



THE PATH TO SUSTAINABILITY BUSINESS GUIDE

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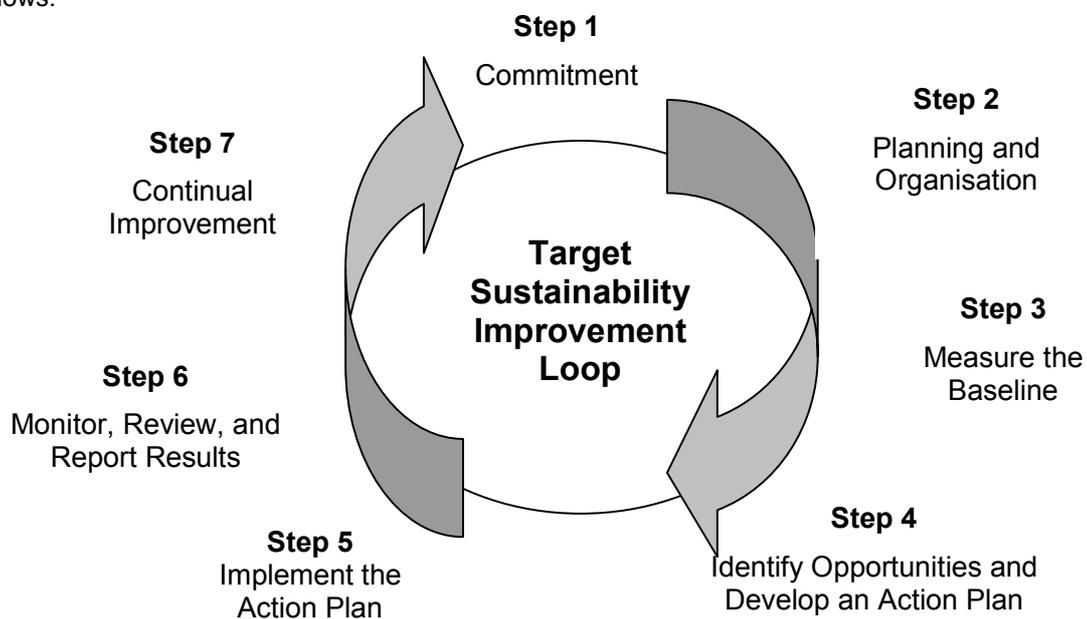
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Introduction

For a business to become sustainable, it needs to reach a point where economic imperatives work in harmony with environmental and social ones. This is a lofty goal and one that is likely to take a lot of effort to achieve in most businesses. For this reason, we refer to sustainability as a journey, rather than a destination. Like all journeys, it is important to know where you are going and to have a plan for making progress in that direction. Target Sustainability aims to help you to do so by focusing on 7 key steps that will get you started. These steps involve:

- gaining commitment (helps to ensure that you have support and can keep going);
- planning and organisation (helps to know what you are trying to achieve and how you will do so);
- measuring your baseline (helps you to quantify your organisation's current status and gives you something to measure progress against);
- identifying opportunities and developing an action plan (helps you to work out how to improve);
- implementing the action plan (helps your organisation to actually improve);
- monitoring, reviewing and reporting results (helps you to ensure that improvements get noticed);
- continual improvement (helps to make sure the improvements and process keep going).

We refer to these steps as the Target Sustainability Improvement Loop and they fit together as follows:



1. STEP 1 Commitment

Because sustainability is a journey, there will be lots of steps along the way. Commitment is what will enable us to keep going, even if the going gets tough.

But commitment is a very big thing. If we think about what we are truly committed to (things we will keep caring about and working for or towards, no matter how hard it gets), we may come up with quite a short list. This is because commitment involves buying into particular sets of values, and before we are prepared to buy into value sets, we tend to want to learn more about them, including their implications and what they will do for us.

The values that underlie sustainability are to do with being prepared to make decisions that take into account not just economic, but environmental and social well-being as well. It is a huge ask to expect people who know very little about sustainability, let alone the implications for their business, to be truly committed to it.

Commitment to sustainability usually involves learning about:

- its relevance to the organisation in question;
- specific issues and options for improvement;
- the costs and benefits of doing nothing versus improving;
- how improvements work;
- that they do work.

Even in small businesses, achieving progress towards sustainability can be quite complex. Commitment will best be achieved by undertaking lots of simple, but significant and effective projects, and by taking care to communicate their results to senior decision-makers and staff.

1.1. How to gain and maintain support

1.1.1. Commitment from the top

Commitment from the Chief Executive Officer and Senior Management team is vital for the success of a sustainability programme. In particular, it is important that senior management can:

- Allocate responsibilities to staff to ensure projects are implemented
- Ensure the team are allocated adequate time to complete the tasks
- Allocate additional resources such as a budget for the programme and project implementation

However, very few sustainability projects are able to start off with full commitment from senior decision-makers. Why would they buy into a set of values they know nothing about?

In most organisations, the best you can hope for at the start of a programme is support to enable you to have a go, get results, communicate them and then to be able to keep going. Your aim is to use strategically chosen projects to build up decision-makers' knowledge, ramp up their interest and enthusiasm and the support you receive, to the point where they are committed to continuing the journey.

You can start by involving Senior Management in overseeing the programme, this is essential to help ensure progress is made. However, sometimes Senior Management first need to be convinced that the projects are even worthy of their support. Gaining this support can be assisted by:

- Thinking about what is important for the organisation and what therefore motivates senior managers
- Building a case that includes these things
- Presenting case studies of successes achieved in similar businesses or similar areas of focus (covering \$'s saved and/or environmental improvements)
- Collating information to show potential financial savings and benefits for your business
- Inviting successful businesses to visit your site and share their experiences
- Linking the project aims and outcomes with the stated organisation targets (e.g. efficient manufacturing)

It also helps to have a team to work with, sometimes one or two motivated people are enough if they are well supported and are able to encourage others to be involved. Other times bigger, more broadly representative teams are necessary.

You will need to think about your own context and what is most likely to work. Avoid trying to do it all on your own, if you have to start on your own, think about how you will involve others and plan to get to the point where you have a team to work with. See Section 2.2 for more information on teams.

1.2. Integrate the programme into your business

It is important that any projects you undertake are seen by staff and management as part of your long-term business activities and not an isolated incident. To do this the projects need to be 'visible' within the business. You can encourage this by:

- Documenting and communicating your progress.
- Write a list of projects you are undertaking and post it on the staff notice board including:
 - Who is undertaking the work and heading up the project
 - When are the tasks going to be completed
 - Putting it in the context of the company's long term objectives and strategy
- Updating your site operating procedures to include any changes that the project has identified
- Maintaining a year-to-year budget to be used by the project team
- Involving your human resources staff and ensuring that responsibilities for the team are written into their position descriptions
- Ensuring key performance indicators are identified
- Holding regular meetings to coordinate projects and to give them profile
- Communicating and reporting progress so the whole organisation stays informed

Don't get bogged down in bureaucracy. People are seldom motivated by complicated systems. Try to get projects and results flowing, and then think of how to ensure that what's already been done is maintained and new projects can be identified and implemented.

2. STEP 2 - Planning and Organisation

Planning and organisation will keep you on track by helping to make sure that you and others know what you are trying to achieve and how you will achieve it.

2.1. Develop targets for the project

You must write down targets as a record of what needs to be achieved and to focus your team. Target Sustainability suggests you begin your sustainability programme by focusing on resource efficiency.

We recommend resource efficiency because every organisation (and every decision-maker) is under financial constraints of some sort. When you use resources more efficiently, you not only reduce wastes (and benefit the environment), you also save money. In addition, a resource efficiency programme may also help your organisation address:

- Health and safety compliance - e.g. it may mean you lower the health and safety risk as you are using less chemicals
- Environmental compliance issues - e.g. lower the risk of exceeding consent conditions for trade waste disposal
- Avoiding or deferring capital investment - e.g. by minimising leaks in your compressed air system you may not need to upgrade or replace your compressor

With resource efficiency, it is good practice to ensure that targets are based on a production figure (or unit) so that if the business changes (e.g. increases production or moves to larger premises) then the information is still useful.

