EMERGING TRENDS IN SUSTAINABLE DEVELOPMENT: AN ECOSYSTEM SERVICE APPROACH

A White Paper

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INTRODUCTION

Sustainable development is at the forefront of the natural resources industry in North America. Over the last few decades cultural shifts have placed greater emphasis on responsible development including environmental stewardship. Many systems, both voluntary and regulatory, have been put in place for companies to manage their environmental risks and performance. While these systems are effective at tracking and understanding environmental impacts at a project or operational level, they often fail to recognize the organization's dependence on the full interaction of healthy, functioning ecosystems. This can expose companies to unforeseen supply chain risk and missed business opportunities.[1]

An ecosystem services approach that incorporates an organization's interdependence on natural capital into their business strategy is one method used to mitigate these risks and capitalize on business opportunities. This white paper explores the ecosystem services approach as an emerging trend in sustainable management for the natural resources industry and how it can be incorporated into existing sustainable development planning.

1 World Resources Institute (2012). The Corporate Ecosystem Services Review: Guidelines for Identifying Business Risks & Opportunities Arising from Ecosystem Change. Downloaded from: http://www.wri.org/publication/corporate-ecosystem-services-review

The Millennium Ecosystem Assessment (2005) grouped ecosystem services into four categories linked to human well-being.

BACKGROUND

What are Ecosystem Services?

Ecosystem Services (ES) are the benefits nature provides to people. These can include essential services like access to clean drinking water, food production, natural resource extraction, and even recreational opportunities. From both a societal and corporate perspective, ES illustrate the important linkages between nature and human well-being.

A good example is water; many natural resource companies depend on the provision of fresh water to operate, however they often impact this same supply with their operations. If water supplies get too low, regulatory systems may stop operations, reducing the company's ability to conduct business. Low water supplies will also impact neighbouring communities and the recreational values associated with fishing, swimming and boating. While it's easy to estimate the impact on the business if operations are shut down, it is less obvious what the financial loss to the neighbouring community will be. By identifying this interdependence early and taking steps to protect the water supply, the company is not only protecting their ability to conduct business, they are also working with community members to protect their values. These types of dependencies will become increasingly important as natural resources become limited, especially in the face of climate change.

What is Ecosystem Service Valuation?

A number of ecosystem services are commodities that are bought and sold in marketplaces. However there are many more intangible benefits and dependences from ES that are not valued in traditional markets. ES valuation attempts to translate all the benefits we receive from nature into economic terms so we can provide meaningful context related to trade-offs and make more informed decisions about industrial development. For example, forested areas have the ability to provide a number of benefits to people by supporting the logging industry, regulating the climate through carbon sequestration, and providing a number of recreational opportunities. All of these benefits are measured in different units, making it difficult to examine trade-offs. However, by placing a dollar value on each, it is easier to understand how each contributes to human well-being. It also ensures benefits that do not have a market value are accounted for in a trade-off analysis.

Why is an Ecosystem Services Approach Important?

Nature is becoming more valuable as natural resources become increasingly scarce. Without making this connection, companies open themselves up to additional business risks while overlooking new opportunities for revenue. There are a number of reasons companies should incorporate an ecosystem service approach to management into their business planning.

Operational Risk Reduction

The natural resource sector depends on the benefits nature provides to exist. Without healthy, functioning ecosystems, the forestry sector would not have a sustainable timber harvest to produce lumber and the agricultural sector would not have productive land for crops. While lumber, pulp and paper and the production of food all have a market value, there are a number of regulating and supporting services nature provides that are not associated with a market price. Nutrient cycling, pollination, and genetic diversity, are all examples of services that, if they were to disappear, would have detrimental impacts on these sectors; however current markets do not associate a cost with them.

Holistic management approaches are being utilized in government approval processes as seen in recent pipeline applications and Play-Based Regulation in Alberta.

