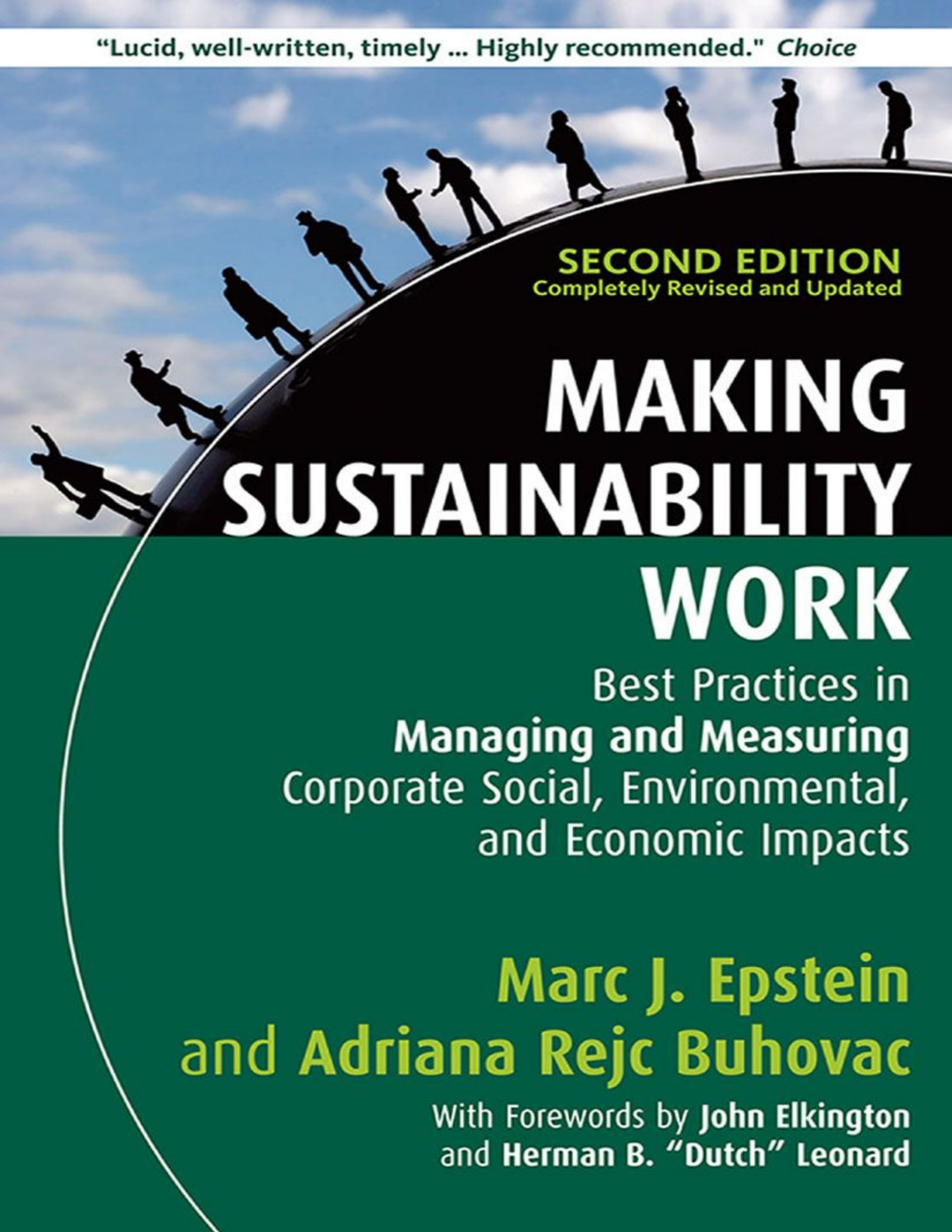


"Lucid, well-written, timely ... Highly recommended." *Choice*

The top half of the book cover features a black and white photograph of several silhouetted figures walking along the curved top edge of a globe. The globe is set against a bright blue sky with scattered white clouds. The bottom half of the cover is a solid dark green color, separated from the top by a white curved line that follows the edge of the globe.

SECOND EDITION
Completely Revised and Updated

MAKING SUSTAINABILITY WORK

Best Practices in
Managing and Measuring
Corporate Social, Environmental,
and Economic Impacts

**Marc J. Epstein
and Adriana Rejc Buhovac**

With Forewords by John Elkington
and Herman B. "Dutch" Leonard

reputation.

