TERC Sustainability Framework

Handbook for Developing Sustainability Performance Measures

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1.0 Goals of the handbook

This *Handbook for Developing Sustainability Performance Measures* was created for the Transportation and Environmental Resource Council (TERC) Sustainability Subcommittee. This handbook was developed with a few goals in mind: to help the TERC subcommittee members understand how to use measures, to help understand a TERC agency's sustainability performance and to manage an agency's performance with more rigor.

The following pages will be a guide to learning the necessary elements for choosing and creating sustainability performance measures, and using those measures to manage and improve an agency's sustainability. The key terms illustrated in **Figure 1** were developed by TERC subcommittee members and serve as the common language for this handbook.

Figure 1: Key Terms

DEFINITIONS	EXAMPLE
PRINCIPLE: Primary tenant of sustainability	**PRINCIPLE:** Environmental Stewardship
CATEGORY/ SUBPRINCIPLE Division or subset of a principle	**CATEGORY/ SUBPRINCIPLE** Water
ASPECT: Feature of a category	**ASPECT:** Total water usage
TARGET/GOAL Goal of each aspect	**TARGET/GOAL** # of gallons annually
STRATEGY/ OBJECTIVE Planned action to achieve target	**STRATEGY/ OBJECTIVE** Weather controlled irrigation
MEASURE: Means of determining progress toward the target	**MEASURE:** # of gallons of water consumed

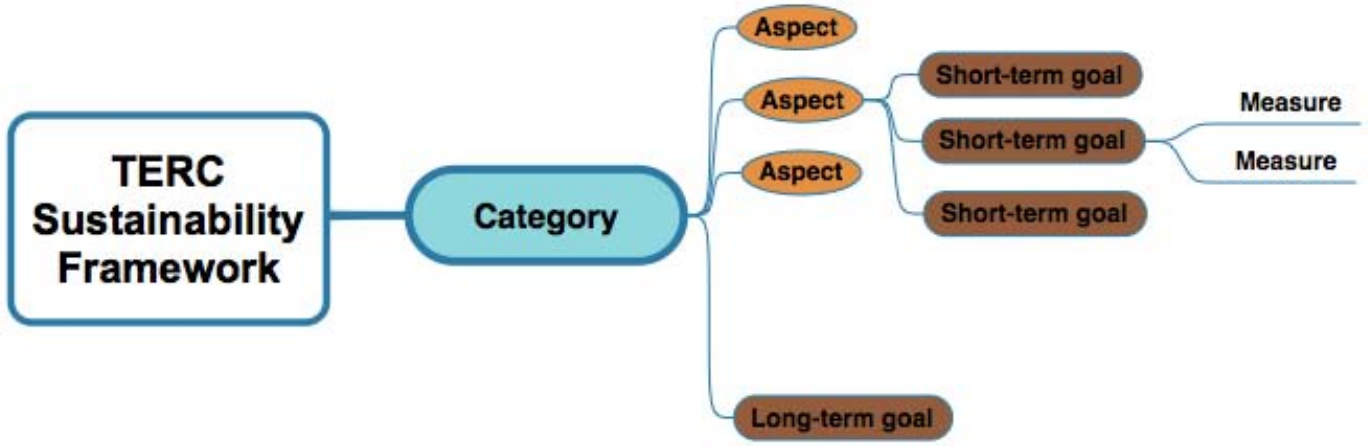
2.0 What is a framework and how do performance measures fit in?

For a sustainability program to be coherent to all involved, a language and a structure must be established so that everyone can coordinate and work together. A framework is much like a table of contents for a set of discussions, management protocols, project development and assessment of performance. While each and every agency has its own culture and leadership, imagine if all interagency meetings were spoken in as many languages as participants – at best, it would slow down progress and more likely, would result in a frustrated group of leaders. For that reason we have developed a framework that each agency's unique performance measures can be nested into and be recognized outside of their agency and across other agencies in Colorado.

The Transportation and Environmental Resource Council (TERC) Sustainability Framework builds upon the TERC Sustainability Topics that have been developed through a number of work sessions. The TERC Sustainability Topics are grouped into three broad focuses: community well-being, environmental stewardship, and economic vitality and quality (known as the principles). As agencies develop sustainability programs, plans, goals and measures they will find the need to adapt the framework somewhat. Ultimately, a framework will never be perfect. One that is 80% perfect, but is consistent across all agencies will be more useful than perfect frameworks within individual agencies that are unrecognizable to others.