These services are currently free to use because the economy was developed largely on one premise: scarcity. Only capital that is scarce is considered valuable. Natural resources, until very recently have been abundant, but as the population continues to grow, we are continually putting pressure on the planet to meet our needs. It is now becoming essential for companies to identify these underlying dependencies and account for them to ensure minimal supply chain interruptions in the future.

Furthermore, in Canada many resource-based sectors operate on public land. These areas provide a suite of ES which benefit the public, from both a resource and conservation perspective. These perspectives can create operational risk to the natural resources industry when government steps in and changes land use designations.

A similar situation occurred in Alberta in 2015, when the Alberta government converted a portion of a forested area into a conservation area, halting all logging practices in the region indefinitely.[2] An ES approach to land use planning puts both resource and conservation perspectives on a common platform for government, industry and other stakeholders to evaluate trade-offs and make land use decisions. This approach helps reduce operational risk and uncertainty for companies operating on public land.

2 Bakx, K. (2015, September 4). Castle area logging halted by Alberta government. CBC News. Retrieved from: http://www.cbc.ca/news/canada/calgary/alberta-protects-castle-wilderness-1.3215448

A recent 2014 study estimated the combined benefits of nature to people at well over $100 USD trillion per year[3]

3 Costanza et al. (2014). Changes in the global value of ecosystem services. Global Environmental Change. 26; 152-158. doi:10.1016/j.gloenvcha.2014.04.002

An ecosystem service approach helps find a balance between resource and conservation values so that all the benefits can be realized from the landbase.

Increasing Sector Leadership

Across many jurisdictions in North America, an ecosystem service approach to management is not currently mandated, though changes may be on the horizon. This creates opportunities for companies to take a proactive approach with ES management and go above and beyond current regulatory requirements improving social license to operate and potentially preferential access to key markets. The forest industry provides a good example of this where forest companies that have gone above regulatory requirements and certified their products under programs such as Forest Stewardship Council (FSC) certification. This has increased their market access, particularly in the paper industry where buyers such as Victoria Secret and Time Magazine give preference to fibre from certified forests.

An offset market aims to reduce environmental degradation by allowing buyers (i.e. developers) and sellers (i.e. restoration banks) to buy and sell conservation units to offset future development.

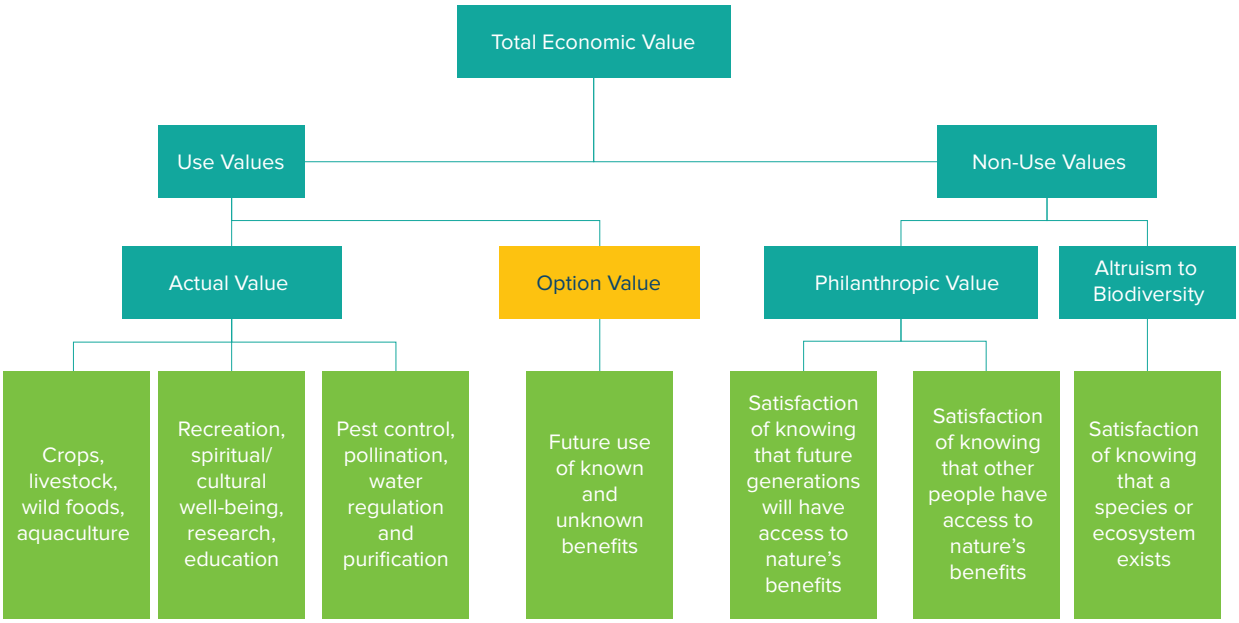
ES valuation can also enable a common platform for resource trade-off discussions with First Nations and other stakeholders by translating the full suite of benefits provided by nature into one common unit that can be easily understood. Identifying the total economic value of natural resources, including the benefits that do not have a market price, will demonstrate to stakeholders that the company recognizes the implicit value of nature as well.