Measuring risk

Conducting a risk analysis is one method to help organizations measure inputs and develop processes to mitigate any negative affect that taking a risk might have on the company.²⁴

Additionally, often it is a company's ability to identify and manage risks that others cannot that leads to innovation, opportunity, and market success. After identifying all of the possible social, environmental, economic, and political issues that could affect the organization and compiling them in a comprehensive risk profile, as discussed in [Chapters 4 and 6](#), a company must develop metrics for each issue to assess its potential impact. This will enable managers to integrate the project- or company-related social, environmental, economic (sustainability), and political risks into ROI calculations.

Seven stages for measuring sustainability, and political risks

After identifying the various potential risks, measuring them is a seven-stage process:

1. Calculate the benefit associated with each issue that may generate risk
2. Calculate the potential costs associated with each risk, including reputation costs
3. Estimate the probability that each risk will materialize
4. Multiply the potential cost of each risk by its expected probability of materializing to calculate the expected value of each risk
5. Estimate when, over time, the risk may emerge. Calculate the NPV (net present value) of the risk
6. Aggregate the NPVs of all risks. Insert as a line item in ROI calculations
7. Calculate the expected value of the ROI

Step 1: Calculate issue benefit

Measuring the cost of social, environmental, economic, and political risks involves monetizing the savings and costs associated with each issue that could generate risk. For example, corporations commonly consider operating in a region where child labor is employed. In considering this option, the savings from either employing children or using contractors that may employ children should be calculated by measuring the difference in the wage rates between paying an adult and a child. The savings of using child labor would represent the issue benefit, which is generally assigned a positive value.

Step 2: Calculate risk costs including reputation

Although some industries such as clothing and shoe manufacturing have been seriously damaged by the use of child labor, and have therefore attempted to stop the practice, others, such as the chocolate industry, for a long time did not consider this a risk. Children working as cocoa bean pickers were employed in the supply chain. Chocolate and candy manufacturers largely ignored the issue, until newspapers began publishing stories of kidnappings and forced child labor on cocoa plantations in West Africa. If a company carefully considers this outcome, it should calculate each potential cost associated with employing (or contracting with others that employ)

this labor force, and the public discovering it. These costs could include:

- Lost sales and other reputation impacts (measuring reputation is addressed in a later section)
- Managing a consumer boycott by hiring a public relations firm, creating a new advertising campaign, hiring a stakeholder relations manager, communicating internally with employees, and senior management's time devoted to dealing with the issues
- Diminished brand value
- Negative impact on recruiting potential hires
- Damage to company culture and morale

Each of these costs is assigned a value to calculate the risk costs of employing child labor.

The biggest cost of social, environmental, economic, and political risk is usually a reputation cost, typically as a result of lost sales due to consumer boycotts or protests. In 2000, the Rainforest Action Network began a campaign against Citigroup for financing projects that destroy rainforests. The campaign included protests at bank branches and television commercials. As a result, Citigroup lost about 20,000 customers.²⁵ The major consumer protests that have plagued many companies like Nike and Shell illustrate the significance of the events and the related reputational and financial costs.

Where possible, the impacts of share price and market share decline, as discussed earlier, should be included in calculations as potential long-term losses. The costs of managing stakeholders in the medium to long term, either through additional personnel or other strategies, should also be included. Marsh & McLennan, a professional services and insurance firm, experienced a 40% drop in its stock price when accusations of bid-rigging activity made the news in November 2004. In addition to a downgrading of its debt by credit-rating agencies because of its deteriorating reputation, Marsh & McLennan cut 5% of its workforce on predictions of a 94% decline in its third-quarter profits.²⁶

Step 3: Estimate probability

After the potential costs of each risk to the company have been calculated, the potential likelihood, as a percentage, that each risk will occur and cause damage to the company, is approximated. This number is the estimated probability. (Later the impact on the company in expected value will be calculated.)