The performance measures that an agency develops will align with the categories and the aspects that fit the specific agency as illustrated in **Figure 2**. The measures will evaluate agency performance towards long-term and short-term goals. Generally speaking, the long-term goals will be paired with categories and be aspirational in nature. For example, the materials category would have a long-term goal of zero waste with total recovery of by-products. This is unlikely to be achieved in the short term, but the sense of direction is clear. The short-term goals are paired with the aspects that are relevant to an agency. For example, the aspect of "paper use" applies to every office and a goal of reducing paper use by 25% in five years is an accomplishable goal. The performance measures follow the goals. For the category "reuse and recovery", an example long-term goal could be closed loop material cycles. For the aspect short-term goal of paper use reduction, example measures could include percentage of printers and workstations that are default set to double-sided printing, total pounds of paper purchased and total pounds of paper recycled.

Figure 2: Performance Measures Development Process



2.1 How many measures in a framework?

The choice of how many performance measures to include in the framework will inevitably come up. One of the natural instincts is to cover as many performance measures as possible because it appears that everything matters, assessments should be comprehensive and data is accessible. However, most of the time less is more. Reasons to cover fewer performance measures include the tradeoff between quality versus quantity, and the cost and opportunity cost of collecting the data. An efficient measurement system saves time and focuses the work where it belongs – implementation.

2.2 Perfect versus existing measures

Another common issue is deciding when new information and data needs to be gathered for the assessment. Often, data already gathered is not exactly what is preferred, but it is easier and less costly to use than spending the time and resources to get the new data. It is important to have explicit conversations about what information the agency wants in order to set goals, acknowledge when new information is needed or when the existing data is good enough. For this decision, make sure every work group that touches the aspect is involved to avoid blind spots.

2.3 Why should we measure and report performance?

As a public agency it is important to make performance transparent but it is normal to feel a certain amount of resistance. Some common thoughts: Why would we talk about things if we don't have to? Will we draw attention to ourselves unnecessarily? What if we're doing poorly? **Measuring is the first action.** It is a misconception that reporting or assessing is at the expense of action. Measures and assessment will take work and resources but without it you will not know what action needs to be taken.

Why should we measure and report performance?

#1: Without assessment, no one knows how or what they are doing
- The act of studying yourself teaches you about yourself
- Sharing successes builds internal knowledge, morale

#2: External learning mechanisms are more accessible when you have self-knowledge
- Understand and learn of peers' performance
- Participation in knowledge sharing (e.g., centralized resources)

2.4 TERC Sustainability Topics versus framework

In developing the framework, the TERC Sustainability Subcommittee (TSSC) looked to align the TERC Sustainability Topics with the categories most commonly used throughout the nation and internationally. Sustainability topics are generally developed to communicate agency intent and provide guidance to test the quality of decisions. Frameworks are useful as the skeleton of sustainability programs. **Note that the categories roughly follow the order of the TERC Sustainability Topics.** Also note that the consensus categories include categories such as land use and climate change adaptation that the TSSC developed and agreed to in Workshop #1. The choice categories are there for the use by agencies that feel these are important, but did not have consensus across agencies. **Figure 3** represents the TERC Sustainability Topics broken down into a framework outline.

Figure 3: TERC Sustainability Topics and Categories

TERC Sustainability Topics

Community Well-Being

Engage in activities and implement policies that:

1. Provide reasonable access to people, places, goods, and services;
2. Strive for social, interregional and inter-generational equity, meeting the basic needs of all individuals including women, the poor, the rural, and the disabled; and
3. Protect the health, safety and quality of life of all people while recognizing unique community characteristics.

Environmental Stewardship

Engage in activities and implement policies that:

4. Make sustainable decisions that are compatible with, preserve, and enhance the natural environment, reducing environmental impacts;
5. Reduce emissions and waste and encourage energy efficiency and use of renewable resources; and
6. Reduce consumption of energy, materials, land, and other resources.