Regulatory Influence

Ecosystem service approaches are an emerging trend in North America. The general public is becoming more and more aware that the benefits they receive from nature are becoming scarce, and are now demanding companies manage for them so the benefits are not lost due to corporate activities. New fines, user fees, and government regulation are potentially on the horizon. There are even examples of lawsuits occurring by local communities who have had ES impacted by development. [4]

ES approaches are already being addressed in land-use planning. As more market-based approaches are adopted to manage competing land uses, an ES approach to management will likely outperform traditional land management, especially with the launch of an offset market. The opportunity exists for industry to engage government and assist in policy development that will protect and restore the ES that multiple industries depend on.

4 Weber, B. (2015, October 30). Energy company orders water to be delivered to contaminated Alberta dairy farm. The Canadian Press. Retrieved from: http://www.theglobeandmail.com/news/alberta/regulator-orders-water-delivery-to-alberta-farm-contaminated-by-gas-plant/article27051364/



Adapted from: Pascual, U., Muradian, R., Brander, L., Gómez-Baggethun, E., Martín-López, B., Verma, M., & Turner, R. K. (2010). The economics of valuing ecosystem services and biodiversity.

Access to New Revenue Streams

While increased social license will reduce the risk of negative publicity and potentially expand a customer base, there is also a business opportunity to increase revenue streams by participating in offset markets, rebranding products to be eco-friendly, and leveraging company-owned natural capital to sell goods and services not currently within the core business.

An inventory assessment of what ecosystem services a company is enhancing, in addition to their core business, may reveal opportunities to commodify these services and translate them into new sources of revenue. Potlatch Corp., a US-based forestry company recognized this opportunity with their company-owned natural capital and began selling recreational access permits and leases for popular recreational areas on their land base.[5]

While much of the natural resource sector operates on public land in Canada, a number of companies have purchased private land to counterbalance their developments on public land.[6] Through the purchase of private land, a company can commit to mitigating disturbances resulting from development activities by protecting private land from further development and continuing their operations elsewhere. There is an opportunity for these companies to understand the ES being provided from private land that has been purchased for an offset. Managing for these ES will add additional value to the offset and may identify additional sources of revenue for the offset holder.

Other companies have leveraged an ES approach for land valuation. When land is purchased, usually the suite of ES that land provides is not fully accounted for. Understanding this additional environmental value can increase the selling price of the property (or company), be used in impact investments or offsets, or used as tax incentives for charitable donations. Allegheny Power leveraged an ES approach to land valuation when they sold over 12,000 hectares to the U.S. federal government for conservation. Using traditional markets, the land was appraised for $16 million. Accounting for the number of ES the land provided, the true market value of the property was estimated to be more than $32 million, doubling the traditional value. Rather than paying $32 million for the property, the federal government paid the traditional price ($16 million) but allowed Allegheny Power to claim the remaining $16 million as a charitable donation, recognizing that the property provided a number of environmental services that cannot be accounted for using traditional mechanisms. [7]

Impact investments are investments made with the intention to generate social and environmental impacts alongside financial return

An ecosystem services approach facilitates project planning with regulators and stakeholders by placing values into one common platform.

