

USE OF TRIPLE BOTTOM LINE ANALYSES TO SUPPORT STORMWATER MANAGEMENT OBJECTIVES

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Support to Municipalities
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Task 2

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Financial Barriers to
LID and Stormwater
Programs Project



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TABLE OF CONTENTS

- 1.0 INTRODUCTION..... 1**
 - EXECUTIVE SUMMARY..... 1
 - BACKGROUND 2
 - TRIPLE BOTTOM LINE ANALYSIS..... 3
- 2.0 FUNDAMENTALS OF A TRIPLE BOTTOM LINE ANALYSIS..... 5**
 - ELEMENTS OF THE TRIPLE BOTTOM LINE 5
 - KING COUNTY, WASHINGTON EXAMPLE OF A PUBLIC SECTOR TBL STRUCTURE..... 8
- 3.0 CHALLENGES OF TRIPLE BOTTOM LINE ANALYSES 13**
 - TBL TAKES SOME EFFORT AND TIME 13
 - OBJECTIVITY IN TBL - HOW IT IS USED..... 14
 - CONSTRAINTS AND OPPORTUNITIES..... 14
 - LEARN MORE ABOUT TRIPLE BOTTOM LINE 16

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1.0 INTRODUCTION

EXECUTIVE SUMMARY

PURPOSE OF THIS PAPER

This paper will provide an introduction to the Triple Bottom Line (TBL) concept, methodology, and usefulness within public works and stormwater management.

The Triple Bottom Line (TBL) is an approach increasingly being used to consider the social, economic and environmental aspects of any project or program. TBL provides an objective and transparent approach to evaluate these three interrelated perspectives to identify the highest value (not necessarily lowest cost) alternative to support the decision-making process as well as facilitate stakeholder communication.

A primary role of public works professionals is to act as stewards of public assets such as stormwater systems. Asset management is the practice of managing infrastructure capital assets to minimize the total cost of owning and operating these assets, while delivering the desired service levels. Stormwater services often include flood control and compliance with water quality regulations, Stormwater service levels define the actual services. For example, one stormwater management service level could be to protect private and public parcels from flooding up to the 100-year storm event. Defined service levels are critical to establish and implement a stormwater management program. Increasingly, asset management is being used to identify the best (i.e., the most cost-effective) means to provide stormwater management services and includes alternative analysis for any new infrastructure as well as evaluation of operations and maintenance for existing infrastructure. In the past, “value engineering” methods would often include an analysis focused on capital project construction costs and would fail to recognize the significant influence that operations and maintenance play in the project’s overall whole life-cycle costs. Asset management includes a more comprehensive evaluation and, includes what is termed the “triple bottom line” approach, which evaluates project alternatives for their social, environmental, and economic impacts. The triple bottom line approach has gained interest as it allows for a more robust evaluation to integrate other stakeholder perspectives that may include the broader water resource objectives, sustainable communities, and environmental protection.

As communities continue to face limited stormwater funding sources, the use of Asset Management and Triple Bottom Line evaluation methods helps

decision-makers to identify the most cost-effective stormwater management options.

BACKGROUND

The management of stormwater infrastructure and services has significantly evolved over time. As local municipalities grew in size and density, and roads grew into street networks, the primary engineering design objective has been to minimize flooding by constructing conveyance systems such as pipes and channels, which rapidly moved away excess stormwater. A critical and unintended consequence of this local flood prevention was the efficient conveyance of pollutants to lakes, rivers, streams and the ocean (receiving waters), which degraded aquatic and riparian habitats.

The 1972 Clean Water Act sought to protect these receiving waters by going after single source polluters such as industrial sites and sewer treatment plants (point source pollutants). In the late 1980s, the Federal Clean Water Act revisions extended water quality requirements to general stormwater discharges in urbanized areas (non-point sources pollutants) and made local municipalities the responsible parties. These new environmental regulations were manifested as Federal or State NPDES permits, typically valid for five year terms, and have compelled municipalities to develop policies, programs and projects to improve water quality and protect receiving waters¹.