Economic Vitality and Quality

Engage in activities and implement policies that:

7. Fully account for and reflect social, economic and environmental costs and benefits;
8. Foster economic vitality and opportunities; and
9. Revitalize and enhance existing communities.

TERC Sustainability Categories

Community Well-being

Consensus categories

- Equity & access
- Cultural & community development
- Human health & safety
- Land use
- Climate change adaptation

Choice categories

- Affordable housing
- Energy emissions

Environmental Stewardship

Consensus categories

- Habitat & biodiversity
- Land use
- Materials & resources
- Water
- Energy emissions

Economic Vitality and Quality

Consensus categories

- Equity & access
- Fiscal health / financial (internal)
- Best business practices
- Land use
- Local economic development (external)

Choice categories

- Energy & emissions
- Affordable housing

3.0 Who are the stakeholders?

In order to determine what performance measures belong in a framework, the following questions must be answered:

- Who are the stakeholders? Think about both internal and external stakeholders.
- Who needs or wants sustainability performance measures and why do they want them?

Practice table for naming stakeholders is on page 17. List an internal and external stakeholder for the agency and why they would want performance measures.

Example

Internal stakeholders

Agency director

Why do they want performance measures?

To discuss our performance with the Governor and other agencies and to manage across departments.

External stakeholders

Nature Conservancy

Why do they want performance measures?

To scale impacts and conservation potential of a major landowner and de-facto ecosystem manager.

3.1 How do we prioritize what we publish for all stakeholders?

What to measure and how it is measured evolves over time. Ultimately, sustainability reporting proactively answers many questions that are typically asked in an inefficient one-at-a-time manner. It is also an invitation for both internal and external stakeholders to react to the information – which makes clearer what matters most and encourages problem solving that in turn improves performance.

If done carefully from the start, changes can be kept to a minimum and are likely to come only in the early years of measuring performance. One good method to prioritize what is reported to everyone is the follow on process to determining what categories and aspects are relevant for the agency and then sorting them into a Materiality Matrix as demonstrated in **Figure 4** by Starbucks Corporation in its *Corporate Social Responsibility*

Report for 2006.[1] **Figure 4** lists issues that are important to external stakeholders (vertical axis) and issues that are important for the internal stakeholders (horizontal axis). In the top-right box, the "very important" issues are conglomerated. The upper right quadrant is the subset of categories and aspects that should be reported to all stakeholders.

Figure 4: Materiality Matrix

With many different stakeholders to consider, it may be a difficult task to prioritize what performance measures are actually important and significant. Several questions to ask in order to help with this issue are:

- What is really important to the internal stakeholders that no one knows about?
- What is really important to external stakeholders that is not important to internal stakeholders?
- What is a priority to both?

Practice table for stakeholder prioritization is on page 18.

[1] Starbucks Corporation (2006). Corporate Social Responsibility Report. http://assets.starbucks.com/assets/fy06-csr-full.pdf.

4.0 Setting goals

Within each category and aspect there will be specific goals that the agency will select as targets. These goals will guide current and future work. The performance measures will inform whether the agency is making progress or whether it is time to look at a new strategy.

4.1 Long-term and short-term goals

As discussed above, both long-term and short-term goals are needed. The long-term goals are big picture changes that the agency would like to see take place over an extended amount of time and usually correlate to categories in the framework. These are usually aspirational in nature and may be intimidating or unachievable in the short term. Nevertheless they signal what the definition of perfection is.

Short-term goals work toward the long-term big picture goals but take place at a quicker pace and are smaller, more manageable tasks to accomplish and usually correlate with aspects.

Practice table for picking goals is on page 19. Pick a principle and fill in a corresponding category and aspect. Then write down a long-term goal for the category and a short-term goal for the aspect.

Example

Principle

Environmental stewardship

Category

Materials and resources

Long-term goal

Zero waste and cradle-to-cradle materials management.

Aspect

Paper use reduction and recovery

Short-term goals

Double-sided printing and copying – requiring that all computer labs and copiers can print double-sided and setting the defaults to double-sided printing.

100% recycled content – requiring polices that all paper be 100% post-consumer recycled content paper and free of chlorine.