Some examples of such targets are:

- Reduce water use by 10% per year per tonne of product made
- Reduce your waste to landfill by 20% per year per tonne of product made
- Reduce your paper use per full time equivalent staff member by 10% over the next 12 months

You will increase the potential for the programme to succeed if the targets reflect what's important to decision-makers and the organisation. For example, there's not a lot of strategic value in a target that aims to reduce waste to landfill, when hazardous waste discharges to the local river are the biggest environmental problem decision-makers face. However, you also need to think about the interests of staff, if the majority of them are really keen to focus on recycling cardboard, then you may have to have projects (and targets) that focus on both, and use the one to lead to progress in the other.

Once you have decided what to focus on (and this may only become apparent after you have completed a few more steps in the improvement loop), follow the SMART approach to setting targets in those areas. Make sure that targets are:

- SPECIFIC - you need to be clear about what is to be achieved
- MEASURABLE - you should be able to measure your progress (i.e. quantitatively) and show if you are meeting the targets or not
- ACHIEVABLE - the objectives you set must be achievable within your business environment (i.e. time, money, labour)
- REALISTIC - can you actually achieve the objectives with the resources you currently have?
- TIME-BOUND - what are the deadlines and when do you want to have achieved the targets?

2.2. Setting up teams

Resource efficiency is most successful if it is implemented by a team of staff with diverse abilities. Your business may already have an established team and systems that could incorporate resource efficiency projects such as:

- Health and safety
- Continuous improvement
- Environmental management
- Quality management
- Efficiency review or lean manufacturing

If you don't already have a team that could incorporate resource efficiency into its role you may have to establish a new team.

Individuals with enthusiasm and commitment to environmental targets and a willingness to be involved in making improvements make the best team members. Because the going can get tough, it's really important for them to be determined to succeed.

If you can, include staff from all levels within the organisation, including middle management and production staff. Ensure you have enough members so that the work load is spread, ideally, the team should have representatives with the following knowledge:

- Product and production
- Financial, budgeting, project management
- Technical and engineering
- Environmental or lean manufacturing

Don't be put off if you can't find people with all of these characteristics, you will just have to work smarter.

Think strategically! If you need to get more of a team together, find out about the people you need and focus on a project that you think will appeal to them, this may be enough to bring them on board. If not, you may have to do some work on the project first and use the results to motivate them.

2.2.1. Programme/project champion

A champion leading your resource efficiency programme is essential for success. The selection of the champion is critical, it is best to have an individual who has many of the following attributes:

- Strong commitment to resource efficiency and improvement
- Knowledge of the overall business
- Thinks strategically, sees the big picture
- Access to senior decision-makers
- Basic project management skills
- Time management skills
- Excellent people skills and clear communication

If someone is not available with the above skills then select someone who has a strong desire to develop them and has the support of management to do so.

Could you be the champion? Motivation and determination are the most important pre-requisites, and if you have them, then go for it. you can always develop other skills along the way.

The champion does not do all the work, it is their role to oversee the project and engage others. The champion must:

- Secure, maintain and grow the support of senior management and peers
- Communicate with management
- Communicate and encourage staff at all levels
- Obtain the cooperation of different areas e.g. accounts and production
- Lead the team to identify objectives and processes for achieving them
- Help manage the financial and time-related aspects of the programme
- Ensure the project team is given sufficient authority to drive the programme and call on help as required

2.2.2. Team skills

The team is responsible for implementing resource efficiency methodology. To do this successfully the core team needs to include individuals with skills in the following areas:

Managing meetings

- Arranging meetings
- Setting an agenda
- Documenting minutes
- Assigning tasks
- Reviewing tasks

Documenting progress

- Data collation
- Research
- General information gathering

Facilitation and presentation

- Active participation
- Identifying and managing conflict
- Seeking consensus and recognising closure when it is reached
- Summarising findings to relevant audiences
- Encouraging innovation by introducing creative ideas and thinking laterally
- Acknowledging success and new ideas
- Networking with advisors and council staff to bring in additional skills and information

Team members need to understand and be assigned roles that they can carry out effectively. They also need support from supervisors/managers and to be allocated time and resources to undertake tasks and participate fully. This should be documented in the programme plan (see Section 2.4).

2.2.3. Maintaining motivation

Research shows that a team will operate most effectively if you use the following key principles. It is important to recognise however that only rarely will these principles be in place at the start of a programme. In most cases the level of support available will need to be grown and cultivated as the programme progresses. Growing that support must be a conscious part of your strategic planning.

2.2.3.1. Clear rewards

Rewards do not need to be financial. However, any reward must ensure that there is a reason for each member on the team to be involved and that the organisation is excited about the outcomes that the team is working on. Rewards can be a simple gesture like:

- Recognition in the organisation's newsletter
- Thank you phone call from the Chief Executive Officer
- Morning tea shouts or a team lunch

2.2.3.2. Key performance indicators

A good way to ensure that staff see the benefits of being involved in the resource efficiency programme is to include resource efficiency key performance indicators in staff job descriptions and work plans.

2.2.3.3. Good communication

It is important that all members of the organisation have an understanding of the resource efficiency project and how they fit in.

2.2.3.4. A place to work or meet

Staff involved in the project must have a place to meet to talk about the project, store materials, and other information related to the project.

2.2.3.5. Supportive organisational environment

The environment in the organisation needs to be supportive for both internal and external activities.

Internal support activities include availability of resources, rewards and understanding within the organisation that the resource efficiency programme is important.

External support activities include awareness and resources available to support the programme externally to the business (i.e. public discussion groups, external experts being available to the organisation) and public display of the programme successes.

2.2.3.6. Supportive organisational structure

This structure should include clearly defined responsibilities and resources that allow the team to make decisions. This includes having a budget and time allocation for the programme.

2.2.3.7. Supportive organisational leadership

This means that the management team actively supports and encourages the team's performance and works to ensure that the organisation values and recognises the teams output.

2.2.3.8. Basic tips to ensure motivation is kept high

- Celebrate the successes at each step of the programme and reward good performance
- Communicate both internally and externally about the successes
- Develop a resource efficiency case study to use for your own marketing
- Share your success with your sector body groups so others can follow your leadership

2.2.4. Dealing with champion or team member changes

It is inevitable that there will be champion or team member changes during the programme. It is important that these are dealt with effectively to ensure the resource efficiency projects don't lose momentum.

- Be prepared for staff changes to affect the team composition
- Encourage the team to document their projects and processes to ensure that new team members can pick up from where others left off and carry on
- Ensure you identify a replacement early so the project champion can train up their replacement

2.3. Communicate your performance

It is important for your team to regularly report progress to Senior Management and to keep other staff up-to-date. Set up a system for reporting and communicating at the beginning of the project that identifies the following.

Who you will report to:

- Senior management
- Team leaders
- Shop floor staff
- Council
- Other stakeholders

What you will report:

- Ask your audience what information they would like
- Activities and tasks completed
- Progress against targets
- Key achievements
- New ideas and opportunities

When you will report:

- Daily
- Weekly
- Monthly
- Quarterly

How you will report:

- Team meetings
- Notice boards

- General staff meetings
- Staff newsletters
- Intranet or web pages

People just glaze over when you talk to them about things they're not interested in. Design your communications with this in mind, use methods and content that are relevant to each of your target audiences.

For example, the team may decide to provide a written report to the Senior Management team on the first of each month and to include an article about the resource efficiency programme in each issue of the staff newsletter or on the site intranet.

The written report may focus on cost and environmental savings, while the staff newsletter may focus on health and environmental benefits.

Remember that busy people seldom have time to read screeds of information. Be succinct and to the point, and use language and graphics that people can easily understand.