However, a footnote can be included in the ROI analysis that indicates that these numbers are midpoints or point estimates within a range, and the range can also be included. An estimated probability should be assigned to each identified risk. For example, the estimated probability of the emergence of social, environmental, economic, and political risks for a fictitious coffee processing plant in Colombia might include:

- Workers being kidnapped by the local militia: 60%
- Being “taxed” by local militias or cartels: 25%
- Being found guilty and paying fines under the US Foreign Corrupt Practices Act or other home-country laws that regulate bribery and payoffs: 6%

- Supplier's coffee plantation destroyed by crop dusters as part of local government-led cocaine eradication scheme creating a supply gap: 27%

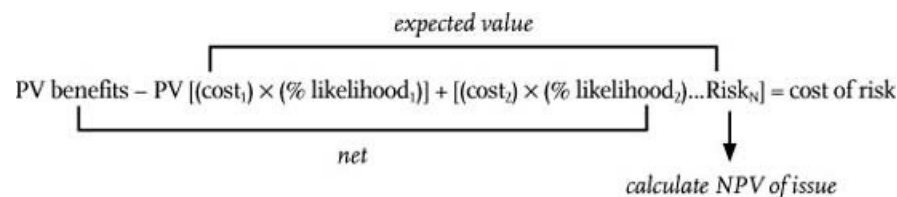
Step 4: Calculate expected value of each risk

After approximating the estimated probability, the expected value for each risk is calculated, by multiplying the estimated cost of the risk by the percentage estimated probability of its occurrence. For example, if the costs of a reaction to use of child labor are estimated to be US\$100,000, and the likelihood that this risk would materialize is estimated 10%, then:

$$\text{Child Labor Risk Expected Value} = (\$100,000) \times (10\%) = \$10,000$$

Step 5: Calculate NPV of each risk

After Steps 1–4 have been completed, the NPV of each issue is calculated. Note that each issue has risks that emerge at different times. NPV is calculated on the outcome of: NPV calculations for social, environmental, economic, and political risk are completed in the same way as traditional NPV calculations. Discounting back, using a set discount rate, is also done in the traditional manner. These calculations are carried out for each identified social, environmental, economic, and political risk.



Step 6: Aggregate NPVs of social, environmental, economic, and political risks

Once all NPVs for social, environmental, economic, and political risks have been calculated, the NPVs should be added together. The aggregate sustainability risk NPV and the aggregate political risk NPV should then be inserted as line items in the normal ROI calculation. Schedules should be provided that show the calculations of benefit, expected value, likelihood, and cost of sustainability and political risk, as illustrated in [Figure 7.3](#). It is critical that senior management see both the process and the output of doing these calculations.

CALCULATE THE MONETARY BENEFITS OF THE PROJECT

Outputs	Benefits	NPV
New product	Added revenue stream	\$.....
	Labor cost savings	\$.....
	New customer base	\$.....
Total benefits		\$.....

CALCULATE THE TOTAL COSTS OF THE PROJECT

Costs		NPV
Shipping	Transport rates, import duty, transporting goods to and from factory	\$.....
Raw materials		\$.....
Total sustainability risk costs	See Schedule A	\$.....
Total political risk costs	See Schedule B	\$.....
Total costs		\$.....

CALCULATE THE PROJECT ROI

Total benefits – Total costs

ROI =

Capital costs (investments)

× 100

Schedule A

Costs of social risks

Risk	Benefit	Cost types	Costs	Likelihood	Expected value
Civil unrest surrounding site	\$	- Costs of engaging employers skilled in negotiating with protesters - Cost of engaging extra security personnel <i>Reputation-related:</i> - Cost of hiring community relations manager - Cost of managing activist NGO relations	\$ \$ \$ \$	 %	\$
Prostitution near site	\$	Costs of implementing health education for workers to teach about sexually transmitted diseases (to avoid costs related to HIV infection)	\$	 %	\$
Child labor	\$	<i>Reputation-related:</i> - Costs of reputation damage - Cost of managing boycotts when information reaches activist consumers - Cost of NGO relations manager	\$ \$ \$	 %	\$
Infringement of indigenous lands	\$	- Costs of litigation in international courts - Cost of remunerating population - Cost of work stoppages due to local strike, reputation damage, community protests, work stoppages <i>Reputation-related:</i> - Cost of hiring community relations manager - Cost of managing activist NGO relations	\$ \$ \$ \$ \$	 %	\$
Reputation costs, including lost sales and profits					\$
NPV					\$

