributes to a sustainable relationship between the site and its environment through improved natural capital, such as better soil and water quality or more biodiversity.

National Grid

National Grid undertook an exercise to value, manage, and generate investment in the natural capital resources across selected sites on their non-operational land. A tool was developed to identify the different types of natural capital on their sites, estimate the financial value of the ecosystem services provided, and compare how these values change under different land management scenarios.



Using the tool the impact that woodland, grassland and freshwater on National Grid landholdings have on a range of services such as local air quality, recreation, carbon storage and flood defences was estimated. This comprised a six-step process for realising natural capital value on land that is privately owned.

The award-winning project has helped National Grid secure internal corporate funding for investing in natural capital enhancement on site and improved partnerships outside the business for ecosystem restoration projects across their UK estate. The approach is highly scalable and as a result National Grid is now rolling out the approach across their enterprise.

Case kindly provided by AECOM

Natural Capital Accounting

Operational <i>Regular business activities, expenditures and processes</i>	▪ Reduce raw material costs and risk of interruption to supply from extreme weather, flooding, etc. ▪ Realize efficiency gains
Legal and regulatory <i>Laws, public policies, and regulations that affect business performance</i>	▪ Identify future legislation ▪ Reduce compliance costs and risk of fines and penalties
Financing <i>Costs of and access to capital including debt and equity</i>	▪ Reduce financing costs and increase margins ▪ Improve access to finance - attracting investors
Reputational and marketing <i>Trust and relationship with stakeholders, customers, suppliers and employees</i>	▪ Identify new revenue streams and differentiate your products ▪ Improve ability to attract and retain employees
Societal <i>Relationships with wider society</i>	▪ Identify benefits and negative impacts to local communities through improved natural capital (e.g., water quality) ▪ Support a social license to operate

Figure 4.4 Natural Capital Accounting

Case study

No Net Loss Protocol

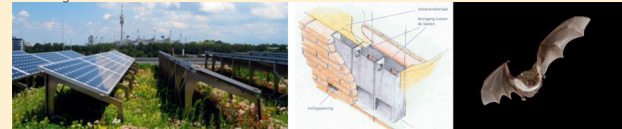
A Belgian multinational wanted to expand its distribution site while maintaining or preferably increasing biodiversity on the site.

A so-called No Net Loss Protocol (which became part of the Natural Capital Protocol) was developed in order to measure and value biodiversity at site level in a transparent, replicable and verifiable way. Additionally the Habitat Equivalency Analyses (HEA) and ecosystem service valuation was used to indicate increased value in habitats and ecosystem services, developing a complete natural capital assessment. By providing a green blue infrastructure as an alternative it became possible to facilitate the expansion not only to comply with legislation, but also to achieve a net positive impact, significant financial savings, and an increase of biodiversity on and outside the premises, and for other stakeholders.

Case kindly provided by Arcadis

New facility landscapes

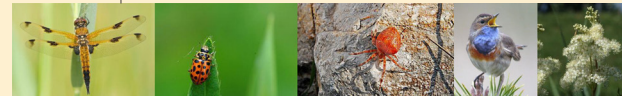
Building



Wadi zone



Central nature park



Evaluation

- Biodiversity
- ESS for society
- Business benefit





“Social capital lies at the heart of creating value for business and for society”

5 SOCIAL CAPITAL: Creating shared value between business and society

Many NICOLE Members are looking to find ways of understanding better the total value of their activities in a given community. With increased stakeholder focus on organisations' contributions to the environment and society, there is increasing pressure on the private sector to not only improve the sustainability performance of their facilities and assets, but also to demonstrate and effectively communicate this to their stakeholders. As part of this shift, there is increasing awareness and understanding that social capital is integral to an organisation's ability to create value. Integrating social capital into decision-making can embed the sustainability of business operations and improve stakeholder relations over time.

This chapter explains the concept of social capital and mentions some emerging approaches for businesses to measure and value their contributions to society. This may help reinforce the close connection between the creation of value for business and for society. After all, value creation is about converting the societal demands for industrial products and services to societal benefits in the broadest sense.

What is social capital?