These responsibilities have significant costs and are often underfunded due to local budget limitations. Additionally, as public awareness of the importance of healthy watersheds and communities has increased, there is a higher expectation that public agencies will actively seek opportunities to develop and implement projects and programs that provide community, economic and environmental benefit. Often, integration of these benefits can be accomplished without increased cost, and in some cases may decrease the overall cost of a project or program. However, in many cases integrating such benefits into all projects or programs is not financially feasible. Municipal staff, elected officials, regulators, Non-Governmental Organizations (NGOs) and the public need a process by which stormwater program decisions are made based upon objectively evaluating the different potential impacts of a project (i.e., economic, social, environmental), based on the highest value alternative as decision makers consider the budgetary

¹ NPDES permits issued by the State of California (via the State Water Resources Control Board and the Regional Water Quality Control Boards) and other states also include requirements for hydromodification management, i.e., control of increased runoff peaks, volumes, and durations due to land development to protect receiving waters from erosion, sediment, and damage to aquatic and riparian habitat.

implications within a program-wide effort (e.g., capital improvement program).

TRIPLE BOTTOM LINE ANALYSIS

Triple Bottom Line (TBL) is an analytical tool that can help an organization identify high value multiple-benefit stormwater program services while also considering risks and costs associated with capital budget expenditures and long-term operation and maintenance needs. Additionally, the TBL approach provides a venue to evaluate the concept of sustainability as it relates to municipal stormwater programs.

Sustainability has often been mentioned as a goal of businesses, nonprofits and governments in recent decades; however, measuring the degree to which an organization is being sustainable or is pursuing sustainable growth can be difficult. John Elkington, an author and advisor regarding sustainable development, strove to measure sustainability during the mid-1990s by encompassing a new framework to measure performance in corporate



America. This accounting framework, called the Triple Bottom Line, went beyond the traditional measures of profits, return on investment, and shareholder value to include environmental and social dimensions. By focusing on comprehensive investment results, that is, with respect to performance along the interrelated dimensions of profits, people, and the planet, TBL reporting can be an important tool to support sustainability goals.

The TBL concept developed by Elkington has changed the way businesses, nonprofits, and governments measure sustainability and the performance of projects, programs, or policies. Interest in TBL accounting has been growing across all sectors. Many businesses and nonprofit organizations have adopted the TBL sustainability framework to evaluate their performance, and a similar approach is beginning to gain currency with governments at the Federal, State, and local levels, particularly for policy issues such as redevelopment and overall community wellbeing.

TRIPLE BOTTOM LINE FOR IMPROVED STORMWATER MANAGEMENT DECISIONS

TBL was originally applied to stormwater management primarily outside the United States, and, in particular, in Australia, where it has been a critical

decision-making tool for wastewater management programs. This analytical tool is now being applied to stormwater in many cities throughout the United States as well, most notably Philadelphia, Portland, and Seattle. Many cities, such as Los Angeles, are now conducting cost-benefit analyses that include some elements of TBL. The inclusion of TBL concepts allow public agencies to respond to growing public expectations that they meet broader environmental and social goals in a manner that is cost-effective.

TBL provides for improved quantification and comparison of various complex projects and services that often are designed to satisfy multiple objectives. For example, Low Impact Development (“LID”) projects are often designed to address multiple objectives, which improves their value, but makes analysis of that value more difficult. In addition to treatment of stormwater pollutants, LID also promotes retention of runoff (reducing peak flows and downstream erosion, fostering habitat restoration, improvement in air quality, reduction of the heat island effect, and mitigating the impacts of climate change and sea level rise), percolation into the ground where it can benefit local aquifers (a valuable water resource), providing an alternative water supply, support of urban greening, land conservation, improved aesthetics, sound reduction, recreational benefits, increased land values, and reduction of the costs associated with conventional stormwater infrastructures.

As the public’s appetite for multi-benefit outcomes increases, it is in the best interest of municipalities to find ways to deliver more of these types of outcomes. TBL is an ideal tool to identify optimal stormwater management priorities and decisions, as we will be discussed in the following sections.

2.0 FUNDAMENTALS OF A TRIPLE BOTTOM LINE ANALYSIS

ELEMENTS OF THE TRIPLE BOTTOM LINE

As noted above, TBL is an analysis technique that evaluates the benefits, costs, and risks of the following three areas: economic, social, and environmental. This technique provides an analytical and modeling framework to find the most economical balance between capital investments and operation and maintenance expenditures to minimize the life-cycle costs of any capital asset, while incorporating social and environmental aspects.