Schedule B		Costs of political risks			
Risk	Benefit	Cost types	Costs	Likelihood	Expected value
Changes in legislation that change the rules of the game	\$	• Lost revenues • Increased taxes and tariffs	\$ \$	 %	\$
Forced contract negotiation with host government	\$	• Lost profits • Lost investment	\$ \$	 %	\$
Armed insurrection	\$	• Cost of hiring private security • Cost of training local police/military to prevent human rights abuses (if required to use these forces by contract)	\$ \$	 %	\$
Associated reputation risk	\$	• Costs of incentive packages to attract workers to location • Cost of protests, etc. due to potential linkages with human rights abuses	\$ \$	 %	\$
Endemic corruption	\$	• Costs of payoffs and bribes • Costs of potential lawsuits for that activity	\$ \$	 %	\$
Targeted criminal activity	\$	• Costs of protecting personnel, including extra security, reinforcing security at private homes, providing security training to employees and families • Costs of attracting workers, including increased pay, time off, and hardship bonuses • Costs of increased security to protect facility • Costs of potential work stoppages	\$ \$ \$ \$	 %	\$
Terrorism	\$	• Costs of reinforcing infrastructure • Costs of hiring additional security personnel • Costs of rebuilding	\$ \$ \$	 %	\$
Reputation costs, including lost sales and profits					\$
NPV					\$

FIGURE 7.3 Integrating sustainability and political risk costs in ROI calculations

Schedules A and B in Figure 7.3 list examples of potential social (sustainability) and political risks. Schedule A lists risks that could emerge for a company—for instance, in the extractive industry—that operates in an unstable region. Although some issues that emerge, such as civil unrest near the site, would probably not present any benefits, others, such as establishing operations on Indigenous lands, could produce short-term savings because of low land prices. However, costs associated with these sustainability risks that might be incurred include:

- Remuneration for indigenous land
- Hiring someone to negotiate with protesters or assigning some of current employees' time to those negotiations;
- The cost of extra security to protect the site
- Hiring a community relations manager
- Executive time spend strategizing on managing NGO relations
- Work stoppages due to community protests

- Reputation damage
- The potential for litigation fees and fines if the issue goes to court

Most underlying causes of political risks (unlike some social, environmental, and economic risks) do not present any savings to a company. Although entering a country with political instability can bring both benefits and costs, antibusiness legislative changes, policy changes or contract renegotiation that would be considered risks offer a company little or no benefit. Favorable policy or legislation changes, however, would not be considered political risk as defined here. Schedule B lists various costs the company would incur if the risks mentioned were to materialize. For instance, if there were an armed insurrection targeting the company site, costs could include:

- Hiring private security to protect executives and their homes
- Training personnel in self-defense (defensive driving, home invasion protection, etc.)
- Extra training of local police who protect the company site on the level of force company standards allow (where they go beyond local laws), to protect the company from litigation for human rights abuses

If the company overseas faced endemic corruption, costs associated with this risk could include:

- Dollars (or equivalent) paid directly in bribes, or other methods of payment to facilitate transactions
- Legal fees and fines if found guilty of bribery practices in a lawsuit filed under the Foreign Corrupt Practices Act or similar legislation
- Reputation damage sustained by the company for being associated with a corrupt regime

Reputation costs have been included as a separate line item in each schedule because they represent a large component of social, environmental, economic, and political risk. In addition to how reputation costs were treated in the previous reputation risk section, they can be listed as lost sales and profits.

Step 7: Calculate expected value of ROI

Once Schedules A and B have been calculated, their results can be integrated into traditional ROI calculations, as illustrated in [Figure 7.3](#). This process can also be used to calculate opportunities for organizational innovation.

Integrating social, environmental, economic, and political risks into ROI calculations enables managers to better understand: (1) the full range of risks their operations face; and (2) their costs. Although the output of the analysis is useful, the analysis process itself also provides the opportunity to strategize for risk management—either to develop ways to avoid the risk, to create risk mitigation plans, and to capitalize on opportunities.

In an increasingly globalized world, a company needs to integrate sustainability and political risks to manage its risks effectively, to improve resource allocation, and identify opportunities. This demands the quantification of social, environmental, economic, and political risks. To account for these risks, they must be identified, measured, monetized, and included in ROI calculations. And then they can be more effectively managed to improve both sustainability and financial

performance.

Measuring social, environmental, and economic impacts

Once metrics have been specified, a methodology for measuring social, environmental, and economic impacts based on the concepts discussed in the previous chapter is critical.²⁷ The first step in measuring impacts is to identify the impact to be valued and the population, or affected group, whose values will be measured. Next, the choice of method (revealed preference or stated preference) needs to be determined. A single method or multiple methods can be used to measure impact. For instance, travel cost and hedonic pricing can both be used to estimate the benefits of cleaning up a polluted river.