Social capital as a concept has been developing since the 1990s and is defined by the World Business Council for Sustainable Development (WBCSD) as simply the “resources and relationships provided by people and society”⁷. Essentially, social capital refers to the value added by the interactions of individuals and groups of people internally and between the organisation and the diverse communities in which it operates. For example, the social capital that an industrial facility draws upon includes good relationships with environmental bodies and government organisations, partnership with local community and education organisations, and employee loyalty and support.

The social impact of a company has been defined by the 'Forum for the Future' organization as:

‘The effect a company has on the social fabric of the community, the well-being of individuals and families, and on the relationships with its stakeholders.’

An impact can be either positive or negative, and includes factors such as:

- How fairly and reliably suppliers and workers are paid;
- How the company's activities, products and outputs affect the lives and health of local communities;

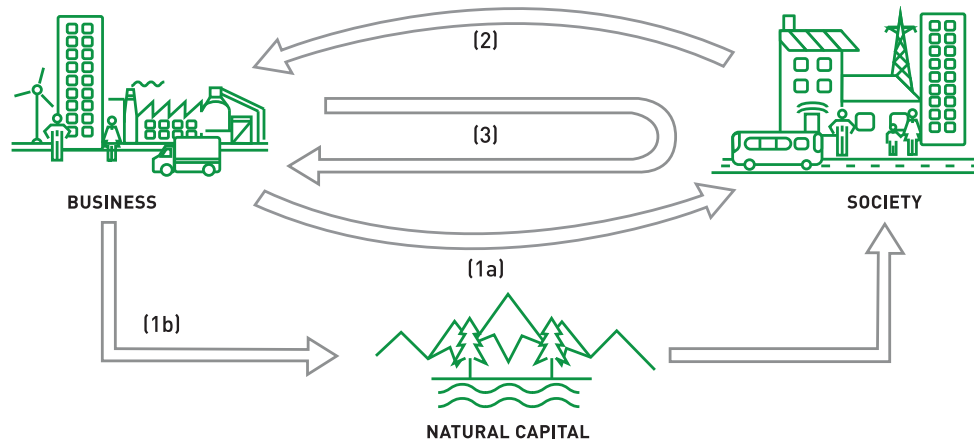


Figure 5.1 Social capital impacts and dependencies: a conceptual model for business. Source: WBCSD Social Capital Protocol

Emerging Approaches

Approaches in Social Measurement and Valuation

First strides have been made in the formalization of approaches to social capital. In 2015 the World Business Council for Sustainable Development launched 'Towards a Social Capital Protocol – A call for collaboration', an initiative to push for the development of a harmonized approach for businesses to measure and value their contributions to society⁷.

There are a number of ways to value social capital including market valuation, non-market valuation, and secondary data valuation. Capturing the monetary value of social capital is a challenging process, as social capital does not have a direct market value, which can result in its benefits being undervalued. By qualitatively and quantitatively capturing social capital in itself, however, sufficient data can be provided to inform and influence corporate decision-making. An example of this is the handbook to measure potential and actual social impacts throughout the product life cycle as a result of the Roundtable for Product Social Metrics⁸.

Challenges arise in selecting appropriate and comparable values in the absence of direct market valuation. The emergence and development of social capital accounting offers a mechanism for organizations and governments to capture these values and should ultimately enable a better understanding and management of social capital risks and opportunities, facilitating more informed decision-making and a more-resilient business model.

'Social Capital Accounting' is the term used to describe the variety of methods used in the marketplace to measure and value organizations' impacts and dependencies on social capital. Incorporating social impacts for a range of stakeholders into a valuation exercise, more accurately reflects the value that organizations are achieving.

Why Measure the Social Capital of Industrial Land Stewardship Initiatives?

By actively measuring and monetising social capital, land managers can demonstrate a more comprehensive understanding of the total value of their activities in the community. Benefits from enhanced industrial land stewardship potentially provide outcomes and marketable opportunities that have intrinsic value for local communities. There are both direct and indirect benefits that contribute to social capital. Direct benefits are understood to be benefits that are gained by individuals engaged in the land stewardship and appreciation of it themselves, such as enhanced wellbeing through the enjoyment of friendships and positive outdoor activities. Indirect benefits are benefits that are experienced by the wider community, such as improved sense of satisfaction living in an area due to an enhanced industrial site. By understanding these benefits better, we can enhance decision making among NICOLE Members for future land stewardship planning and decision-making.