2.4. Develop a plan

There is no ideal structure or level of detail required for a resource efficiency programme plan. Those will depend on your own style and preferences. The point is, for a programme to be successful in changing the way an organisation carries out its business requires consideration of a range of aspects.

Those of you who recoil at the mere thought of writing a detailed plan' might sympathise with the view that "Plans are nothing; planning is everything". A plan painstakingly put together, but never again to see the light of day, may indeed be of little value in itself. But don't lose sight of the fact that the real value in writing a plan, however detailed it may or may not be, can be in the thinking and planning that occurred in the process.

We recommend you prepare a plan (in your own style), that is pragmatic and useful. Use it as an opportunity to think strategically about what you are trying to achieve and how you might get there. There are issues down the track that you will not have anticipated and the plan will inevitably change.

The following are areas you may want to consider during your planning:

- A statement/memo that demonstrates management support
- A business case to help sell the programme to stakeholders
- A description of your resource efficiency team including responsibilities and authority
- How you will maintain motivation i.e. formal and informal meetings, celebrating success
- How you will grow internal support for the programme
- Objectives and targets for your programme against which success can be measured
- The steps needed to achieve the objectives and targets
- Time-frames for the steps you have described
- Details on how you will communicate and report progress i.e. how and what to report, to whom and how often
- Time and money i.e. ensuring staff time and budget is allocated for the programme

3. STEP 3 - Measuring the Baseline

“If you don’t measure it, you can’t manage it!”

To maximise the potential for a change programme to succeed, it is important to have a reasonably accurate baseline to work with. A baseline is data measurement based on current or historical data. You can use it to help gain support for the programme and you will have something against which to measure improvement.

When focusing on resource efficiency, it is important to include in your baseline key resources that are being used and wasted. However, it is not necessary, in the first instance, to measure everything that is used and wasted in the organisation.

Measuring resources, wastes and emissions can be complex, difficult and time consuming and, as a result, it can de-motivate people. Think about the main drivers for the decision-makers and the organisation. Then think about which key resources the organisation uses or abuses that are related to those drivers, and focus your efforts accordingly.

Some examples:

- If money is the only driver, then start by measuring only the most expensive resources, wastes and emissions.
- If health issues amongst staff are also important, then include resources, wastes and emissions that have significant health effects.
- If getting staff on board is also important to management, find out what staff think your priorities should be and focus accordingly.

If you have doubts about which project to investigate, it may help to pick the area of highest spend. For example, if your company spends \$1,000,000 per annum on raw materials and \$100,000 on electricity then the best financial return will probably be on projects that investigate raw material use.

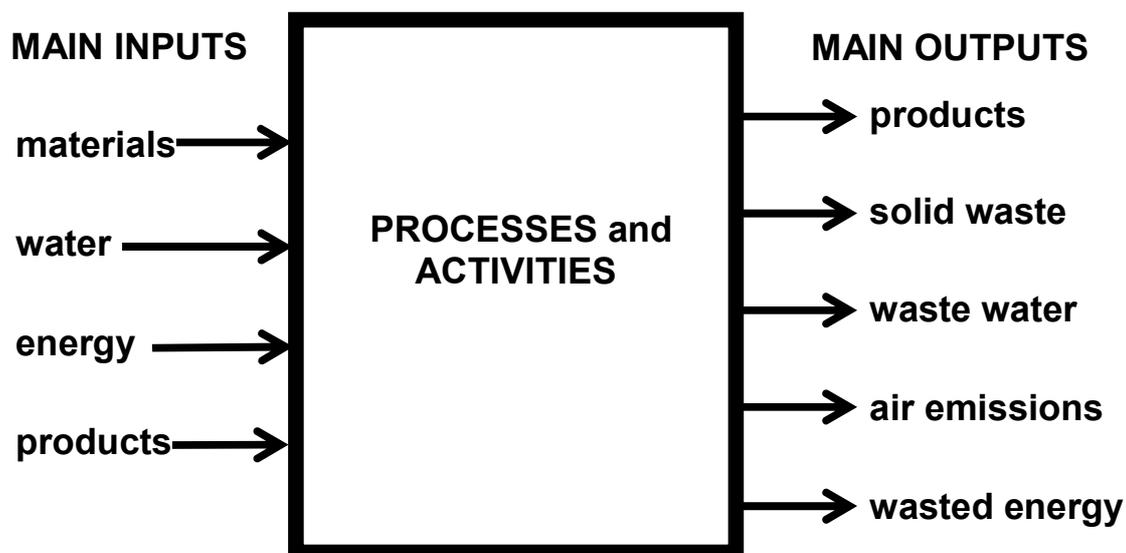
However, if it is much harder to focus on material use and will take a long time to get the information needed, you may want to think about a few quick projects in other, more easily achievable areas. Getting quick and useful results for a series of easy projects, may be better than taking forever to get the detail you need on another (and losing people’s interest in the meanwhile). No one outside the organisation can answer these questions for you. Talk to decision-makers and staff and ask them about what they think you should focus on. Use the results to make strategically useful decisions.

3.1. Gathering general information

Don’t bite off more than you or your team can cope with, break it down into bite-size chunks.

To get a handle on the ‘big picture’, it may help to think of the site as being inside a large black box. Whatever comes into that box (such as resources or raw materials) or goes out of the box (such as waste and finished product) are the things that need to be measured.

Start with a ‘black box’ that shows the organisation’s most important and relevant resources, wastes and emissions. Assigning quantity and cost data to the major inputs and outputs quickly identifies a business’s significant costs, and where savings are likely to be most beneficial. These are likely to be the areas to focus on as the programme develops and helps define the scope for the work that follows.



3.1.1. Define your Scope

It is important to ensure that you define the scope of your initial assessment. If you have a large site you may want to start by focusing on one particular area or operation and/or exclude areas that are insignificant (i.e. concentrate first on the area with the biggest potential gain and that is likely to grab management's attention). The black box exercise will help you do this.

A walk-through of the site can also help identify key focus areas.

3.2. The walk-through

A walk-through inspection of the site can help:

- develop an overview of the process,
- identify obvious wastes and emissions and where they are occurring,
- decide what areas to focus on, and
- familiarise and train team members and other staff.

Remember though, a walk-through will only identify obvious waste and will not provide information on quantities or costs. A walk-through can point to areas where more detailed work might be focused and should only be considered a preliminary waste identification step.

3.2.1. Selecting a walk-through team

This team should comprise members of your resource efficiency team but could also include other staff from your site that bring relevant experience. It is also a good idea to include someone who is unfamiliar with the operation, as they may notice things that other staff take for granted (e.g. administration staff).

3.2.2. Determine the scope

Determining the scope of the walk-through is important to ensure that you make the most of the time that you have available. Generally it is best to focus the walk-through on a department or distinct process, especially if you have a large site. For smaller sites you may decide to do the whole business in one go.

3.2.3. Develop a series of questions

Questions are important to make sure you collect critical information and to act as a reminder. Questions can be as simple as: Why do we do this? How often do we check this?

If you find something that you think is an opportunity (e.g. running water tap) then you could ask the following questions:

- Why is this activity occurring?
- Is this part of the normal activities or a one-off event?
- How frequently does this occur?
- Who else is aware that this is happening?
- Is there significant wastage occurring?
- What is the consequence if this keeps occurring?
- Is this checked as part of housekeeping or maintenance?

And looking ahead,

- What can we do to stop this occurring?

3.2.4. Timing

Determine the best time of day/week/month/year to do the walk-through. Pick times when waste is being generated (not off-season) or is representative of your normal operations (not annual shut-down). However, some wastes such as compressor leaks may be most easily located when other machinery is shut down.