5.0 What makes a good measure?

When choosing performance measures it is necessary to keep the following in mind:

5.1 Quantitative versus qualitative

It is a common misconception that quantitative is better than qualitative for all performance measures. The reality is that it depends what is measured. There are appropriate quantitative and qualitative measures. Good quantitative measures:

- Accurate numbers
- Possible to communicate sense of scale
- Sense of direction
- Historic performance – often called lagging indicators

Good qualitative measures:

- Describe the presence or absence of a process
- Demonstrate the application of criteria or principles
- Sense of direction
- Programs that will affect future performance – often called leading indicators

Practice table for quantitative versus qualitative measures is on page 20. Write down two measures, one that is quantitative and one that is qualitative, listing what principle, category and aspect that they fall under.

Example

Principle

Environmental stewardship

Category

Materials and resources

Aspect

Recycling

Quantitative measure

Tons of paper recovered per year.

Qualitative measure

Paper reduction policy in place.
Paper reduction policy taught to all new employees.
Paper reduction policy taught to all existing employees.

5.2 Scope and boundaries

Scope and boundaries define where the data needs to come from. Establishing a boundary determines what the scope of the data gathering process is. If information is gathered outside of the relevant boundary and beyond the scope of applicable data, the performance measure is not useful for gaining a clear picture of what needs to be managed. Think about the performance measure chosen and what areas are relevant; then set boundaries and collect data from within the scope of that boundary.

- What area is getting measured? (i.e. which operations, departments, programs, projects, etc.?)

Practice table for scope and boundaries is on page 21. Write down a specific measure, listing what principle, category and aspect that it falls under. Then describe what the scope and boundaries are for the measure.

Example

Principle

Environmental stewardship

Category

Materials and resources

Aspect

Recycling

Measures

1. Recycling rate of the entire agency's office operations.
2. Recycling rate of Fleet's waste.
3. Recycling of capital projects waste.

Scope and boundaries?

1. Office.
2. Fleet: tires, oil, solvent.
3. Construction and demolition.

5.3 Sense of scale

It is important to explicitly define what matters by providing a meaningful sense of scale. Most commonly, performance measures are reported without enough context to understand if the performance is meaningful.

- How many (and which) measures? How much depth in each area? How much total information?
- If it doesn't have a meaningful sense of scale do not include it.
- Give context for scale, not just absolutes.

Practice table for sense of scale is on page 22. Write down a specific measure, listing what principle, category and aspect that it falls under. Then describe how the measure provides a clear sense of scale. Make sure that the sense of scale is put in context.

Example

Principle

Environmental stewardship

Category

Materials and resources

Aspect

Recycling

Measures

1. We recycled 80% of our paper use for the year.
2. We recycled 100% of our tires for the year.

Sense of scale? Put in context

1. Department of Information technology previously used 2 truckloads per year. Department of Personnel and Administration previously used 1500 truckloads per year.
2. Department of revenue has 25 fleet vehicles and turns over 24 tires per year on average. Department of Personnel and Administration has 1100 fleet vehicles and turns over 1000 tires per year on average.

5.4 Sense of direction

Make sure that it is clear how a performance measure should trend in order to meet goals.

- Should this performance measure increase or decrease to meet goals?

Practice table for sense of direction is on page 23. Write down a specific measure, listing what principle, category and aspect that it falls under. Then describe how the measure provides a clear sense of direction.

Example

Principle

Environmental stewardship

Category

Materials and resources

Aspect

Recycling

Measure

1. Recycling rate of the entire agency's waste stream.
2. Total waste generated.

Sense of direction?

1. Increase is good.
2. Decrease is good.

5.5 Possible to define "good" performance

It is important when picking measures, that it is clear what the desired outcome is (whether a short- or long-term goal) and thus, it should be clear what a "good" performance is.

- Can the performance be measured quantitatively or qualitatively?

Practice table for definition of good performance is on page 24. Write down a specific measure, listing what principle, category and aspect that it falls under. Then describe what a good performance would be for that measure.

Example

Principle

Environmental stewardship

Category

Materials and resources

Aspect

Recycling

Measure

Recycling rate of the entire agency's office waste stream.

Possible to define "good" performance?

Good would be a credible increment higher than local, regional or national recycling rate.