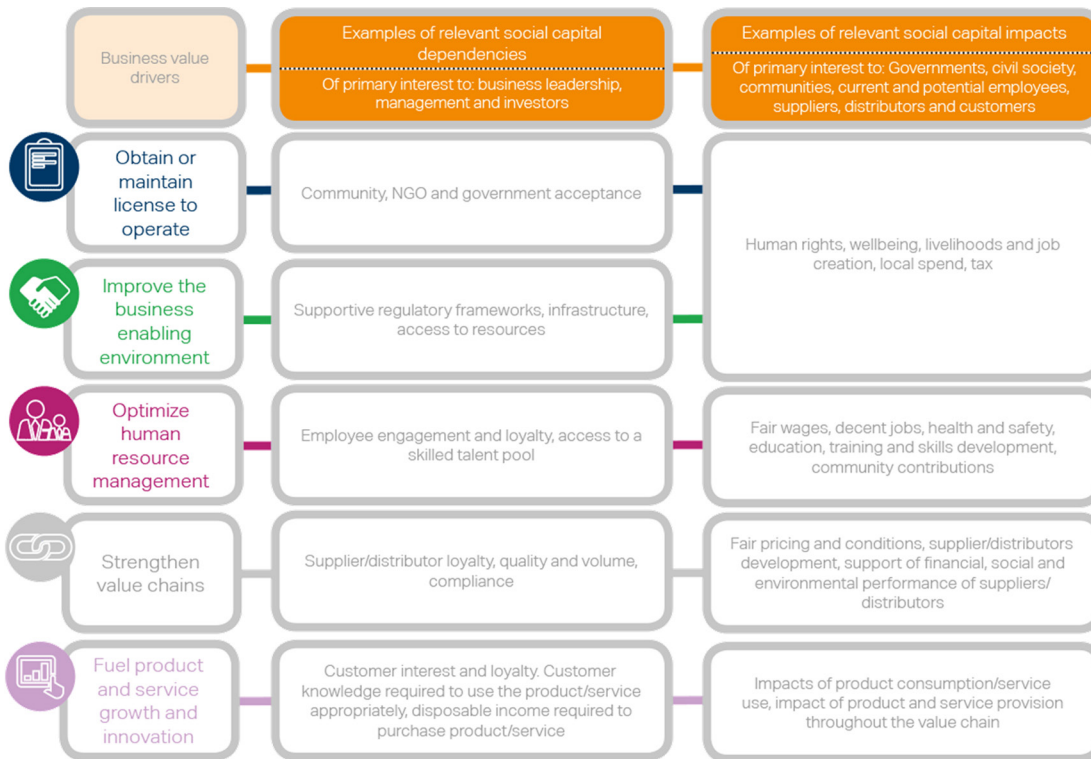
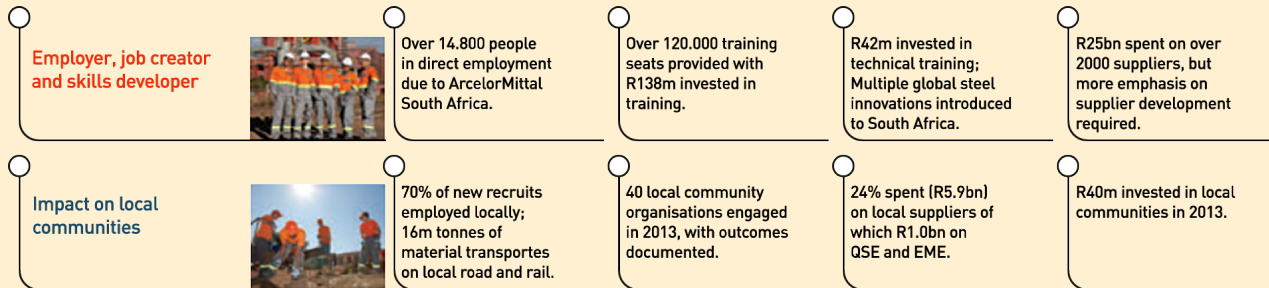


Figure 5.2 Map of example social capital impacts and dependencies against business value drivers. Source: WBCSD Social Capital Protocol.