5 Potlatch (2007). Idaho Recreation. Retrieved from: https://recreation.potlatchcorp.com/id/

6 Shell (2013, September 4). Ducks Unlimited Canada and Shell celebrate the launch of Shell Buffalo Hills Conservation Ranch. News release. Retrieved from: http://www.shell.ca/en/aboutshell/media-centre/news-and-media-releases/2013-new-and-press-releases/09042013-buffal-hills.html

7 Ellison, K. (2002). Land and Eco-Assets for Sale Conservation Joins Capitalism to Set Aside Wetland Habitat. *Special to the Washington Post.*

Total economic value captures the full basket of goods that ecosystems provide.

Emerging Trends in Ecosystem Services

Ecosystem service concepts are an emerging trend in land-use planning worldwide. Historically, ES concepts were only applied in academic circles. We are now seeing a paradigm shift where they are being used by the private and public sectors in conservation planning, business decision making, and land valuation.

More than 50 countries and 85 private companies have committed to accounting for ecosystem services in business decision making and countries' national accounts.[8]

ES concepts have made the use of market-based instruments a popular approach to manage for competing resources. Payments for ES and offset markets are just a couple of examples of how market-based instruments are improving the environmental landscape. We are also seeing more investments in green infrastructure, recognizing how these investments can have a significant effect on a number of ES, adding more value than traditional infrastructure.

8 BSR (2015). Update: Global Public Sector Trends in Ecosystem Services 2009-2014. Retrieved from: http://www.bsr.org/en/our-insights/report-view/update-global-public-sector-trends-in-ecosystem-services-2009-2014

Government and Regulatory Approaches to Ecosystem Services

There has been significant uptake from governments globally to incorporate ecosystem service approaches into policy, legislation, and voluntary government sponsored initiatives. There has been a shift to enact policy to support voluntary programs that manage for ES and we are even starting to see legally binding commitments that guarantee the provision of ES. For example, the European Union launched their No Net Loss of Biodiversity and Ecosystem Service policy late in 2014 and the same year Peru passed a ground breaking Payments for Ecosystem Services law that provides an adequate legal framework for voluntary agreements that ensure the provision of ES. The United Kingdom has also recently completed a study confirming that the sustainable delivery of ES is best addressed through targeted legislation, market-based incentives, and voluntary initiatives. The results of this study sparked the development of Adaptive Management Principles to be used as a guide to including ES into policy and decision-making.

While policy and legislation focused on ES is lacking in North America, it is trending upward. The United States has recently stated they will be incorporating ES concepts into their federal agencies planning processes and Canada completed an inventory review of ES for the country in 2013. Alberta established an Ecosystem Services and Biodiversity Network (ESBN) in 2015, focused on bringing together a group of multi-disciplinary experts to build the foundation for an ES approach to be adopted in the province.

Since the establishment of the ESBN, there has been significant interest by the public sector in adopting an ES approach to landscape management in Alberta. Both the Biodiversity Management Framework and the Wetland Policy use an ES approach to assign value to indicators that can be used to offset development in different ways. Furthermore, Alberta's South Saskatchewan Regional Plan also references voluntary market based instruments as an approach to manage competing land uses on private land.

Market-based instruments are policy instruments that use markets, price, or other economic incentives for polluters to reduce their impact on environmental attributes.

An ecosystem services approach lends itself well to forestry operations.

Private Sector uptake of Ecosystem Services

Even though regulatory adoption has been slow in North America, the private sector has begun uptake through voluntary mechanisms and nongovernmental organizations (NGOs). For example, the Forest Stewardship Council (FSC) is currently working with forestry partners on a procedural document that will demonstrate the impact forest stewardship has on ecosystem services (FSC-PRO-30-002) and the Alternative Land Use Services (ALUS) program encourages farmers to return marginal land to native vegetation for the production of ES through payments for best management practices.