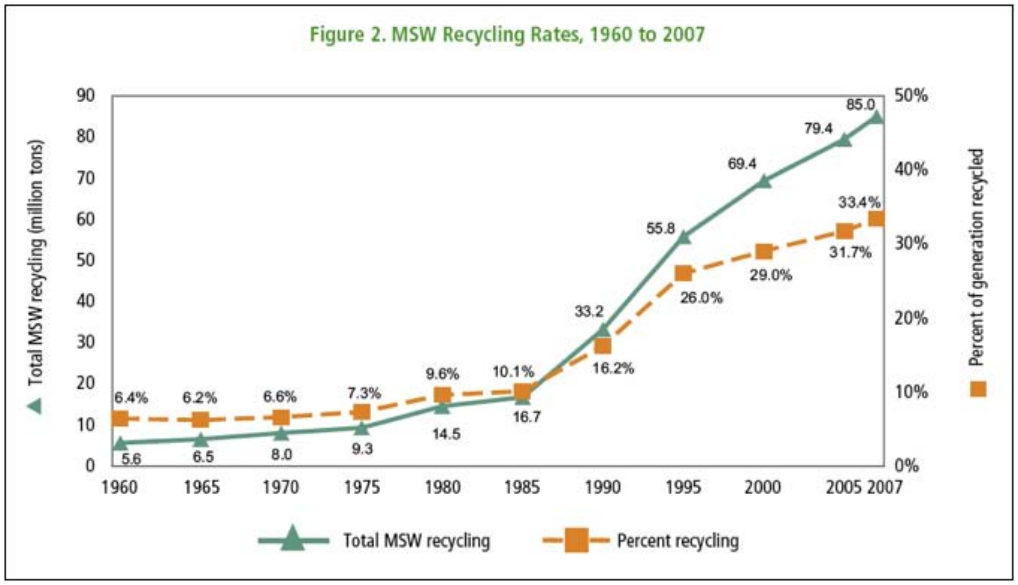
5.6 Complementary measures

When picking measures, think about what will provide the "big picture". A measure, standing alone may not provide adequate detail to understand what is happening. Combining a measure with 'complimentary measures' makes the full story clearer. **Figure 5** illustrates an example of materials and waste and two different measurements. Think about the following questions:

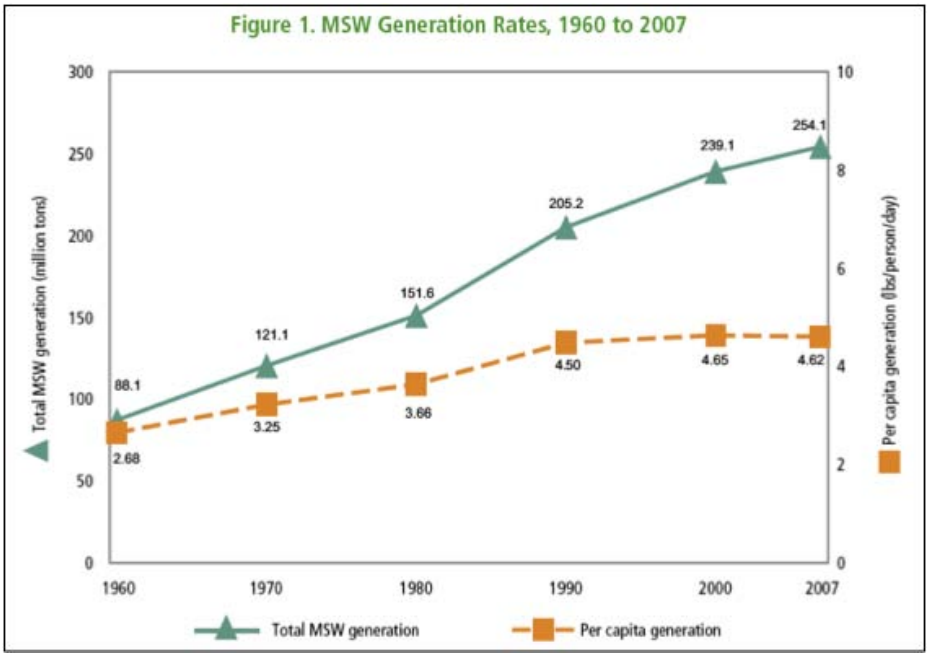
- What is the story here?
- Does this give direction for action?