ArcelorMittal South Africa - National Development Plan

ArcelorMittal South Africa released their first Factor Report⁹ in 2014 demonstrating their contributions to the National Development Plan. Using the WBCSD's Measuring Impact Framework as a template, the report measures the company's social impacts and where possible relates them to industry benchmarks and government priorities. Using a scorecard approach it evaluates these impacts. This has enabled management to make more informed decisions by devising action plans to improve performance in priority areas. The company also uses the data to demonstrate its social capital impacts to its stakeholders, through both its integrated report, and reports to national and local government.



Case kindly provided by ArcelorMittal (taken from WBCSD Social Capital Protocol)

The Onondaga Lake Cleanup

Onondaga Lake is a 4.6-square-mile (3,000 acre) urban lake located in Syracuse, New York, USA. A legacy of industrialization and municipal development since the late nineteenth century resulted in impaired water quality and contamination of lake sediments.



Geddes Brook Wetlands Before and After Remediation

The clean up combined dredging and capping with long-term habitat restoration, leading to an environmentally protective solution. Capping was completed in December 2016.

Habitat restoration is a major focus of the remedy and restoration. About 90 acres of wetlands along the lakeshore and the lake's tributaries have been improved. More than 250 species of fish, birds, and other wildlife have returned to restored areas. Threatened bird species in New York State, including the bald eagle, pied-billed grebe, and northern harrier, have been observed in restored areas near the lake.

Contribution to the Well-being of People and Communities

A multifaceted public outreach and engagement program has been an integral part of the Onondaga Lake restoration.

Honeywell and the New York State Department of Environmental Conservation (DEC) created the Community Participation Working Group in 2009. The group operates as an independent panel of community stakeholders to inform, discuss, and offer opportunities for community involvement and input throughout all phases of the restoration.

Community priorities included:

- Providing deep water near shore for improved fishing access
- Increasing the size and diversity of shoreline wetlands
- Creating conditions suitable for a variety of native species
- Discouraging the establishment of invasive species
- Promoting pike spawning in adjacent wetland areas
- Establishing habitats that were currently lacking in the lake, like floating aquatic plants



LCP Wetlands Before and After Remediation



Western Shoreline Before and After Remediation

Environmental stewards

The Onondaga Lake Conservation Corps seeks to inspire future stewards of Onondaga Lake and its watershed through a hands-on, experience-based program that offers citizens and organizations the opportunity to participate in activities to help restore and sustain the lake, and its value as an important bird area



Onondaga Lake Conservation Corps

Since the formation of the Corps in summer 2012, more than 780 volunteers have become environmental stewards and Corps members.

A Hub of activity

Additionally, prior to the start of dredging, Honeywell built the Onondaga Lake Visitors Center near the shoreline to provide a location for the public to learn about, and engage with, the restoration team and their activities. Several public education and habitat restoration initiatives were conducted using the Center as a hub of activity.



Lakeview Amphitheater

In parallel to the restoration work, the Lakeview Amphitheater was constructed adjacent to the newly restored shoreline. Portions of the shoreline that were used as equipment staging areas will be converted into a public boat launch, and a walking and biking trail that will be part of a trail system that encircles the entirety of Onondaga Lake, extending more than 11 miles.

Case kindly provided by Honeywell



**“Companies can create
societal value and economic
value at the same time”**

6 The Economic and Social value of Industrial land use

Land stewardship focuses on managing and protecting the values of land by sustainable practices. The industrial use of land obviously has economic and social (employment etc.) value but can affect nature and the ability to sustain biodiversity and provide ecosystem services. For optimal land stewardship, land management therefore also needs to focus on sustainable use of natural capital and resources.

This chapter describes how our commitment to land stewardship in industrial area's includes managing and monitoring impacted lands and any other environmental matters to ensure lands can be effectively and efficiently used and or returned to another use for the societies long-term planning.