3.2.5. Useful tips

- Clarify any issues before you begin e.g. confidentiality - if you have any visitors with you
- Let all staff know what you are doing to ensure their full support
- Have the right gear ready such as tools, pens, paper, safety gear, camera and a video camera (if available)
- Follow each process through its logical path from raw material inputs to the final product, waste disposal and dispatch
- Record the issues you see (including any questions). If in doubt record everything!
- Draw, in a way you can understand later, a map of the process that you can use to identify the locations of the waste issues you saw (refer to Section 4.4 for more detail on process mapping)

Go to www.target sustainability.co.nz to view the Target Sustainability Business Guides and the walk-through audit recording sheet.

You may need to do the walk-through at different times of the day to observe different processes and variations. For example, early morning to identify waste at process start-up, or late afternoon to see waste during clean-up, or at change of shift or during night shifts.

Walk-through your business with your eyes open looking for and recording waste and wastage in each process step. During the walk-through be alert to:

- Waste streams and emissions at each process step
- Raw materials and other inputs (e.g. energy) that generate these waste streams and emissions (e.g. heat) and their approximate quantity

- Unnecessary waste materials produced which could otherwise be reused
- Leaking valves, taps, pipes, uncontrolled water flows
- Lights, fans, and motors left on when not needed
- Heating and cooling systems working against each other
- Reusable or recyclable product in waste skips

Most importantly don't forget to:

- Gather ideas from the staff on the ground on how things could run more efficiently

3.3. Gathering the important data

Having completed a site black-box and a walk-through of the site, you probably have some ideas of parts of the process that the programme could focus on - areas that are likely to result in significant savings or could, initially at least, be achieved relatively quickly (see Section 4.1). These are areas that will help maintain interest and grow the organisation's support for when you need to tackle more complex projects later on.

Before you start collecting any of the information suggested below, first investigate what information is routinely collected in different departments, by whom and how. As you begin to focus in on a departmental level, you can use the black box approach, but this time as it relates to a particular department.

3.3.1. Inputs (quantities and costs)

You do not need to address all the areas outlined below immediately. This can be achieved progressively, as you gain support and the programme progresses. For now, focus your time and resources on the areas you have identified as most significant and beneficial.

3.3.1.1. Raw materials

Focus on your top three raw materials, these are the core items that constitute your product. Examples include:

- Sugar
- Wood chip
- Resin
- Chemicals

3.3.1.2. Packaging

Packaging includes the packaging you receive with the raw materials and supplies as well as the packaging you use on your products. Examples include;

- Plastic strapping
- Cling wrap and plastic film
- Polystyrene
- Cardboard
- Bubble wrap
- Wooden pallets

3.3.1.3. Energy

Energy can be supplied in a number of different forms including:

- Electricity from the grid
- Reticulated gas
- Bottled gas
- Diesel
- Petrol
- Kerosene
- Coal
- Fuel oil

3.3.1.4. Other materials

These are miscellaneous items that you may purchase significant quantities of:

- Lubricating oils
- Cleaning chemicals
- Paper
- Polystyrene coffee cups

3.3.1.5. Water

- Potable water from town supply
- Bore water
- Recirculated water
- Cooling water

3.3.2. Outputs (quantities and costs)

3.3.2.1. Trade waste

- Cooling water
- Production effluent
- Washing and cleaning
- Amenities (grey water)

3.3.2.2. Solid waste (to landfill)

- Off-cuts and rejects
- Lunch and food waste
- Non-recyclable items (multi-material packaging etc)

3.3.2.3. Hazardous / special waste

- Chemicals
- Batteries
- Medical waste
- Laboratory waste

3.3.2.4. On-site and off-site recyclables

- Metal
- Paper
- Cardboard
- Plastic
- Glass

3.4. Conduct waste, energy and water audits

It is useful to review all areas of waste and conduct waste, energy and water audits. Visit the Target Sustainability website www.target sustainability.co.nz and download the Target Waste, Target Energy and Target Water Business Guides to help you to perform audits in these areas and to identify any resource efficiency opportunities that exist.

You do not have to do everything all at once, but begin by focusing on the higher priority areas you have identified.

3.5. Graphing and displaying the collated data

It is important to have the information in a format that is easy to understand and can be used to make decisions. Depending on the type of data the following may be appropriate:

3.5.1. Lists

Lists of information are good to summarise information and highlight key points as they focus the reader's attention.

3.5.2. Graphs

Graphs are great for showing improvement over time. A scatter plot or line graph can be useful to demonstrate patterns in electricity over a fixed time period.

Pie charts make displaying proportions easy (e.g. what types of waste were discovered in a waste skip audit).

3.5.3. Spreadsheets

Spreadsheets are important for recording and storing raw data. They also include the tools necessary to create graphs, generate tables, and create scenarios.

3.5.4. Process flow diagrams

Process flow diagrams are a method of displaying inputs and outputs from a production process or department in a logical and non-technical manner. These are important to help staff see how processes connect and that no process exists in isolation.

4. STEP 4 - Identify Opportunities and Develop an Action Plan

This section is designed to help you identify the basic resource efficiency opportunities in your business and then develop an action plan to progress these.

The information collected during the waste, energy and water audits and walk-through will indicate potential opportunities for improvement. Together with baseline data and other information this will be useful in helping you decide what processes, operations or wastes will be focused on during the subsequent assessment phase. It is a good idea to start with projects that will be quick wins, that are easy to implement, and that will lead to the greatest returns. These are also likely to help maintain motivation of your team and to grow support and commitment from management.

There are a number of methods and resources to help you identify opportunities and you will need to decide which are most appropriate for your business. This section will discuss:

- Easy gains (quick wins)
- Process mapping and mass balances
- Calculating the true cost of resources
- Generating and evaluating resource efficiency options
- Using the waste hierarchy
- Evaluating options

4.1. Easy gains (quick wins)

You may already know of areas in your business that you need to target. These areas are those with easy gains or what is called the 'low hanging fruit'. It is useful to undertake one of these projects to demonstrate to the organisation what a larger project could achieve.

Visit www.target sustainability.co.nz and view the Target Waste, Target Energy and Target Water Business Guides to assist you on some easy resource efficiency gains.

4.1.1. Key points to remember

You must measure your baseline (the situation as it stands now) in the area you are focusing on before you do anything else. For example, if you are focusing on reducing electricity use, you must have a good understanding of electricity use (for example, as kWh per widget) before you make any changes.

Only when you have baseline data in the area you are going to make improvements:

- Select an improvement opportunity
- Ensure that you include all of the costs/expenses associated with the opportunity
- Write up the project as a business case in a format that your management will relate to
- Express the financials as an opportunity cost (i.e. the opportunity amount is the amount of money you would have got for the product if you had turned the waste into product or the amount of product you would need to sell to gain the same amount of profit that is lost through waste).

- Evaluate opportunities and different scenarios
- Secure approval and if necessary budget to implement the change
- Implement the best or most suited opportunity
- Measure the change
- Complete a case study
- Celebrate the success

4.2. Process analysis to identify waste and wastage

A very useful way for locating the part of your business in which significant waste and wastage is taking place is to use maps or diagrams of how the steps in your process work.

You can:

- Outline the process using process mapping
- Identify the inputs and outputs for each process step
- Add details such as cost and quantity at each step

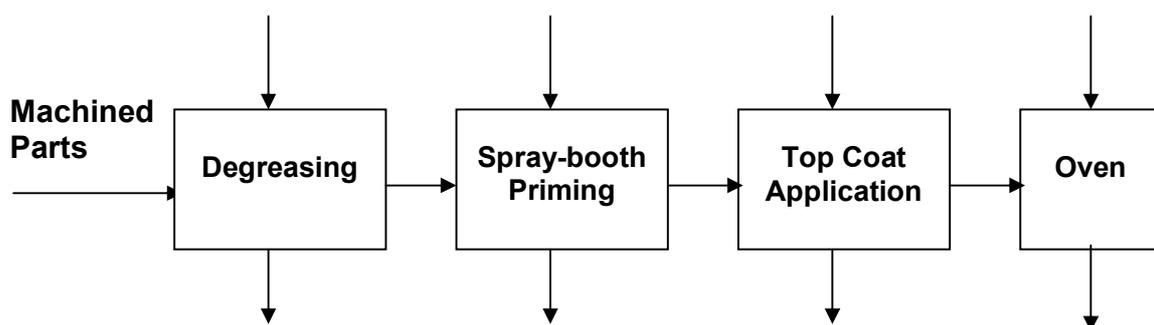
You should have developed a preliminary process map when you completed a walk-through of the site (see Section 3.2). If needed, you can refine your walk-through map by adding more detail as required.