Figure 5: Example of Complementary Measures

Municipal Solid Waste (MSW) recycling rate (%)



Total volume (or weight) going to landfill



Practice table for complementary measures is on page 25. Write down complementary measures, listing what principle, category and aspect that they fall under.

Example

Principle

Environmental stewardship

Category

Materials and resources

Aspect

Recycling

Complementary measures

Total waste generated per year in tons.
Total recycling rate per year in percent.

5.7 Normalization and comparability

When completing an assessment of an agency, there may be a need to benchmark against an external standard. Benchmarking may not be as simple or easy as it appears. The goal is an apples-to-apples comparison, but the actual comparison may not be so clear-cut. The major challenges include finding a denominator that is comparable and having an intelligible sense of scale. It is likely that the best assessment is against an internal standard over time.

Practice table for normalization and comparability is on page 26. Write down comparable measures, listing what principle, category and aspect that they fall under.

Example

Principle

Environmental stewardship

Category

Materials and resources

Aspect

Recycling

How would this be measured for comparison?

Total waste generated per year in tons per FTE.
Total recycling rate per year in percent per FTE.

6.0 Replicability

If the best benchmark is against an internal standard over time, the assessment process will have to be repeated. Questions to ask when thinking about replicability are:

- What is a reasonable interval for revisiting these issues?
- What will the effort involved in revisiting them be?
- What is the true cost of the assessment? And what is the opportunity cost of time?

Here are some tips to make it easier to replicate your assessment:

- Make sure to save your assessment process documents in an audit trail so that you do not have to search for the same information the next time around.
- Include assessment in your "effort/time budget".
- Force yourself to have an explicit target in mind in terms of total hours and calendar time.

Practice choosing aspects for your agency's framework

Check the boxes next to the categories and aspects that are relevant to your agency. This practice exercise is only focused on the categories and aspects under the environmental stewardship principle. It may be useful to use the categories and aspects chosen below for the other practice exercises below.

Environmental Stewardship

Category	Aspect	
	Aspects used most frequently in national and global frameworks	**Additional aspects considered for inclusion by TSSC**
☐**Habitat & Biodiversity**	☐ Conserve Local Ecosystems ☐ Mitigation & Restoration	☐ Access to Information ☐ Consumption of Undeveloped Land ☐ Conserve Local Ecosystems ☐ Culture & Quality of Life
☐**Materials & Resources**	☐ Prevention (Management & Purchasing) ☐ Total Solid Waste ☐ Reuse & Recovery ☐ Regulated/Hazardous Solid Waste	☐ Access to Information ☐ Environmentally Preferred ☐ Purchasing ☐ Life Cycle Costing & Accounting ☐ Local Contracting ☐ Total Energy Usage ☐ Total Water Usage ☐ Water Efficiency & Management
☐**Water**	☐ Total Water Usage ☐ Water Efficiency & Management ☐ Water Discharge Quality	☐ Access to Information ☐ Conserve Local Ecosystems
☐**Land Use**	☐ Consumption of Undeveloped Land ☐ Productivity of Developed Land	☐ Access to Information ☐ Conserve Local Ecosystems ☐ Culture & Quality of Life ☐ Energy & Fuel Efficiency ☐ Total Water Usage ☐ Affordable Housing/Housing Diversity
☐**Energy Emissions**	☐ Energy & Fuel Efficiency ☐ Greenhouse Gas Emissions ☐ Local Air Emissions ☐ Renewable Energy & Alternative ☐ Fuels Use ☐ Total Energy Usage	☐ Access to Information ☐ Public Health & Safety ☐ Regulated / Hazardous Solid Waste ☐ Total Solid Waste

Practice 3.0 Who are the stakeholders?

See page 5 for an explanation and example.

