

# EVALUATING, MEASURING, MONITORING AND BENCHMARKING

One of the biggest challenges for companies is the need to know what to measure and why, then how to analyse, benchmark, and report outcomes. Meeting this challenge is essential for credibility. There are a variety of tools available to help businesses assess biodiversity values and their impact on them. Each has specific strengths and weaknesses a business should consider carefully before adoption.

Methods to value biodiversity and tools to apply diverse methods are continuously under development.

A recent example, the Natural Capital Leaders Index, was launched at the 2014 World Economic Forum [Makower, J. 2014, State of Green Business 2014. GreenBiz.com.] This approach evaluates business initiatives that seek to decouple economic growth from its environmental impact.

The following table overviews some widely known tools that may help businesses assess biodiversity values and their impact on them. Inclusion in this table does not signify an endorsement.

Note: This selection of tools (sourced by the project team) has been presented to illustrate the range available. As with metrics, tools are developed in response to specific requirements so this selection will reflect the requirements, e.g., for spatially-oriented tools, rather than what may be applicable across companies. There is an outstanding need for development of tools to incorporate requirements from different sectors, geographies and cultures and for more comprehensive tools able to meet the needs of business across industry.

## COMPARISON OF SELECTED TOOLS ▼

| Tool / Organization  | Scale/scope   | Appropriate application/ strengths   | Weaknesses   | Ease of use   | Comments   |
|--|---|--|--|---|--|
| Best Cat<br>The Nature Conservancy<br><a href="http://www.nature.org/">http://www.nature.org/</a>  | Regional to global  | Coarse assessment of biodiversity risk relative to industrial activity.                    | No social assessment.  | Used in DOW project.<br>Web based.<br>Easy access   | TNC can provide technical support.<br>Can be customized.                             |
| Invest Natural Capital Project<br>Stanford University<br><a href="http://www.naturalcapitalproject.org">www.naturalcapitalproject.org</a>          | Watershed, regional, global.<br>Covers water, carbon, biodiversity habitat. | Integrated valuation (not \$) of eco-services and tradeoffs                                |  | Complex<br>No dashboard function.<br>User guide.<br>3 levels – screening, tradeoff analysis, env, impact assessment | Open source, public domain.<br>Nat Cap project can provide training and tech support |
| Eco Integrity Assessment<br>NatureServe<br><a href="http://www.natureserve.org/">www.natureserve.org/</a>  | Site to national.   | Measures eco condition using different types/ levels of data from satellite to field work. | Applicability to highly modified landscapes?<br>No social context. | Depends on level of assessment.<br>Most use by government.  | Assumes optimum is natural condition.<br>NatureServe can provide tech support .      |
| Vista<br>NatureServe<br><a href="http://www.natureserve.org/">www.natureserve.org/</a>   | Site to eco-region or community.  | Helps users visualize alternate land use scenarios.  |  | Dashboard function.   | Free with ArcGIS lic.<br>NatureServe can provide tech support.                       |
| EcoMetrix<br>EcoMetrix Solutions Group<br><a href="http://www.ecometrixsolutions.com/ecometrix.html">www.ecometrixsolutions.com/ecometrix.html</a> | Site (to 1000 acres)<br>Ecological and social values .                      | Quantifies eco- services/ functions at site scale for planning or mitigation.              | Does not address broad eco context.                                | Requires field data collection.   | In public domain - EcoMetrix can provide tech support and customization.             |

# LIFE CYCLE ASSESSMENT (LCA)

Also known as life-cycle analysis, ecobalance, and cradle-to-grave analysis, LCA is an approach to environmental impact assessment that addresses all stages of product life from raw material extraction to final disposal or recycling. In compiling energy and material inputs and releases, and evaluating their impacts, LCA broadens the perspective on environmental sustainability. The purpose is to identify the environmental burdens and consequences along the full chain of product development, distribution, use and existence, and final demise or persistence. Procedures associated with the LCA process are part of the ISO 14000 environmental management standards.

A 2006 survey of LCA practitioners found that the process is used (in descending order of importance) to support business strategy and R&D, as input to product/process design, in education, and for labeling/product declarations. Its use continues to spread, and it is being integrated into the built environment through such tools as the European ENSLIC Building project guidelines [Cooper, J.S.; Fava, J. (2006). "Life Cycle Assessment Practitioner Survey: Summary of Results". *Journal of Industrial Ecology*. 10:4, pp. 12–14, October.]

Business executives considering life cycle analysis and other approaches to valuing nature (including land, water, plants and animals) should be aware of indigenous perspectives. Indigenous spiritual relationships with the land ensured the preservation and sustainability of the natural resource base of the country.

## ▶ GENERALLY THE PROCESS COVERS 4 MAIN STAGES

*Identifying goal and scope*

*Identifying flows from and to nature for a product and its associated systems*

*Assessing its impacts*

*Interpreting findings fairly and accurately*



# MEASURING AND REPORTING ECOLOGICAL, SOCIAL AND ECONOMIC OUTCOMES

Determining the most appropriate measures for an initiative's approved outcomes may be a critical factor in its success. Attention on outcomes also provides an early warning for timely interventions if the project begins to wander from its path. Business practice frequently follows the adage that you can't manage what can't be measured. This section considers the types of information that companies may wish to utilize in specific situations. The purpose is to place options on the agendas for business decision-making.