If using a revealed preference method, secondary data sources should be identified and evaluated. Multiple data sources may be necessary to gather all needed information. Some methods, such as travel cost and contingent valuation, require the collection of primary data through surveys. Finally, an estimate of WTP or WTA is derived from the data collected from the primary and secondary sources.²⁸

Measuring impact at The Co-operative Bank

In 2001, UK-based The Co-operative Bank developed a methodology to measure how its sustainability practices affect revenue and growth. The methodology uses several calculations and survey questions. From the survey, the bank determined that 53% of personal current account customers state that sustainability is one of a number of important factors in why they opened or maintained an account at the bank, while 31% cite sustainability as the most important factor. The bank has estimated the profitability of each product, including all direct costs and indirect costs attributable to the product. The profitability is then multiplied by the sustainability factor, and then aggregated to produce a sustainability profitability contribution range (which ranges from those customers for whom sustainability is the most important determining factor to those customers for whom sustainability is one of a number of factors).²⁹ The bank concluded that 26% of profits could be assigned to customers who cite sustainability as an important factor, and 14% to customers who cite sustainability as the most important factor.



Surveying nonmarket externalities

Several methods for valuing externalities were introduced in the previous chapter. Contingent valuation, along with other methods, uses surveys of relevant populations to elicit values placed on goods and services. Surveys can aid companies in fully measuring outputs and outcomes. There are currently at least six main methods to gather information through surveys, but all fall into a general approach consisting of the following steps:

1. A sample of the population is questioned about its value for a specified good
2. The responses are documented and form the basis for estimating WTP or another relevant method
3. Results are extrapolated to the entire population

Here is a description of each of the six methods related to WTP and the general appropriateness

of their application.

1. **Open-ended WTP.** In this method respondents are asked to state their maximum WTP for the good or resource under evaluation. Questions could be framed in the form of “What is the most that you would be willing to pay to guarantee that the wilderness area will remain closed to development?” The method is not favored much because of the potential for unrealistic responses
2. **Close-ended iterative bidding.** Respondents are asked first if they would be willing to pay a specified amount for the good or service. If the response is affirmative, then the number is raised in increments until the respondent answers negatively. If the initial response is negative, the amount is lowered until a value is agreed. This method is commonly used, but there is evidence that the responses are biased depending on the initial price set for the good (this is known as starting-point bias)
3. **Contingent ranking.** Respondents rank specific combinations of quantities of the good and willingness to pay for each segment. For example, combinations could range from low water quality at low price to high quality at higher prices. The combinations are ranked from most preferred to least preferred. This method is popular because it is easier for respondents to answer and for surveyors to analyze
4. **Dichotomous choice.** In this method, respondents are given randomly assigned prices and asked whether they would be willing to pay that price. As a result, analysts construct a distribution of the responses and calculate the probability of respondents answering positively to a set amount. This method requires a large sample size to be able to determine with high-percentage probability if the population is willing to pay for a specified value
5. **Payment card with comparative tax prices.** Individuals are asked to value a good after seeing a card showing the tax-prices for a range of other publicly provided goods. The card shows, for example, the dollar amount that an individual with a particular annual income pays for national parks. The idea is to provide a reference point so that individuals make an informed decision, thus reducing the occurrence of outliers from open-ended surveys
6. **Payment card with a range of prices.** Respondents are asked the maximum price they would be willing to pay for a good from a range of dollar values. This survey could be conducted anonymously and by mail, reducing bias resulting from personal interviews

Given the high cost of surveys, it is possible to use information from existing or related databases, provided that differences in the population sample are controlled statistically. Also, conductors of surveys are encouraged to document the characteristics of the samples so that they can be useful in future analyses. Where extensive surveys are not practical, the thought process and discussion of the relevant issues can at least provide recognition of alternative views that may be relevant for the decisions. Furthermore, a well-executed stakeholder engagement process, though not a substitute for extensive surveys and analysis, can be a significant aid to understanding alternative views and the intensity of stakeholder attitudes.

Survey bias

There are at least three main sources of bias that arise due to poorly designed surveys.