There has also been significant interest from the private sector to incorporate ES approaches in their business planning to reduce reputational and operational risk, outside the scope of NGOs. Other corporations are focusing on the business opportunities available to them by investing in natural capital. Lastly, specific to Alberta, a number of pilot programs have been tested on how an ES approach can be leveraged to evaluate management alternatives on the landscape. These pilot programs have established the groundwork for additional investment from the private sector into ES assessments.

"The Ecosystem Service Review remains a fundamental starting point for companies to assess business risks and opportunities related to ecosystem change."

– World Resources Institute

INCORPORATING ES INTO SUSTAINABLE DEVELOPMENT

ES Inventory and Assessment

Numerous ecosystem service approaches are emerging in North America. In the future, companies will have to understand their impact and dependence on the ecosystem to maintain a competitive advantage. As an initial step to incorporating these practices into business planning, an inventory of ES dependence will help highlight areas of focus and potential business opportunities.

Companies need to consider diverging from conventional thinking that the natural landscape is something that needs to be navigated around. Instead, investment in green capital will become the new norm.

ES Valuation

An important distinction between an ecosystem service approach to management and traditional impact assessments is that ES concepts allow for valuation of the benefits nature provides. This commodification of nature will encourage offset markets and market-based initiatives to manage for environmental outcomes.

Furthermore, understanding nature in economic terms, while not perfect, allows companies to summarize dependencies in comparable units. This provides important context for management to fully understand what an ecosystem is providing.

There are two established methods to translate the benefits of nature that do not have a market price into economic terms:

- **Revealed Preference Techniques** which use a surrogate market that is closely related to the ecosystem service to estimate the non-market value; and
- **Stated Preference Techniques** which ask what a person would be willing to pay to still enjoy a benefit from nature they no longer can receive for free.

The amount of research focused on non-market valuation of ES is vast. This has allowed the private sector to utilize this technique without significant resources dedicated to primary research. Using a benefits transfer approach, the private sector is able to rely on previous research in similar areas of interest to estimate the benefits from nature. Benefits transfer is becoming a popular technique because it is relatively inexpensive and the pool of research to draw upon continues to grow.

Integrating with Existing Processes

Environmental stewardship is constantly evolving as businesses work to integrate sustainability goals into their business planning. Most companies have adopted some type of corporate social responsibility reporting, including triple bottom line, balanced scorecards, or general sustainability reporting.

Ecosystem service concepts are not meant to replace what is already being done on sustainability reporting. The key is to integrate these approaches together to provide more meaningful context for board members and decision makers surrounding business risk and opportunities.

An ES approach will help monetize the risks and opportunities already identified by traditional systems, and an ES inventory can help identify additional risks and opportunities traditional systems may have missed. By including ES into sustainability reporting, an organization is taking a holistic approach to development by looking at the suite of benefits an ecosystem provides.

CONCLUSION

Many businesses in North America are heavily dependent on natural resources and have recognized the importance of sustainable development practices to manage resources in the face of increasing scarcity. However, there has been a historical gap in accounting for the full value of the services nature provides beyond just market values. An emerging trend is using an ecosystem service approach that allows companies to account for the total economic value of the landbase by identifying the full suite of ES produced, including ones that do not have a market price. This approach helps identify an operation's full interdependence on healthy, functioning ecosystems which assists with managing operational risks and uncertainties. In addition, this type of approach creates a number of business opportunities through the use of market-based instruments, including offset markets and payments for ES. Furthermore it can support land use planning by placing resource and conservation values in a common platform that can speak to stakeholders and decision makers.

It is predicted that integrating ES approaches in business strategy will continue on an upward trend as a holistic management approach to natural resource management in North America and may progress into jurisdictional regulations. This presents an optimal time for companies to adopt ES concepts and learn how they can integrate an ES approach into their sustainable development strategy.

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