A TBL analysis promotes decision-making armed with relevant information from a variety of perspectives. When considering choices among various alternatives, a TBL approach provides the following aspects as an important part of decision making:

- Involves a collaborative, transparent, objective, consensus-building process;
- Considers costs and benefits based on multiple criteria;
- Addresses multiple and sometimes conflicting objectives;
- Provides clear, defensible, well-documented results;
- Identifies key risks; and
- Incorporates uncertainty in costs and benefits.²

The TBL approach provides an objective way to assess project or program options, and provides transparency regarding the inclusion of financial costs and benefits as well as social and environmental costs and benefits. These environmental and social elements reflect externalities, representing what, in the past, have been called side effects. Including them in the TBL changes them from side effects into consciously considered and planned effects. TBL is a way to choose the “highest value” project, which may not necessarily be the least financially expensive one, or the one with the most “bells and whistles” (i.e., the one with the most social and environmental benefits).

MEASURING TRIPLE BOTTOM LINE

The primary challenge of measuring TBL is in assigning values to all three bottom lines (economic, social, and environmental), so they can be weighed objectively against one another. Unfortunately, these elements do not have

² Extracted from a Technical Memorandum dated May 18, 2012 from Edith Hadler and Dan Pecha of HDR to King County, Washington regarding the Approach to Triple Bottom Line Analysis for the King County 2012 Comprehensive CSO Control Program Review.

a common unit of measure. Of course, economic costs and benefits can be readily measured in dollars.

For the social and environmental impacts, quantification and valuation issues loom large. Inclusion of these elements in the TBL requires special efforts to quantify and assign relative values to them, but they are inevitably based on preferences and value judgments of humans. Some options include the following:

- **Monetization**: Putting dollar values on each element of TBL, including social welfare or environmental damage. While this has the benefit of assigning a common unit (dollars) to all three elements of the TBL, finding the right price for each social or environmental cost and benefit of a project is difficult.
- **Index**: Ranking the relative value of each cost or benefit in relation to the others, without assigning a specific dollar (or other) value to them. In this way, the incompatible units issue is eliminated and, it allows for comparisons between entities, e.g., comparing performance among companies, cities, development projects or some other benchmark.
- **Stand-Alone Elements**: This method would use neither dollars nor an index. Rather, each sustainability measure would stand alone. For example, "Acres of wetlands" could be a measure, and progress could be gauged based on wetland creation, destruction or status quo over time.³

The best method of applying metrics to a specific project, program or policy being evaluated should be tailored to the circumstances. The King County, Washington example given below demonstrates how one agency developed a custom approach, which is different than the three above, to address this dilemma.

INVOLVEMENT OF STAKEHOLDERS

Another important feature of TBL is the focus on stakeholders. In a traditional financial analysis that involves primarily profit ("the bottom line"), the enterprise's shareholders are one of the important considerations. But if "stakeholders" is substituted for "shareholders", this, alone, expands the scope of the analysis. Further, when considering social and environmental elements for public agency projects, members of the general public can be considered stakeholders.

³ Extracted from an article in the Indiana Business Review, "Triple Bottom Line: What Is It and How Does It Work" by Timothy F. Slaper and Tanya J. Hall.

By involving various stakeholders, the TBL process ensures transparency and “best value” for the outcome. It is recommended that the definition of stakeholder be described broadly in order to best measure and weigh all three elements of TBL. For instance, stakeholders in a municipal project may be traditionally defined as the users and neighbors of the finished product, but a broader view of stakeholders could also include the tax payers (since they would benefit from the most efficient use of tax money), residents (since they would have an interest in the impact on other similar facilities, etc.), and a myriad of other constituencies ranging from special interests to the general public.

This process also promotes ongoing involvement by stormwater professionals with the public they are tasked with serving. All too often, public sector employees, in pursuit of their daily objectives, become insulated from their constituents. The TBL process can help public servants reconnect with the people they serve.