The tables (sourced by the project team) on the following pages offer a menu of options for measuring and reporting on specific outcomes associated with conservation. Not all will be appropriate for all companies. The specific actions will depend on the geography, nature and size of the business, its impact on the environment, community values, local culture and politics, the

regulatory structure in which it operates, the resources available to engage in this work, and many other factors. This assessment assumes that a company may wish to report actions taken on or off company owned property. For collaborative projects in which a company has been involved with other entities, a percentage contribution can be estimated. The measures are divided into three categories: ecological, social/institutional, and economic. The scale at which these measures are appropriate is noted.

Note: This selection of metrics has been presented to illustrate the range available. As with tools, metrics are developed in response to specific requirements so this selection will reflect those requirements more than what may be of interest to business as a whole. There is a need for further development in metrics to incorporate requirements from different sectors, geographies and cultures, particularly in a comprehensive framework that can be integrated with other business measures.

## ECOLOGICAL MEASURES ▼

| Measure  | Site Scale | Community | Regional | Global |
|--|------------|-----------|----------|--------|
| <b>LANDSCAPE</b>   |            |           |          |        |
| Adoption of conservation plan consistent with regional landscape context |            |           |          |        |
| Actions to improve habitat connectivity                                  |            |           |          |        |
| <b>HABITAT / SPECIES</b>   |            |           |          |        |
| Increase in area % cover with native predominantly vegetation            |            |           |          |        |
| Reduction in area dominated by invasive species                          |            |           |          |        |
| # of acres restored with native vegetation                               |            |           |          |        |
| # of acres subject to legal protection from conversion                   |            |           |          |        |
| # acres and % increase in ecological function                            |            |           |          |        |
| Area restored in habitat designated as high ecological priority          |            |           |          |        |
| Degree of improvement in ecological integrity                            |            |           |          |        |
| Avoided conversion of native habitat to other uses                       |            |           |          |        |
| Area under sustainable management  |            |           |          |        |
| Improved management on protected areas.                                  |            |           |          |        |
| Enhanced vegetative structure/composition                                |            |           |          |        |
| # of structures occupied by native birds (trees, boxes, platforms)       |            |           |          |        |
| Reduced soil disturbance (actions to reduce compaction)                  |            |           |          |        |
| Removal of structures, roads, revetments, etc.                           |            |           |          |        |
| Use of natural infrastructure to reduce flooding / other hazards         |            |           |          |        |
| Increase in # of native species observed using site                      |            |           |          |        |
| Increase in # of rare native species using site                          |            |           |          |        |
| Increase in abundance of desired fish/wildlife/insect abundance          |            |           |          |        |
| Decrease in # of invasive species  |            |           |          |        |
| Successful reintroduction of rare species                                |            |           |          |        |
| Successful establishment of pollinator habitat                           |            |           |          |        |
| <b>WATER &amp; ACQUATIC BIODIVERSITY</b>                                 |            |           |          |        |
| Improved biotic integrity score  |            |           |          |        |
| Increased stream flow  |            |           |          |        |
| Improved water quality   |            |           |          |        |
| Improved stream morphology   |            |           |          |        |
| Restored floodplain function   |            |           |          |        |
| <b>TOXICS</b>  |            |           |          |        |
| Reduced use of toxic pesticides  |            |           |          |        |
| Reduced discharge of toxic chemicals                                     |            |           |          |        |

## SOCIAL/INSTITUTIONAL MEASURES ▼

| Measure   | Company | Community | Partnerships<br>NGO/<br>Academic<br>Government | Policy |
|---|---------|-----------|--|--------|
| Established partnerships with NGOs and their networks, government, academic institutions, local communities |         |           |  |        |
| Regular reporting on ecological impact +/-  |         |           |  |        |
| Creative, innovative, win-win solution with positive ecological and business impact                         |         |           |  |        |
| Marketing to support ecological outcome   |         |           |  |        |
| Evidence of constructive engagement with partners   |         |           |  |        |
| Assessment of ecological dependence/impact of business including supply chain                               |         |           |  |        |
| Employee and local community participation in citizen science program                                       |         |           |  |        |
| Company support for citizen science program, including human/wildlife interactions                          |         |           |  |        |
| Employee participation in conservation projects (# hours, results)  |         |           |  |        |
| Employee and local community participation in regional conservation planning, including cultural valuations |         |           |  |        |
| Company engagement in community conservation  |         |           |  |        |
| Tech assistance to community conservation projects  |         |           |  |        |
| Company education/training re ecological issues (# people trained)  |         |           |  |        |
| HR policies in place re sustainability (job descriptions, performance evaluations, recognition)             |         |           |  |        |
| Staff assigned to sustainability  |         |           |  |        |
| Long term ecological monitoring in place  |         |           |  |        |
| Exceed regulatory compliance  |         |           |  |        |
| Commitment to net conservation benefit  |         |           |  |        |
| Support for biodiversity research on company lands  |         |           |  |        |

## ECONOMIC FACTORS ▼

| Measure  | Cost Savings | Company and<br>Community<br>Economic<br>Benefits | Investments |
|--|--------------|--|-------------|
| \$ saved using natural infrastructure (wetlands in place of treatment, riparian restoration)     |              |  |             |
| \$ savings from reduced resource consumption (water, electricity)                                |              |  |             |
| \$ investments in conservation   |              |  |             |
| \$ investments in endowments   |              |  |             |
| Profits generated through conservation programs (banking, publishing, consulting, entertainment) |              |  |             |