General

Industrial activity responds to a societal need for goods and services. As to land planning, public authority decides where industry can operate. Operation is done under various permits that reflects societal concerns; tolerance of environmental (emissions) and social impacts (worker health protection). The obvious priority of an industrial site is the production in a most effective way under its constraints (permit, market, neighbors..).

Assets in production

The dilemma for industrial sites in operation is to get a proper balance between production and environmental protection (to any emission) but also to support the ecosystem services (availability of organic matter, air, fresh water, etc.) of the land. This being said, there are many examples where environmental impact occurred and corrective actions are taken while maximizing sustainability in production and in remediation (e.g. reuse of process water, reuse of water from a pump & treat as in process, use of natural processes for remediation). Furthermore, idle

land in an industrial perimeter could be used temporarily for other purposes, e.g. temporary nature, sport field, as long as there is a guarantee that those temporary uses will not impair the primary destination of the land as industrial use when new projects arise.

Surplus assets

Former industrial, mining sites or landfills, often qualified as "surplus assets", for which there is no industrial future, form another issue. It is neither industry nor society interest to let them lay idle, as they would soon become brownfield. It is important to give those sites a new use. If contaminated, remedial actions should be taken to make the land fit for re-use with no risk for the intended future use. Depending on the legacy, the location can be redeveloped to a higher economical value project (other industrial, commercial, housing, historical, sustainable energy production) or to lower economical value but higher natural, societal services (park, landscape, nature). Industry bears the cost of dismantling, demolition and remediation either directly



by executing the work or indirectly by transferring the assets to a redeveloper where legislation allows. Liability cost are not always offset by the land value, hence this kind of operation is not necessary beneficiary for industry. Nevertheless, from an industrial point of view, it is important to minimize its portfolio of “surplus assets” that represent liabilities that are in the radar of investors and financial institutions.

Moreover, industrial land re-use will also decrease the need for new greenfield land to be used for industrial purpose. Recycling of remediated land is part of the land life cycle. In conclusion, enabling land reuse is often an operation where industry investment is not offset by the value of the remediated land. But on the long term putting industrial “surplus assets” into new use is of interest for industry and for society. This is not necessarily only driven by short term economic benefit, other aspects, e.g. image, social, environmental also play a role.

Nature based remediation: From a landfill to a landscape nature reserve.

This case concerns the management of a former industrial landfill over two decades to the final implementation of a “nature based” solution.

In 1975, about 140.000 m³ of industrial waste was moved from on site storage to a nearby former sand & gravel pit. It was covered with a recultivation layer of about 1 meter. Increased environmental awareness in the 1990's resulted in a first investigation. Simultaneously, legislation evolved from fixed value to site specific risk assessment. The management project changed accordingly from a “classical” capping case to ultimately the implementation of a “nature based” solution. Over time, the location use had changed from agriculture, sand/gravel pit, and landfill to landscape & nature development, hence introducing a new and important stakeholder: the Landscape Foundation, responsible for managing the area.

Unexpectedly, the Land trust agenda and objective proved to be a positive driver to move towards a less intrusive management than initially proposed, i.e. drainage of free water from the cover layer in order to limit contaminant leaching from the landfill through water infiltration. The presence of natural attenuation of the contaminants (chlorinated solvents) and the absence of



risk for the open water receptor in the present situation helped convince the authorities to accept another approach, satisfying the Landscape Foundation by limiting disturbance of the actual use.¹⁰ A one-year study demonstrated that during vegetation growth there was no freestanding water at the interface between the landfill and the cover layer, hence no percolation. Nowadays one can find Galloway cattle and Konik horses roaming freely in this unique nature reserve.



CONTENT DISCLAIMER

This booklet doesn't necessarily reflect the opinion of all NICOLE or Common Forum members.

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Further information: www.CommonForum.eu



NICOLE

Network for Industrially Co-ordinated Sustainable Land Management in Europe

NICOLE is a leading forum on industrially co-ordinated sustainable land management in Europe, promoting co-operation between industry, academia and service providers on the development and application of sustainable technologies. The overall objective of **NICOLE** is to pro-actively enable European industry to identify, assess and manage industrially contaminated land efficiently, cost-effectively, and within a framework of sustainability.

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