EXAMPLE APPROACH FOR A TBL ANALYSIS

Although there are rigorous, well-established aspects of TBL analysis, such as the evaluation of economic, social, and environmental aspects by interested stakeholders, there is not just one quantitative analytical approach. In order to provide perspective, an example, including a list of steps, and a general numeric analysis, is included below.

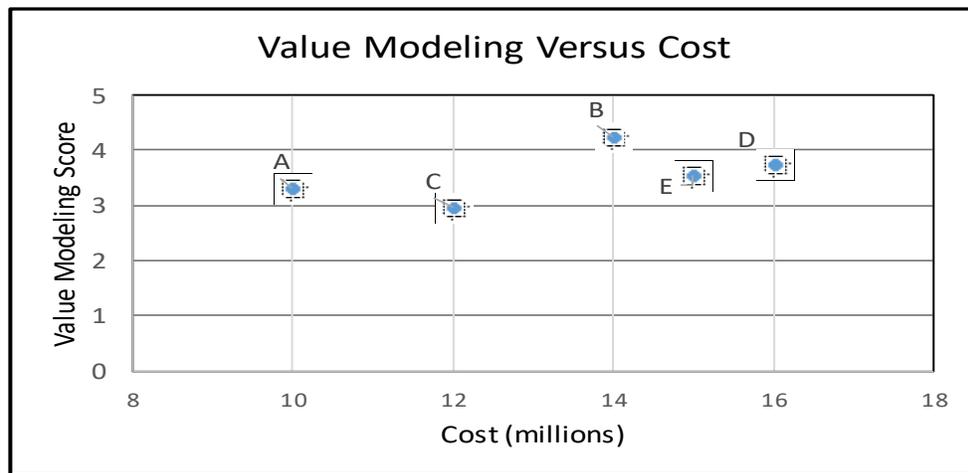
An example of the required steps for a TBL analysis includes the following:

1. Identify and estimate costs and benefits for project alternatives
2. Identify project stakeholders
3. Hold one or more stakeholder forums to
 - a. develop criteria to evaluate social and environmental attributes
 - b. develop relative weighting of criteria
 - c. score each criterion
4. Evaluate the criteria for all project alternatives and plot them in relation to their respective financial costs

The table below illustrates an example approach:

	Environmental and Social Criteria				Cost
	Criteria 1	Criteria 2	Criteria 3	Score	Cost
	20%	45%	35%		(millions)
Project A	4	4	2	3.3	10
Project B	3	5	4	4.25	14
Project C	1	3	4	2.95	12
Project D	5	3	4	3.75	16
Project E	4	3	4	3.55	15

And this scatter graph illustrates the results:



In this case, project decision-makers can gain valuable insight from the scatter graph. Likely, Project C, Project D and Project E would be considered less desirable than Project A and Project B because they deliver more value for the relative cost.

KING COUNTY, WASHINGTON EXAMPLE OF A PUBLIC SECTOR TBL STRUCTURE

Decision makers in King County, Washington, employed a TBL analysis in connection with their 2012 Comprehensive Combined Sewer Overflow (CSO) Control Program. The technique was used to compare various alternatives for this program.

Following are the basic elements of the TBL analysis used in King County. Although it was used in this case to compare a set of capital projects, it can be applied to policies and programs as well. In addition, in this case the term “stakeholders” is used in a relatively narrow context, meaning a group of people with an interest in the process and who could be convened in a

workshop setting. To the extent possible, the process should include stakeholders from as broad of setting as possible or practical.

METHODOLOGY FOR EVALUATING THE SOCIAL, ECONOMIC AND SOCIAL COSTS AND BENEFITS

Some aspects of TBL analysis are fairly straightforward such as the quantification of costs associated the planning, design, construction and O&M of a capital project. Other costs are more elusive such as those associated with both short- and long-term social and environmental costs and benefits. In the King County example, they used the following approach for defining project alternative costs and benefits:

- For the economic aspects, they used cost estimates of present value of capital, operations, maintenance, and equipment replacement costs.
- For the social and environmental aspects, they used a technique called “value modeling” in which each alternative is evaluated for the extent it meets project criteria, and the criteria are weighted according to their relative importance in making the project decisions. Scoring and weighting are done collaboratively by the stakeholders of the project.