4.2.1. Mapping your process

Process mapping illustrates how materials flow through process operations and highlights where raw product, energy, and water are used and where wastes are generated. It also provides valuable insight into why wastes are being produced.

It helps to process map all the stages in the production process that you have decided to investigate i.e. project areas. Start your process mapping by drawing a step by step flow diagram of the production process.

An example of a Process Map



4.2.2. Tips for process mapping

- Break your process down into manageable bites
- Include all of the steps in the process
- Do individual process maps for each area

It is useful to draw process maps using the same boundaries or departments that your organisation already uses. For example, a yarn manufacturer could draw separate process maps for the blending, spinning, dyeing and winding departments.

Individual maps can be fitted together to make up the whole process and include any separate recycling and reuse routes/loops.

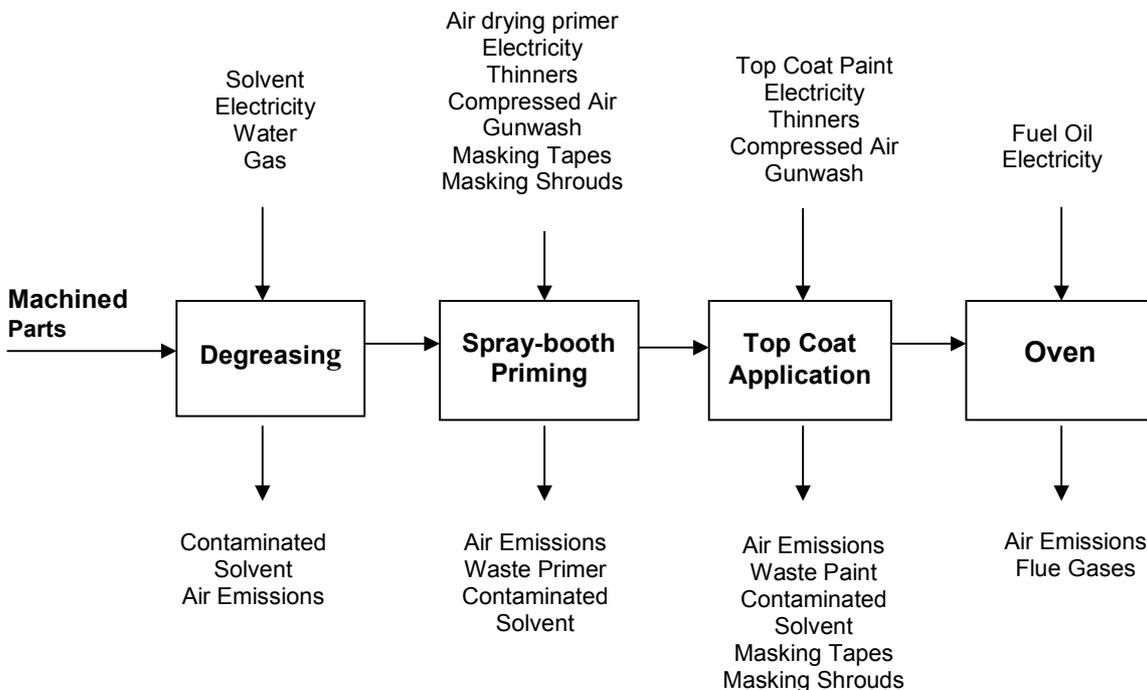
Note: This process can be used for office routines, activities in restaurants, and other commercial businesses.

4.2.3. Identifying and quantifying inputs and outputs

The next step is to identify and quantify the inputs and outputs, which helps to work out how much is being wasted. This is sometimes called a mass balance as the total of all inputs should equal the total of all outputs. Everything that goes in must come out either as product or waste (solid, liquid, gas or heat). Add in the detail of your inputs and outputs to your process map.

For most businesses, a mass balance is a very valuable exercise as it identifies wastes that might otherwise remain hidden. But remember completing a comprehensive mass balance of all the inputs and outputs can be a very time and resource intensive exercise.

It is usually more practical to focus a mass balance on key inputs and/or outputs where the opportunities are 'obvious' and of importance to your management team. Sometimes you might need to put aside your desire to identify the 'ultimate project' (through exhaustive measurement and analysis) to the higher goal of taking your team and management group on the learning and change journey with you.



4.2.4. Sources of information

Useful data will be available from a number of sources.

4.2.4.1. Historical data

- Invoices
- Accounting software
- Production logs
- Process specifications

4.2.4.2. Live data

- Counters
- Scales
- Utility meters
- Continuous flow meters
- Water meters

4.2.4.3. Manuals and labels

- Production and machine manual
- Machine labels (e.g. energy demand)

4.2.4.4. Waste measurement and audits

- Waste sampling
- Waste auditing

For more information visit www.target sustainability.co.nz.

4.3. Calculating the true cost of resources

“The cost of your waste is not so much the cost of getting rid of it as the value of what you are getting rid of!”

The full cost of waste generation (including wasted materials, energy, heat, water etc) is more than just the disposal or labour costs. It includes all the costs incurred by producing and handling wasted resource. All of the expenditures (both direct and indirect) must be identified. These include items such as:

- Purchasing, storage and inventory, and in-process use of materials
- Air and water emissions
- Equipment use and wear
- Solid waste collection
- Waste storage
- Waste disposal
- Waste transportation
- On-site treatment or recycling
- Lost raw materials
- Labour costs
- Capital depreciation

True cost of the wasted resource = initial purchase cost + added value + lost sales value + cost of disposal

4.3.1. Opportunity cost

Present your waste data in terms of an opportunity cost. This can be done by answering the following question:

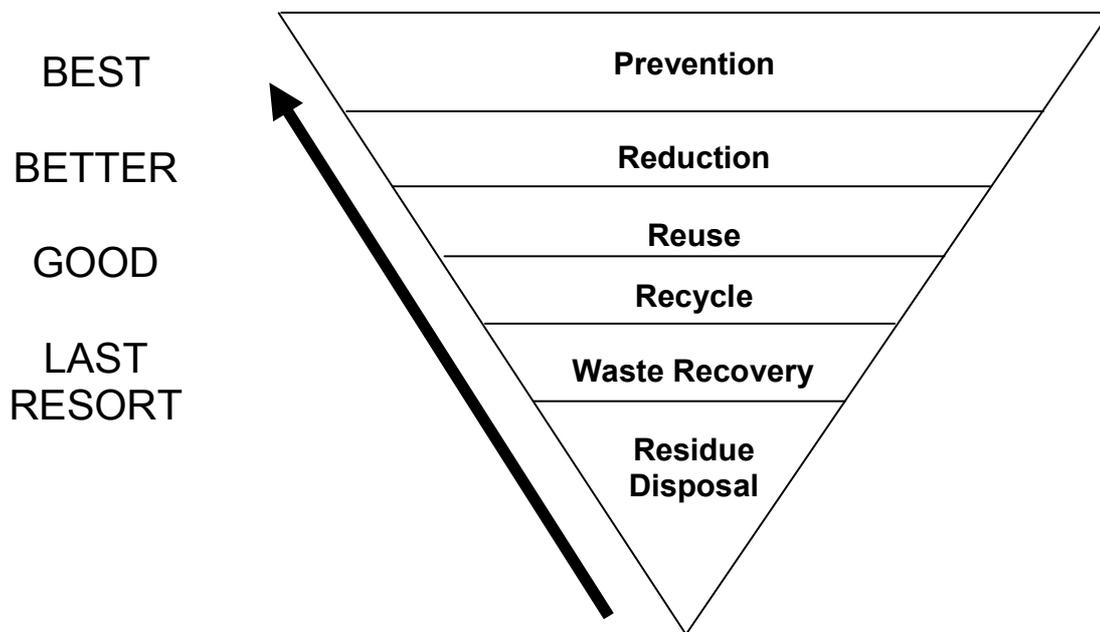
How much product would we have to make and sell to have the same bottom line profit?