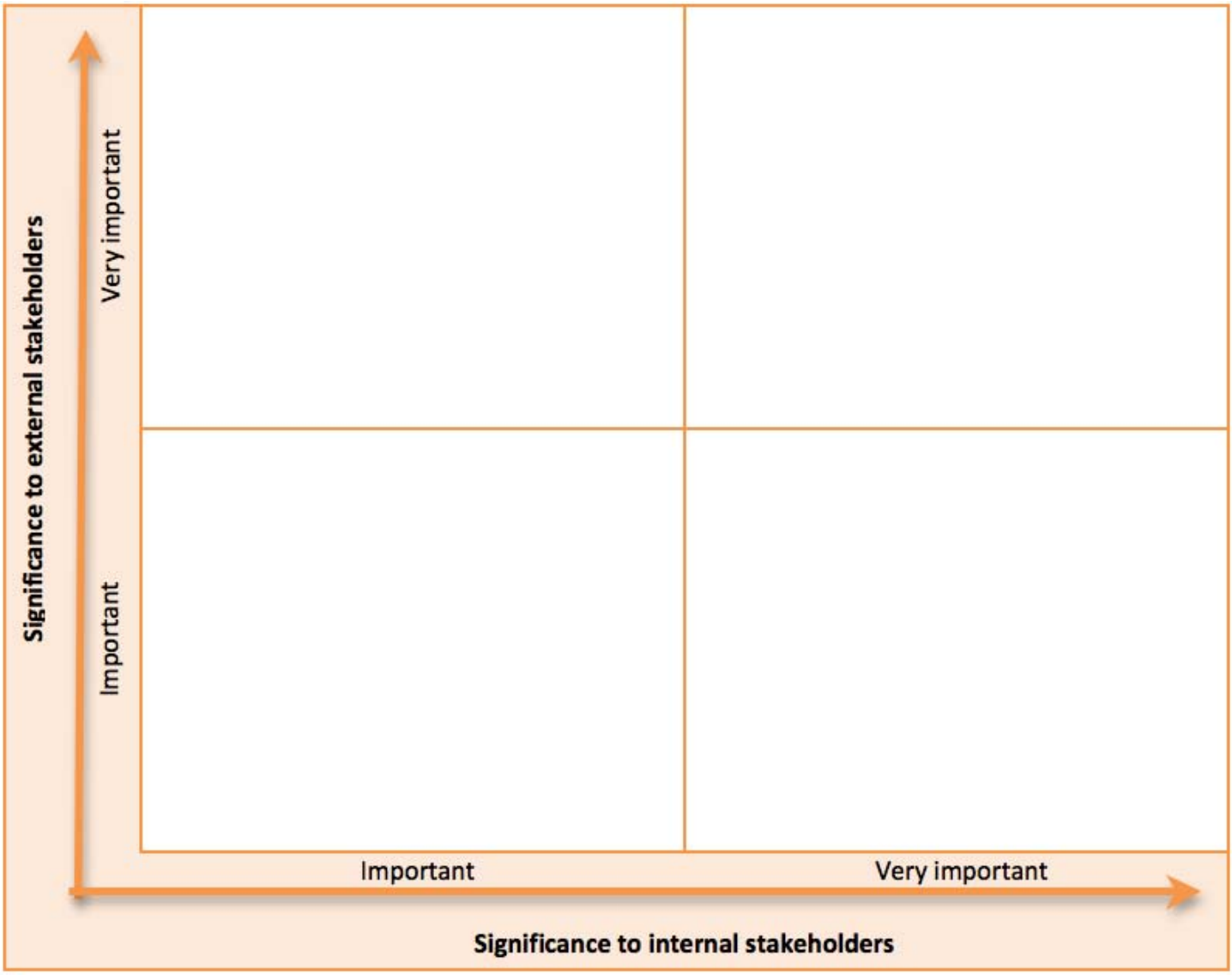
List an internal and external stakeholder for your agency and why they would want performance measures.

Practice	*Practice*
Internal stakeholders	**Internal stakeholders**
Why do they want performance measures?	**Why do they want performance measures?**
External stakeholders	**External stakeholders**
Why do they want performance measures?	**Why do they want performance measures?**

Practice 3.1 How do we prioritize what we publish for all stakeholders?

See page 6 for an explanation.

Using the categories and aspects selected for Economic Vitality and Quality in the homework and aspects exercise in Workshop #1, fill in each quadrant as completely as possible. Start with the upper left and lower right quadrants first. These will be relatively easy as they should be very hot topics. Fill in the bottom left quadrant next. These will be the topics that get talked about a lot, but will have less big picture impact. Finally, fill in the upper right quadrant. This is a draft of what is the agency's priority for Economic Vitality and Quality.



Practice 4.1 Long-term and short-term goals

See page 7 for an explanation and example.