They did not attempt to put all three elements on the same metric. In the end, they simply plotted the costs against the value modeling scores in a scatter diagram to graphically illustrate relative value, as illustrated below.

ESTABLISHMENT OF CRITERIA

Criteria are first defined by stakeholders and then used to select alternatives. The criteria should be factors or values that are identified to help achieve the project goal. Examples from the King County program included:

- constructability
- operations & maintenance
- property impacts
- system performance
- community/business
- carbon footprints
- compatibility with other planned projects
- public confidence
- system flexibility

Some criteria could also be used as screening factors, or “fatal flaw” factors, which, if not met, would eliminate that alternative from consideration. Examples of screening criteria could be “meets level of service” or “complies with program regulations.”

In the King County example, they suggested scoring each criterion on a 1 to 5 scale; with 1 for criteria that do not meet the project’s goals, and 5 for criteria that meet the goals easily.

Below is an example of a scoring sheet for one of the King County projects, which shows the 1-to-5 score for each criterion.

Weighting Factor	Category & Criteria	Montlake Alternatives		
		DSN014-STOR-1 (KC)	DSN014-STOR-2 (KC & SPU)	DSN004/008/014/015-STOR-1 (KC & SPU)
20	Technical Considerations			
	<i>Technical Complexity</i>	3	2	1
	<i>Flexibility/Adaptive Management</i>	2	2	1
	<i>Constructability</i>	2	2	1
	<i>Implementation Schedule</i>	2	2	1
	<i>Siting</i>	1	1	3
	<i>Coordination with Other King County Projects</i>	1	1	1
0	Cost Effectiveness			
	<i>Relative Life-Cycle Costs</i>	2	2	2
20	Community and Public Health			
	<i>Construction Impacts</i>	1	1	3
	<i>Potential Community Impacts</i>	2	2	3
	<i>Human Health</i>	2	2	2
	<i>Environmental/Social Justice</i>	2	2	3
10	Environmental Impacts			
	<i>Overall Environmental</i>	3	3	3
	<i>Sustainability</i>	2	2	2
15	Land Use and Permitting			
	<i>Permitting Complexity</i>	3	3	2
35	Operations & Maintenance			
	<i>Operations & Maintenance (O&M)</i>	2	2	3
	<i>Employee Safety</i>	3	3	2
	Weighted Value Score	630	610	635

WEIGHTING CRITERIA

After the criteria were established, each was weighted in regard to their relative importance to each other. This element is a critical step, and is an opportunity for the stakeholders to express their value systems by weighting some criteria higher, or lower, than others. This is a subjective exercise; one

in which a stakeholders' workshop led by a trained facilitator with no personal stake in the outcome can be valuable.

This step can also be valuable in determining which criteria will help differentiate alternatives from one another. For instance, if a criterion is scored the same for all alternatives, it is not as valuable to the analysis. Conversely, if another criterion has a wide range of scores, it may be beneficial to put more weight on that criterion than on other criteria. By assigning various weights to each criterion, the currency of comparing different elements of the TBL are further refined.

The sample scoring sheet above illustrates the weight given to each category of criterion, ranging from 10 to 35. (NOTE: Cost effectiveness was given zero weight because costs were considered separately as explained below.)

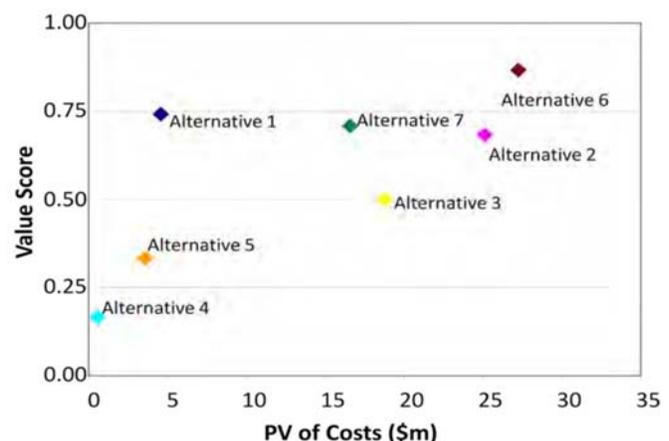
VALUE MODELING

Once the criteria are fully developed, performance measures are required to determine how well alternatives perform against the criteria. Performance measures may be quantitative or qualitative, depending upon the criterion and the availability of data for each measure. In this example, each alternative was scored for each criterion on the 1 to 5 scale, and then the weights were applied through a simple computation. This process of value modeling helps to communicate why one alternative would be preferred over others.