For example, your profit margin is \$100 (10%) on the sale price of a product that costs \$1,000 to produce. If you could save \$5,000 per year in part of the process, then the opportunity costs of saving \$5,000 of your bottom-line profit would mean that you would have to sell an equivalent of \$50,000 of extra product per year to make the same money.

4.4. Generating and evaluating resource efficiency options

There is often more than one solution for reducing wasted resources, and it is important to select the most appropriate for each situation. This requires a careful evaluation of all the costs and benefits of each option.

The waste hierarchy is a logical representation of where our priorities should be in terms of resource efficiency and helps maintain our focus on the areas with the greatest resource benefits.



The hierarchy establishes preventing the waste as the highest priority. If prevention is not possible, look at reduction. If resource use has been reduced as much as possible, look at reuse and so on until the least beneficial option of disposal is considered.

While investigating waste in your business, you will have started thinking about how to change the way things are done to use raw materials, energy and other resources more efficiently and to avoid waste. It is important to generate as many ideas as you can involving as many staff as you can before deciding how you will go about reducing waste. You can do this by using a suggestions box, by talking to others and by brainstorming.

4.4.1. Brainstorming

Brainstorming sessions can be a useful way to encourage lateral thinking, to be effective the following rules of brainstorming should be followed:

- Welcome and record all ideas, even if they appear silly. Don't discount any at this stage.
- Don't allow judgment, comments, criticism or discussion while the list is being assembled. Analysis and ranking occurs later.
- Build on others ideas. One person's idea can trigger a better idea from someone else.
- Focus on the quantity of ideas at this stage, not quality.
- Set a time limit, say 30 minutes

The waste hierarchy can help sort the options that have been generated from the brainstorming session.

Alternatively, you may find the waste hierarchy useful to add some structure to the brainstorm sessions. For example, you could initially brainstorm options that prevent or reduce waste. Recycle and reuse options could be looked at later.

4.4.2. Refining the list

A number of improvement options are listed below to help you with the idea generating process. These are divided into options that reduce resource at the source and options that reuse or recycle resources.

4.4.2.1. Options for reducing resource waste at source

- **Maintenance improvements or good housekeeping**
Most resource efficiency projects result in changing procedures to reduce waste rather than high cost changes to machinery and technology. For example, inspecting and repairing valves, seals, joints and pipes can reduce water use and waste water discharged. You can also consider changes to production schedules, improved maintenance, improved staff training and layout changes.
- **Equipment modernisation**
Replacing existing equipment with newer and more efficient models can help efficiency. You could consider equipment modifications, automation or complete replacement.
- **Input substitution**
This includes replacing toxic substances with non-toxic substitutes. A good example of this is replacing solvent-based cleaners and inks with citrus-based cleaners and water based inks. Using non-toxic substitutes almost always has both health and safety and environmental benefits.
- **Process re-design**
The same product can sometimes be made using different processing techniques and / or technologies. For example, you may be able to modify your conveyors to reduce the amount of product that is dropped on the floor.

- **Product re-design**

Re-designing your product to generate less waste or less toxic waste during production may be feasible. Re-designing the product to reduce the environmental impact during use and/or disposing of the product would be beneficial. For example, re-design product packaging so that less is needed (and what is required can be reused and recycled).

4.4.2.2 Options to reuse or recycle resources

Waste can either be reused or recycled within the process or collected and externally processed. Reuse and recycling require additional resources (such as energy for transport and reprocessing) and are therefore lower down the hierarchy. Make sure you have thoroughly investigated prevention and reduction opportunities first.

- **In-process reuse and recycling**

Wastes from one process can often be used as feed stocks for the same or another process. For example, in the office use waste paper from the photocopier to make up memo cubes and notepaper. Or use counter current rinsing systems for product cleaning (e.g. in electroplating).

- **Off-site reuse and recycling**

Wastes can often be reused or recycled off-site. View both the Recycling Directory and the Waste Exchange at www.target sustainability.co.nz.

Disposal is the final option if there are no other feasible options for the waste.

Mixing wastes requiring treatment with those that don't increases your waste stream. Keeping toxic and non-toxic waste streams separate reduces the volume of toxic waste that needs special treatment and disposal. It also allows for the potential reuse or recycling of both the toxic and non-toxic waste streams.

4.5. Evaluating options

The previous step will have generated lots of options and now these will need to be evaluated. Some options may have little or no cost, have low risk and can therefore be implemented immediately. Others will have marginal value, or be impractical and should therefore be dropped.

With the remainder of the options you may need to do a feasibility assessment to work out which is the best option to implement.

4.5.1. Conducting a feasibility assessment

The feasibility assessment will help you to:

- Make sure the financial costs and savings are reliable and that you are confident the recommended changes will be beneficial, especially if you need to ask management for resources to make the changes
- Investigate the practicalities of any changes, especially if you are implementing more than one change at a time. Obviously you need to make sure that any changes you recommend won't upset the process upstream or downstream

You may need to involve others from your site or professional advisors to assist with some aspects of the assessment.

4.5.1.1. Technical evaluation

When conducting a technical evaluation a number of criteria should be considered. These may include:

- Confidence in the technology i.e. well known, unknown
- Difficulty of implementation i.e. easy, difficult
- Worker safety
- Maintenance or improvement of product quality
- Availability of space
- Compatibility of new equipment, materials or procedures
- Skill and training requirements

4.5.1.2. Environmental evaluation

When undertaking the environmental benefits of the opportunities, you may like to consider the following criteria:

- Resource efficiency potential
- Effect on the number and toxicity of waste streams
- Energy consumption
- Environmental impact of alternate input materials
- Risk of transferring the waste / environmental impact to another media e.g. from solid waste to air discharges

4.5.1.3. Economic evaluation

If a project has no significant capital costs then the decision to implement it can be determined by whether it reduces operating costs and/or prevents waste.

However, with projects with significant capital costs, you will need to evaluate the economic feasibility. To do this you will first need to have calculated the cost of waste (see Section 4.3). This information can then be used to calculate the payback time i.e. the time it will take for a return on the investment made.

Payback time (years) = initial investment (capital + start up + other costs) / Net change of operating costs (per year)

Businesses have different requirements when assessing capital expenditure. While a simple payback calculation maybe adequate for small projects, some projects may need to be evaluated in terms of their net present value (NPV) to the business or whether the project exceeds a threshold internal rate of return (IRR). It is a good idea to involve the company's accountant in the economic feasibility assessment if significant capital is required. They will know what is required.

4.5.1.4. Ranking options

If you have a large number of options to decide between, you may want to adopt a more structured approach to ranking the options. The following table represents a simple ranking procedure.

Project ranking table

Option	Technical score	Environmental score	Economic score	Combined score	Rank
Option 1	4	3	5	12	2
Option 2	1	4	4	9	3
Option 3	5	4	4	13	1

The example uses a simple rating scale of 1-5 (1 very poor, 5 very good) for scoring the technical, environmental and economic characteristics of each option. The highest combined score with this approach represents the highest priority project.

There are many possible variations to this type of approach. For example:

- Include a weighting multiplier to reflect the relative importance of technical, economic and environmental considerations to the business.
- Include additional categories that cover health and safety benefits or wider social benefits.

Only use this type of procedure to prioritise projects when it is difficult to differentiate between a number of options.

4.6. Writing a simple plan

A simple plan is useful when presenting opportunities so management can see the way forward. It is also appropriate to use a simple plan for small and less complex projects. Include the basics such as:

- List of projects that you have chosen to undertake
- Staff who will undertake the work
- Timeframes

4.7. Writing a comprehensive action plan

A comprehensive plan for your resource efficiency programme is useful to help provide continuity for the programme if team members change and to document activities and progress.