1. **Sample bias.** Most surveys rely on a small number of people to represent the target population. In almost all cases, samples are selected by a probability method, which

produces simple random samples that give each individual in the target population an equal probability of being selected. A broader issue with samples is how to select the target population. For CV purposes, the relevant target population is all constituents affected by the project or the investment being analyzed. A stakeholder analysis will help identify who is affected and will help in the definition of the target population. If the sample is appropriately selected, then sample bias can be avoided

2. **Nonresponse bias.** Even if sample bias is eliminated through a proper survey design, there will still be individuals who do not respond. Nonresponse can be either a voluntary refusal or simply that the individual was unavailable. Refusals can be solved by expressing the legitimacy of the survey or by offering incentives. But for unavailable responses the extrapolation of results may misrepresent the target population. If nonresponse is purely random, it can be offset by increasing the size of the sample population and testing for non-response bias
3. **Interviewer bias.** This form of bias occurs when respondents perceive that the interviewer prefers a particular answer. To avoid this source of bias, surveys can be conducted by mail. However, doing this could decrease the response. Alternatively, careful training of the interviewers and design of the instruments can reduce this bias

Besides the systematic biases described above, the contingent valuation methodology has some particular sources of bias related to quantifying willingness to pay. They can be categorized into four types of behaviors:

1. **Strategic behavior** is when respondents deliberately bias their response to serve their personal interest
2. **Compliance bias** occurs when respondents try to please either the interviewer or the organization sponsoring the survey
3. **Free-riding behavior** is when respondents undervalue a good or service because they are confident that somebody else would pay for it and they can still benefit from using it. Free-riding is generally related to public goods and services where the use by one individual does not exclude others from also benefiting
4. **Embedding bias** results when responses are influenced by the amount of information provided. Given the hypothetical nature of surveys, contingent valuation issues often involve complex scenarios that require clarity and objectivity. Delivering a clear message often depends on the logistics, as discussed below

Survey methods

Another consideration in researching for contingent valuation is the type of instrument to be used in surveying. The first, personal surveys, requires the presence of an interviewer who can explain the issues at hand and motivate the respondent to cooperate in a more objective manner. This personal touch is lost when performing the second type of research, namely telephone surveys, which could lead to the respondent's misunderstanding and lack of interest.

The third instrument, mail, or email, can improve the explanation of issues by using visual aids, and also eliminate interviewer's bias, but it is handicapped by leaving the respondent "alone" to understand the issues being analyzed. If the survey is intended to be sequential, another limitation of written research is the inability to pace the survey. Respondents could also be tempted to

answer or browse through sections in a disorderly manner, affecting the final results. Mail surveys are also a source of nonresponse bias.

When designing a research survey, these logistic considerations should be balanced to determine if the potential cost savings in using telephone or mail/email surveys outweigh the limitations.

The information collected from questions such as those asked in the survey in [Figure 7.4](#) can aid the energy companies in their sustainability decisions. The energy companies wanted to know how stakeholders make trade-offs on energy and development. The nonprofit advocacy organizations and governmental organizations surveyed represent important corporate stakeholders and the measurements of sustainability performance, and the subsequent stakeholder reactions provide important inputs to the corporate decision-making process. Corporate decision-makers should integrate these stakeholder reactions and the estimated impacts on corporate profitability into their sustainability decisions. The information can also be effectively used by other stakeholders to better understand the perception of these impacts by various stakeholder groups.³⁰

In the previous chapter, the Wyoming gas drilling case study (page 150) introduced an overview of the issues, setting, and context. This research study used CV to measure a cross-section of stakeholders' willingness to pay to offset the effects of development on the environment. To elicit data on stakeholder reactions, a survey was administered to both the local population and to a national audience. By conducting both a local and a national survey, a very broad set of stakeholders was represented. This was supplemented by archival data from many government, business, and community sources, and extensive interviews.

Willingness to pay

Q-9 Conservationist groups may pool money in order to purchase or lease land to help provide contiguous habitats and ensure free passage of animals through migration routes. This may help mitigate impacts from *residential expansion*. Please CIRCLE the value of the HIGHEST amount you would agree to donate each year for the next ten years above what you currently donate to conservationist groups to counteract the effects of *residential expansion* on wildlife.

\$0	\$1	\$5	\$10	\$20	\$30
\$50	\$75	\$100	\$150	\$200	OVER \$200

Q-12 It is important to know how much protecting wildlife is worth to you. Please think about:

- Your current annual income
- Your current annual expenses
- Other possible uses for your income

Keeping these factors in mind, CIRCLE the value of the HIGHEST amount you would agree to pay each year for the next ten years in higher energy prices for programs and technologies to mitigate potential impacts on wildlife?