FINAL ANALYSIS

Project costs are then brought into the process by means of a scatter diagram, which plots costs against computed value scores. This is a key element in the TBL analysis, allowing tradeoffs between non-monetary value and costs to be evaluated. Or, in the terminology of TBL, this is where economic factors are plotted against social and environmental factors. To the right is an example of such a scatter diagram from the King County TBL analysis report.

While it does not produce a "final answer" regarding which is the best alternative, it allows the stakeholders to make the tough comparison between economic value



and social and environmental value. For instance, Alternatives 1, 2, 6 and 7 all have relatively high value scores, but Alternative 1 is much less expensive than the others, and may be the best overall choice, even though it has a slightly lower value score than Alternative 6.

The King County example contains other elements, such as producing cost estimates and performing risk analyses, that may be of value depending on the nature and scope of the program being analyzed. For more information, see the 2012 Technical Memo at the following link:

http://your.kingcounty.gov/dnrp/library/wastewater/cso/docs/ProgramReview/2012/WTDRec/TechMemos/TM970/App_H_TripleBottomLineAnalysisScreeningFinalAlts.pdf

3.0 CHALLENGES OF TRIPLE BOTTOM LINE ANALYSES

TBL TAKES SOME EFFORT AND TIME

The King County, Washington decision makers used TBL analysis in a relatively thorough way. Many decision makers indicate that they routinely perform this type of analysis, but in a less formal, more casual way. Many municipal staff will make program or project recommendations with reference to the multiple benefits it brings, including social and environmental factors. But often those factors were incidental to the primary goal, and no objective process is used to weigh their value or support their inclusion. They were either an afterthought, or they were simply built in from the start.

One of the most critical elements of TBL is the stakeholder forum. Without that, many possibilities can be overlooked. Even the best program manager will struggle to single-handedly produce better results than can be achieved in a well-crafted, well-facilitated stakeholder forum. The full spectrum of criteria and the process of determining the weighting is best determined by stakeholders.

Small municipalities may be especially challenged by a King County-style TBL process. Indeed, the entire capital budget for a small agency project might be less than just the TBL facilitation budget for King County. However, TBL is quite scalable, and small agency managers may be closer to successfully implementing this process than they think. Once again, the most critical element is the stakeholder forum. Many public agencies already include a community input element for scoping and planning projects. By adding the criteria setting and weighting steps to the community (stakeholder) input process, an agency is most of the way there. Flushing out multiple alternatives and providing cost estimates will, undoubtedly, add some work, but the exercise is usually well worth the time and effort. Finally, crunching the numbers and producing a scatter diagram are relatively simple tasks that can easily be done on a spreadsheet program such as Microsoft Excel.

A TBL process will also require an investment of time. A stakeholder forum with several meetings and the time it takes to administer the process will likely add a few months to any project. However, schedules for most public programs or projects are set by the public agency, and if this process is built into the schedule up front, the whole process can easily be accommodated and public expectations managed.

Documenting the process is important, and that is what is lacking in the “casual TBL” approach. Documentation not only produces a transparent

administrative record (important on its own merits), but the exercise of documenting also ensures that the steps are fluid and comprehensive. If anything is missed, the steps taken to document the process will tend to expose that, and help the manager avoid any gaps.

OBJECTIVITY IN TBL - HOW IT IS USED

Like any analytical tool, TBL is meant to be as objective as possible. As shown above, there are several steps that include some subjectivity, which is precisely what makes TBL so flexible and reflective of local priorities. But as the King County example illustrates, the subjective elements (criteria and weighting) are injected early in the process and with stakeholder input, while much of the rest of the analysis is more objective. In the end, selecting the alternative that provides the best value for the cost is relatively objective.