Your action plan adds project related detail to the strategic programme plan you developed earlier (see Section 2.4)

The plan is a written record of your programme and can include:

- A statement that demonstrates management support
- A description of your resource efficiency team including responsibilities and authority
- Objectives and targets for your programme
- Time-frames for meeting the objectives for each project
- Details on how you will communicate and report progress
- Data collected during the initial assessment
- Opportunities for improvement identified during the initial assessment
- Projects you will work on immediately
- Details of who will be responsible for each project

Plans are designed to be a living document. They can be added to and modified as the programme progresses. They provide a record of progress as well as giving guidance for future work.

4.8. Business case

When developing a business case to present to management, it is important to find out how your organisation plans for and signs off projects. Use a format that is familiar to management to present your project.

Ensure you understand the pay-back period or alternative economic criteria (NPV, IRR) that is expected before a project is initiated and resources approved.

5. Step 5 - Implement the Action Plan

5.1. Implementing projects

Implementing changes, even simple ones, can be challenging. Reasons for not implementing changes include: resistance to change, time constraints and inertia. People are most receptive to change if they know: why they should do it, exactly what they need to do and that their efforts will be acknowledged. It is therefore important that changes are carefully planned and executed.

There are a number of things to consider when implementing an action plan.

5.1.1. Who has the authority to make and resource changes?

It is important to get support at a high enough level to ensure that you have the permission, funding and staff to make changes. For minor changes, you may need to involve only the shift supervisor. For major changes you may need to apply for funding through the annual budgeting process and obtain support from management. If this is the case, details of the project may need to be presented to management along with budget and project justification.

5.1.2. Who will take responsibility for ensuring the change happens smoothly?

As with any project, good management is important so it may be necessary to nominate someone to oversee the change and to make sure it happens. You may also need to have support staff on call to sort out any problems that may arise.

5.1.3. Who needs to know about the change?

Be sure that all relevant staff are well informed about the project so that maximum support is cultivated from the outset.

5.1.4. Who needs training?

Identify what training is required and by whom. Be sure to explain to staff why a change is needed and what you hope to achieve through this change. Most importantly, ensure there is a budget for training.

5.2. Integrating the programme with existing systems

A resource efficiency programme can be incorporated within any quality or environmental business programme because it focuses on increasing efficiencies and more effectively utilising raw materials. It also builds nicely on health and safety and environmental management programmes because it can enhance these systems by reducing:

- The amount/toxicity of chemicals in the workplace
- Short and long-term exposure of employees, visitors, and contractors to hazardous chemicals
- Air handling equipment requirements - by reviewing the wastes produced this can benefit by reducing the amount of waste that produces air quality problems
- The need for personal protective equipment - by reducing waste this reduces the handling requirements and other emissions so that protective equipment may not be needed

You can ensure that programmes are integrated into the business operation by:

- Documenting changes as part of operational documents and procedures
- Ensuring that resource efficiency gets on the meeting agendas at all levels of the organisation
- Adding projects into routine/regular departmental and organisational reporting
- Creating a dedicated section for projects on your staff notice boards
- Having information on your intranet and internet pages
- Including training and information for staff on the programme and during inductions
- Assigning accountability for projects to the areas that are generating the waste
- Reviewing progress on a regular basis

One of the benefits of a system, particularly an Environmental Management System (EMS), where the business's management consciously seek to benefit from internal or external audit processes, is that it helps cement in place improvements that might otherwise regress or deteriorate over time.

6. Step 6 - Monitor, Review and Report Results

6.1. Monitoring progress

Once you have implemented your resource efficiency projects you must accurately monitor their effect. This is important information for both the management team who have allocated resources to the project and for staff who have helped to implement them. They will want to know that the time and resources that they have contributed were worthwhile and that the assumptions made in the cost-benefit analysis were correct.

Monitoring is also critical for maintaining improvements, as savings once made are not guaranteed to last. For example changes in operators, operating procedures or equipment performance issues can quickly erode savings if performance is not monitored regularly.

If you haven't done so already, it is important that you develop key performance indicators (KPIs) that relate to changes in the workplace. For example, in an office situation, resource use could be expressed per m² of office space or per full time equivalent (FTE). In a manufacturing situation, resource use is generally most usefully expressed in terms of some unit of production, such as per kg of product, per widget produced or per \$ turnover.

For each project you will need to decide on a number of actions:

6.1.1. What will be monitored

- Raw material consumption
- Waste generation
- Electricity use
- Fuel use
- Water use

6.1.2. Frequency of the monitoring

- Hourly
- Daily
- Weekly
- Monthly
- Change of shift

6.1.3. How to monitor it

- Visual
- Manually
- Electronically
- Continuous flow meters

6.1.4. Who will monitor it

- Operation area staff
- Project team

6.1.5. Results recording and presentation

- Tables
- Graphs
- PowerPoint
- Verbal report
- Written report

6.2. Reviewing performance

When reviewing the progress or performance of the programme you must identify:

- What has worked and why
- What hasn't worked and why
- What could be improved

One way of measuring the progress of your programme is by looking at the results of individual projects, such as amounts of waste reduced or money saved and whether projects have been implemented successfully i.e. on time and within budget.

Progress can also be measured by looking at aspects of your programme that are critical to its success such as management support, team functioning, understanding of waste and whether you have set up systems to ensure that the programme continues.

Some of the criteria that you can use for evaluating the progress of your programme are included in Worksheet 1 (see Section 11).

6.3. Reporting results

When you are reporting results you will need to decide on a number of actions:

Who will report the results?

- Area supervisor
- Project champion
- Management
- Passionate enthusiast

Who will receive the results?

- Senior management
- Resource efficiency team
- Staff

At all stages of the project communication is important but especially when it comes to the results. Reporting the outcomes allows you to:

- Evaluate the programme's performance
- Evaluate the potential for future projects
- Look at the potential of running projects in other departments or sites
- Help other companies to understand the potential for them
- Allow you to celebrate the successes

Following the review and evaluation of your programme, you can use the knowledge you have gained to modify the individual components and the overall plan, to ensure continuous improvement.

7. Step 7 - Continual improvement

Continual improvement occurs when an organisation uses the Target Sustainability process to implement resource efficiency projects and after developing and implementing the plan, continues to use this process to identify new projects to implement in subsequent plans.

7.1. Longevity of projects

The continuation of projects and progress with the resource efficiency programme will continue in your organisation if the programme continues to receive ongoing commitment. In particular if:

- The whole organisation embraces the project
- It is resourced effectively
- Management supports the team and is interested in their results
- Successes and gains are celebrated and recognised
- The champion shows commitment to the process
- It is integrated into your organisation's fundamental activities

7.1.1. Organisational structures and integration

Consider developing Key Performance Indicators (KPI's) for individual staff (particularly at management level) that relate to the resource efficiency programme objectives and targets. This will delineate responsibility for maintaining the resource efficiency programme and emphasise the importance of the programme to the organisation.

Now that a resource efficiency programme is underway you need to think about how it will be maintained. Some ideas for sustaining the programme include:

- bringing new personnel into the resource efficiency team
- training
- publicising success stories
- integrating resource efficiency into the corporate plan

7.1.2. Rotating or expanding the project team

To maintain the flow of fresh ideas and to give other staff the opportunity to participate, the resource efficiency team members could be rotated or you could set up new teams as off-shoots of the first team. Previous team members could serve as mentors to the new team, or as resource efficiency team leaders.

7.1.3. Training

Resource efficiency awareness and training should be conducted on a periodic basis so that all new or reassigned staff understand the commitment to resource efficiency. This training could be incorporated into the existing training programmes, (health and safety, processes, etc.), and be part of new staff induction.