Pick a principle and fill in a corresponding category and aspect. Then write down a long-term goal for the category and a short-term goal for the aspect.

Practice	***Practice***
Principle	**Principle**
Category	**Category**
Long-term goal	**Long-term goal**
Aspect	**Aspect**
Short-term goals	**Short-term goals**

Practice 5.1 Quantitative versus qualitative

See page 8 for an explanation and example.

Write down two measures, one that is quantitative and one that is qualitative, listing what principle, category and aspect that they fall under.

Practice	***Practice***
Principle	**Principle**
Category	**Category**
Aspect	**Aspect**
Quantitative measure	**Quantitative measure**
Qualitative measure	**Qualitative measure**

Practice 5.2 Scope and boundaries

See page 9 for an explanation and example.

Write down a specific measure, listing what principle, category and aspect that it falls under. Then describe what the scope and boundaries are for the measure.

Practice	***Practice***
Principle	**Principle**
Category	**Category**
Aspect	**Aspect**
Measures	**Measure**
Scope and boundaries?	**Scope and boundaries?**

Practice 5.3 Sense of scale

See page 10 for an explanation and example.

Write down a specific measure, listing what principle, category and aspect that it falls under. Then describe how the measure provides a clear sense of scale. Make sure that the sense of scale is put in context.

Practice	***Practice***
Principle	**Principle**
Category	**Category**
Aspect	**Aspect**
Measure	**Measure**
Sense of scale? Please put in context.	**Sense of scale? Please put in context.**

Practice 5.4 Sense of direction

See page 11 for an explanation and example.

Write down a specific measure, listing what principle, category and aspect that it falls under. Then describe how the measure provides a clear sense of direction.

Practice	***Practice***
Principle	**Principle**
Category	**Category**
Aspect	**Aspect**
Measure	**Measure**
Sense of direction?	**Sense of direction?**

Practice 5.5 Possible to define "good" performance?

See page 12 for an explanation and example.

Write down a specific measure, listing what principle, category and aspect that it falls under. Then describe what a good performance would be for that measure.

Practice	***Practice***
Principle	**Principle**
Category	**Category**
Aspect	**Aspect**
Measure	**Measure**
Possible to define "good" performance?	**Possible to define "good" performance?**

Practice 5.6 Complementary measures

See page 14 for an explanation and example.

Write down complementary measures, listing what principle, category and aspect that they fall under.

Practice	***Practice***
Principle	**Principle**
Category	**Category**
Aspect	**Aspect**
Complementary measures	**Complementary measures**

Practice 5.7 Normalization and comparability

See page 14 for an explanation and example.

Write down comparable measures, listing what principle, category and aspect that they fall under.

Practice	***Practice***
Principle	**Principle**
Category	**Category**
Aspect	**Aspect**
How would this be measured for comparison?	**How would this be measured for comparison?**

Practice sheets for sustainability performance measures

Fill out the boxes below with categories and aspects for your agency. Then fill in what your goals are, focusing on internal performance, followed by what performance measures you should use.

Example				
Environmental Stewardship (internal performance)				
Category	**Long-term goal**	**Aspect**	**Short-term goal**	**Measure(s)**
Energy emissions	Become carbon neutral.	Fuel use	Acquire electric vehicles for agency fleet for local travel.	▪ Percentage of electric vehicles in agency fleet. ▪ Number of electric vehicles in agency fleet.

Practice				
Principle: _____ (internal performance)				
Category	**Long-term goal**	**Aspect**	**Short-term goal**	**Measure(s)**

Practice sheets for sustainability performance measures

Fill out the boxes below with categories and aspects for your agency. Then fill in what your goals are, focusing on external performance, followed by what performance measures you should use.

Example				
Environmental Stewardship (external performance)				
Category	**Long-term goal**	**Aspect**	**Short-term goal**	**Measure(s)**
Energy emissions	Become carbon neutral.	Fuel use	Make electric vehicle plug-in stations available at highway rest stops.	▪ Percentage of highway rest stops with two or more electric vehicle metered charging stations. ▪ Number of metered electric charging at rest stops statewide.

Practice				
Principle: _____ (external performance)				
Category	**Long-term goal**	**Aspect**	**Short-term goal**	**Measure(s)**