\$0	\$1	\$5	\$10	\$20	\$30
\$50	\$75	\$100	\$150	\$200	OVER \$200

Trade-offs

Q-4 Reducing residential development in Wyoming may help mitigate potential impacts on wildlife preservation. Please indicate your preference for the trade-off between residential development and wildlife preservation in Wyoming: (Circle one) (1 = residential development/no wildlife preservation, 7 = no residential development/wildlife preservation)

1 2 3 4 5 6 7

Q-5 Energy companies can invest in programs and technologies to mitigate potential impacts on wildlife. The cost of energy is partially affected by the preservation efforts from energy companies. Please indicate your preference for the trade-off between the cost of energy and wildlife preservation in Wyoming: (Circle one) (1 = lower cost energy/no wildlife preservation, 7 = higher cost energy/wildlife preservation)

1 2 3 4 5 6 7

Follow-up

Q-13 If you answered anything but \$0 in Question 12, please read through the entire list below and then put a 1 by the statement that best matches your most important reason. (If you have more than one reason, put a 2 by your second most important reason, and so on).

- ☐ I want to preserve wildlife for future generations.
- ☐ I want to preserve wildlife for the enjoyment of all citizens.
- ☐ I want to support the protection of undisturbed wildlife.
- ☐ I want to preserve wildlife for my personal enjoyment, such as hunting, fishing, and viewing.

Importance

Q-1 When thinking about Wyoming, how important do you believe are the following: (Circle one per part) (1 = not important, 7 = very important)

a. Maintaining stable wildlife populations

1 2 3 4 5 6 7

b. Adequate supply of natural gas

1 2 3 4 5 6 7

c. Clean air

1 2 3 4 5 6 7

d. Affordable residential housing

1 2 3 4 5 6 7

e. Clean lakes and streams

1 2 3 4 5 6 7

FIGURE 7.4 Measuring the impact of natural gas drilling: abbreviated survey questions

Source: Epstein and Widener (2007) Measuring Multiple Stakeholder Costs and Benefits

To design a survey, an organization should begin by performing interviews with important stakeholders to gain knowledge of the decision being studied. The survey should then be pre-tested to gauge the clarity and understandability of the survey questions. At this point, a survey method such as mail or person-to-person interviews, as discussed earlier, should be determined and surveys conducted.

Summary

After examining the academic literature and the conceptual foundations for measuring sustainability impacts in the previous chapter, in this chapter we demonstrated how to measure and execute a measurement system for management decision-making and managerial actions. As companies assess the choice of appropriate measures to evaluate sustainability investments, numerous potential issues arise. Since the choices are different for each company, substantial customization is necessary. Here are six initial questions for senior managers that can lead to the development of appropriate measures for improved evaluation of the social, environmental, and economic impacts of current operations, a new initiative to improve corporate sustainability, or a new corporate initiative or investment:

- What measurement systems are currently in place and being utilized within the organization?
- What are the important criteria to the company and its constituencies and stakeholders?
- What does the company wish to accomplish with this sustainability initiative or corporate investment?
- What is the anticipated time-frame associated with this initiative or investment?
- Who are the parties involved in implementing this initiative or investment, and who will be affected by the results?
- What critical processes are associated with the successful execution of the project?

To answer these questions, companies must not only customize their sustainability measurement approach but also use multiple measures to fully analyze their situations. Different measurement criteria are important for companies that have different strategies or may be in a different stage of their life-cycle or the development and implementation of their sustainability strategy. The multiple measures will typically include both financial and nonfinancial measures that are leading and lagging indicators of performance. The measures should be linked to strategy, and include a combination of input, process, output, and outcome measures. They may be used in a balanced scorecard or other approach and can be developed specifically for sustainability or as a part of an overall corporate performance system.

Though challenging, measurement of sustainability impacts can be done and is needed in corporate decision-making. Currently, most companies do not include extensive measures of social, environmental, and economic impacts in their decision-making processes and ignore what are potentially significant effects. They acknowledge the importance but decline to include them in ROI calculations claiming that the measurement is too difficult.

Although measurement may be imprecise, it is still relevant. Social, environmental, and

economic impacts must be included in ROI calculations and managerial decision-making at all levels. Proper measurement systems evaluate the impacts of sustainability initiatives on financial performance and the trade-offs that ultimately must be made when there are many competing organizational constraints and numerous barriers to implementation.

In the following chapter we look at how managers can use the information gathered from measurement systems to improve their organizations' products and processes for improved sustainability performance.