7.1.4. Communicating your success

Communication about the programme and its successes is one of the most effective ways of sustaining a resource efficiency programme. Internal communication raises staff awareness of activities and encourages participation. This is why it is important to plan your communication at the beginning of the programme.

As well as communicating internally, your organisation may also decide to use the programme as a public relations tool and communicate how you are reducing waste and reducing your impact on the environment to a wider audience, such as local residents, local businesses, similar industries, suppliers and clients. There are many ways you can do this e.g. technical and trade journals, trade association meetings, annual reports, newsletters, community and local newspapers and national and local television.

7.1.5. Integrating resource efficiency into the corporate plan

Changing a resource efficiency programme from a 'nice-to-do project' to being adopted as mainstream business practice takes time. Incorporating resource efficiency into the business plan is a key step forward.

Several New Zealand businesses are beginning to integrate their resource efficiency programmes into an Environmental Management System (EMS) such as ISO14001 or Enviro-Mark[®]NZ. A robust EMS requires the development of a corporate policy and a raft of other communication and procedural activities that, if used appropriately, provide a supportive framework for resource efficiency.

So what now?

This is not the end point. Remember, sustainability is not a definable destination. There are always things we can learn more about and do better.

Celebrate your success, and keep going!

8. Glossary

- Lean manufacturing = a programme very similar to cleaner production or resource efficiency that looks at using the minimum amount of resources to produce products and minimise waste at all steps of the process
- ISO 14001 = an International Standards Organisation environmental management standard against which organisations are assessed
- Enviro-Mark®NZ = A five step (Bronze, Silver, Gold, Platinum and Diamond) environmental management system managed by Landcare Research. Diamond is equivalent to pre-audit ISO14001.
<http://www.landcareresearch.co.nz/services/sustainablesoc/enviromark/>.

9. Target Sustainability Business Guide series

The following guides will help you undertake your sustainability programme.

- Target Sustainability - The Path to Sustainability Business Guide
- Target Waste Business Guide
- Target Energy Business Guide
- Target Water Business Guide

10. On line worksheet

The electronic worksheet is available at www.targetsustainability.co.nz.

11. Attachment

The following worksheet is attached to show you what is available to download from www.targetsustainability.co.nz.

- Worksheet 1: Programme Evaluation Checklist



Worksheet 1: Programme Evaluation Checklist

Use the following checklist to evaluate your resource efficiency programme.

Important: Attach additional sheets to record additional comments on why particular areas did or did not work. Use these comments to stimulate on-going improvement in the management of the resource efficiency programme.

Date: _____

Physical address of site: _____

Name of assessor: _____

Step 1 - Commitment

Management support

1. Documented or verbal statements of support
2. Signed off approval of projects

	Yes	No
1. Documented or verbal statements of support	<input type="checkbox"/>	<input type="checkbox"/>
2. Signed off approval of projects	<input type="checkbox"/>	<input type="checkbox"/>

Comments

Step 2 – Planning and organisation

Teamwork and staff involvement

- | | Yes | No | Comments |
|---|--------------------------|--------------------------|----------|
| 3. SMART targets were established | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4. Strategic plan completed | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5. Resource efficiency team trained | <input type="checkbox"/> | <input type="checkbox"/> | |
| 6. Staff are enthusiastic when spoken to about the programme | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7. Examples of staff using ideas from training | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8. Staff providing constructive feedback | <input type="checkbox"/> | <input type="checkbox"/> | |
| 9. Staff not directly involved in the implementation are aware of the programme | <input type="checkbox"/> | <input type="checkbox"/> | |
| 10. Minutes of meetings show good attendance and providing ideas and input | <input type="checkbox"/> | <input type="checkbox"/> | |
| 11. Examples of praise and publicity of successes | <input type="checkbox"/> | <input type="checkbox"/> | |

Step 3 - Measure the baseline

Understanding of waste and processes

- | | Yes | No | Comments |
|--|--------------------------|--------------------------|----------|
| 12. Processes mapped | <input type="checkbox"/> | <input type="checkbox"/> | |
| 13. Priority wastes and sources identified | <input type="checkbox"/> | <input type="checkbox"/> | |
| 14. Solid waste audit conducted | <input type="checkbox"/> | <input type="checkbox"/> | |
| 15. Energy audit conducted | <input type="checkbox"/> | <input type="checkbox"/> | |
| 16. Water audit conducted | <input type="checkbox"/> | <input type="checkbox"/> | |
| 17. Wastes quantified | <input type="checkbox"/> | <input type="checkbox"/> | |
| 18. Cost of wasted resources calculated | <input type="checkbox"/> | <input type="checkbox"/> | |

Step 4 - Identify opportunities and develop an action plan

Action plan documented

- | | Yes | No | Comments |
|--|--------------------------|--------------------------|----------|
| 19. List of projects documented | <input type="checkbox"/> | <input type="checkbox"/> | |
| 20. Projects have responsibility assigned | <input type="checkbox"/> | <input type="checkbox"/> | |
| 21. Projects have set timeframe | <input type="checkbox"/> | <input type="checkbox"/> | |
| 22. Projects have allocated resources | <input type="checkbox"/> | <input type="checkbox"/> | |
| 23. Evidence on notice boards and communication process about projects | <input type="checkbox"/> | <input type="checkbox"/> | |

Step 5 - Implement the action plan

Integration into day-to-day management

- | | Yes | No | Comments |
|---|--------------------------|--------------------------|----------|
| 24. Key performance indicators established for staff | <input type="checkbox"/> | <input type="checkbox"/> | |
| 25. Key performance indicators established for resource use/waste | <input type="checkbox"/> | <input type="checkbox"/> | |
| 26. Objectives and targets established in annual plan | <input type="checkbox"/> | <input type="checkbox"/> | |
| 27. Responsibilities written into job descriptions | <input type="checkbox"/> | <input type="checkbox"/> | |
| 28. Budget established | <input type="checkbox"/> | <input type="checkbox"/> | |
| 29. Integration into existing systems e.g. environmental and quality management systems | <input type="checkbox"/> | <input type="checkbox"/> | |
| 30. Meeting agendas set with resource efficiency as a standing item | <input type="checkbox"/> | <input type="checkbox"/> | |

Step 6 - Monitor, review and report results

Projects

	Yes	No	Comments
31. Monitoring system established	<input type="checkbox"/>	<input type="checkbox"/>	
32. Review system established	<input type="checkbox"/>	<input type="checkbox"/>	
33. Reporting system established	<input type="checkbox"/>	<input type="checkbox"/>	
34. Waste reduction achieved	<input type="checkbox"/>	<input type="checkbox"/>	
35. Raw material savings achieved	<input type="checkbox"/>	<input type="checkbox"/>	
36. Cost savings attained	<input type="checkbox"/>	<input type="checkbox"/>	
37. Throughput increased	<input type="checkbox"/>	<input type="checkbox"/>	
38. Product quality improved	<input type="checkbox"/>	<input type="checkbox"/>	
39. Worker safety improved	<input type="checkbox"/>	<input type="checkbox"/>	
40. Completed within budget	<input type="checkbox"/>	<input type="checkbox"/>	
41. Completed on-time	<input type="checkbox"/>	<input type="checkbox"/>	
42. Staff are reporting on progress	<input type="checkbox"/>	<input type="checkbox"/>	
43. Evidence on notice boards about how the resource efficiency programme is progressing	<input type="checkbox"/>	<input type="checkbox"/>	

Step 7 - Continual improvement

Maintaining and continuing the programme

	Yes	No	Comments
44. Follow-up and review procedures established	<input type="checkbox"/>	<input type="checkbox"/>	
45. Staff kept informed and involved	<input type="checkbox"/>	<input type="checkbox"/>	
46. Documentation / record system established (EMS)	<input type="checkbox"/>	<input type="checkbox"/>	
47. On-going staff training programme established	<input type="checkbox"/>	<input type="checkbox"/>	
48. Communication programme established	<input type="checkbox"/>	<input type="checkbox"/>	