Too often Stormwater professionals feel that proposing social and environmental “bells and whistles” for projects will dilute and slow the progress toward water quality goals. Conversely, there are others who would advocate for TBL on the basis that it is entirely about obtaining as many social and environmental benefits in a project as possible. Like any tool, TBL can be used to promote thinking on either extreme. But, like any tool, it is best used for its intended purpose, which is to broaden the palate of possibilities, then help ferret out the alternative that provides the best value.

By way of analogy, consider a trip to the grocery store. Some shoppers may buy the least expensive item regardless of quality or value, while other shoppers may buy the best item regardless of price. Perhaps even a few buy the most expensive thinking it provides the best quality. But the smart shopper will consider quality, quantity and cost in all choices. Although even the smart shopper is influenced by some personal bias (e.g., *“I won’t buy that product because I don’t like the picture on the box”*), ideally this smart shopper will find the “sweet spot” and take home a shopping cart full of quality foods at a reasonable (read: “sustainable”) price.

CONSTRAINTS AND OPPORTUNITIES

In the real world, there are always some constraints. Two of the most common ones are budgets and local policies. However, it has been said that within every constraint lies an opportunity.

BUDGETS

Budget limitations challenge all project managers. In the King County example, it would be easy to imagine a bright vertical line at the \$24 million

mark as a budget constraint. In that case, Alternatives 2 and 6 would not be considered, because they are too expensive, despite their superior value ratings.

One feature of TBL is the broad social and environmental foundation it brings to a project or program. Those “bells and whistles” sometimes have a value in the grant funding market. The world of grant funding is complex and more extensive than most managers know. We mention it even though it is outside the scope of this report, because one asset in competing for grants is readiness. It is common to find grant funding to supplement a program’s or project’s base funding. It is also not unheard of to find funding at the last minute that matches a grant with a focus on one of a project’s bells or whistles simply because a project is ready to include them. Therefore, it is recommended that the budgetary limits be pushed a bit during the planning and evaluation stages to allow for this contingency. It may be perfectly fine for a project to cost a bit more than originally anticipated if that difference in cost is paid for via a grant or other funding source.

POLICIES

Policy constraints can be troublesome as well. For instance, local workforce participation may be a criterion for a project, but may not be weighted very heavily. However, some local municipalities have policies regarding local purchasing preferences that would require that element to be included in the project, thus pre-empting that part of the TBL process. Conversely, a well-executed TBL process can inform policy makers, and could, in some cases, influence policies and possibly bring about some policy changes.

One particular policy influence may not be a constraint at all. Many of the programs and projects involving stormwater are part of a capital improvement program (“CIP”). Most city councils and other governing boards update their CIP annually, an action that is a significant policy statement, and is usually coordinated with other general and specific plans. It is not uncommon for a project that has undergone a TBL or similar process, that has had stakeholder and other public input, to significantly influence the entire direction of the CIP. It can to set the tone of how the agency views its investment of capital, including both financial and political capital, and can broaden the understanding of ways stormwater infrastructure supports other water-related objectives including water production, wastewater management, local drainage, flood control and even solid waste management.

LEARN MORE ABOUT TRIPLE BOTTOM LINE

The reader may wish to learn more about TPL. In addition to the articles footnoted above, the following references are provided.

- U.S. Environmental Protection Agency, Case Studies Analyzing the Economic Benefits of Low Impact Development and Green Infrastructure Programs, EPA 841-R-13-004, August 2013.
 - “Stormwater Quality and the Triple Bottom Line – Are We Doing What We Need to Protect Water Quality?”, Stormwater Blog, Contech Engineered Solutions:
 - <http://www.conteches.com/stormwater-blog/id/48/stormwater-policy-and-the-triple-bottom-line-are-we-doing-what-we-need-to-protect-water-quality>
 - EPA Case Study, City of San Diego Watershed Asset Management Plan:
 - <https://www3.epa.gov/region9/water/npdes/asset-mgmt/pdf/npdes-asset-mgmt-case-study-san-diego-wamp.pdf>
 - Grand Rapids, Michigan, Community Triple Bottom Line Indicator Report:
 - http://grcity.us/enterprise-services/Documents/11686_TBLFinal.pdf
-