
Chapter 3

Institutionalizing Environmental Capacity

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The previous chapter introduced mitigation strategies that MSEs can use to control their environmental impacts. Here we will address the challenges facing credit and BDS providers in effectively reviewing MSE activities for compliance with USAID regulations, as well as improving the overall environmental and economic performance of MSEs.

This chapter will help providers understand how to (1) develop a screening process to identify potentially damaging enterprises, (2) identify adverse environmental impacts of those enterprises, and (3) find opportunities for them to mitigate these impacts using the Cleaner Production (CP) approach (see chapter 2).

This section also discusses different aspects of implementing these guidelines that may be critical to success. These include **suggestions and tools** for

- integrating environmental considerations into normal operating procedures,
- procuring environmental commitments from MSEs,
- customizing the guidelines,
- working with partners who may be able to help implement and customize the guidelines, and
- providing training both for BDS/credit staff and for their client MSEs.

This section gives credit and BDS providers a framework for incorporating environmental concerns into their operations, without having to become environmental experts themselves.

Screening—Which MSEs to Focus On?

In applying environmental oversight to MSE activities, one of the first steps for BDS and credit providers is to categorize the MSEs they work with according to the types and seriousness of environmental impacts they generate. A BDS or credit provider needs to ensure that assistance for an MSE complies with local, national, USAID, or its own organizational environmental policies. Yet, it is unreasonable to expect BDS and credit providers to conduct a detailed assessment of the impacts of every MSE they work with. The goal of the screening phase is to determine quickly and easily if an assistance request from an MSE (for a loan, business planning, accounting training, etc.) will need environmental review before it can be approved.

The sample screening framework proposed in these guidelines uses information about an MSE's subsector to characterize its expected environmental impacts. This approximation will not be true for all circumstances, but it allows staff members with limited environmental expertise to process a large number of requests for assistance quickly and easily. This framework emphasizes flexibility and collaboration to suit a wide variety of MSE development scenarios. It can be easily modified to address the specific needs of each BDS and credit provider. (See "Developing a Customized Screening Process," page 5.) Although they may seem burdensome at first, initial screenings are intended to help BDS and credit organizations become more efficient in applying environmental guidelines to their operations. This overall pre-assessment effort can also help minimize the costs of incorporating environmental concerns into the smallest projects.

Screening Roles and Responsibilities

Screening requires the cooperation of different stakeholders to avoid environmental damage and help MSEs contribute to development objectives.

- MSEs, the focus of the screening process
- Assistance provider, the entity that is directly assisting the MSE (i.e., the BDS provider or direct lender)
- USAID mission, providing oversight of the assistance providers programs
- Intermediate credit institutions, which play a mediating role between the mission and the direct assistance provider

Roles and Responsibilities

Screening requires input from many different participants—including the MSE, the BDS or credit organization, and the USAID mission—in order to provide development assistance to as many MSEs as possible while mitigating the most serious potential environmental problems.

MSEs. The MSE is the focus of the screening process. The MSE asks an assistance provider (BDS or credit organization) for some type of assistance, which must be screened for potential environmental impacts before being approved. The MSE is responsible for providing any needed information about its financial and environmental performance to the BDS or credit organization, to fulfill screening requirements. For most MSEs, this information will be very limited, and may not differ from the ordinary business information collected by BDS and credit providers. The MSE is also responsible for working with the BDS or credit organization to develop mitigation and monitoring plans (MMPs) and to perform any required monitoring.

Assistance providers. The assistance provider (BDS and/or credit provider) is the entity that will be directly providing the requested assistance (loan, training, technical assistance, etc.) to the MSE. To ensure that any assistance meets USAID requirements for environmental performance, the provider must fulfill three main responsibilities:

- create appropriate screening criteria and procedures, working with the USAID mission and referencing the governing Initial Environmental Examination (IEE) conducted by USAID;
- help selected MSEs create and implement required MMPs;
- oversee any monitoring activities required in the MMP.

These responsibilities typically require participation from the assistance provider's environmental officer (EO) and the person handling the MSE's assistance request (loan officer, business consultant, field staff, etc.), hereafter referred to as the caseworker.

Missions. The USAID mission oversees the assistance provider's development activities. In providing environmental oversight, the mission has two main responsibilities:

- work with the assistance provider to develop and approve its screening process.
- help the assistance provider address any assistance requests that are not covered by the existing screening process.

For example, the mission would help the provider screen MSEs newly identified as generating environmental impacts of concern. Typically, the mission environmental officer (MEO) participates in these activities.

Intermediate credit institutions (ICIs). ICIs serve as intermediaries between the mission and direct credit providers. In this role, ICIs are responsible for ensuring that direct lenders develop appropriate screening procedures, as described above, and for giving the mission information showing that the screening is being carried out.

Screening Process

Screening is expected to be completed by caseworkers without environmental expertise, using simple tools, and may take no more than a few minutes to complete. Figure 1 (next page) provides an overview of the proposed sample screening process. Screening begins when an MSE makes a request for assistance that the assistance provider has determined is financially viable. MSE subsectors are then divided into three categories: (1) MSEs which generate environmental impacts of concern, (2) MSEs which do not generate impacts of concern but have known opportunities for CP, and (3) MSEs which do not require any further environmental action. It is expected that assistance providers will divide the most commonly assisted MSE subsectors into categories in advance, in collaboration with the USAID MEO.

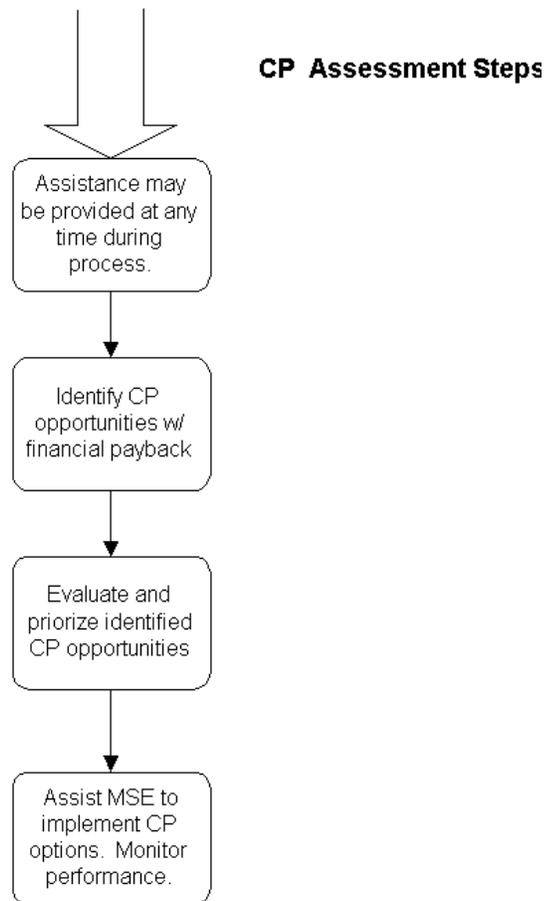
If the MSE subsector does generate impacts of concern, then an **Environmental Impact Assessment (EIA)** must be performed for this enterprise before any assistance can be approved.¹ This is discussed below in the section on EIA for MSEs.

Screening is expected to be completed by caseworkers without environmental expertise, using simple tools, and may take no more than a few minutes to complete.

¹ Even though an enterprise belongs to a sector that generates environmental impacts of concern, its impacts may not necessarily require a full EIA. A provider may

If it is not known whether an MSE generates impacts of concern, it is necessary for the caseworker to notify the assistance provider's EO so that he/she may research this new subsector. The EO may need to consult with USAID mission staff as part of this research. The assistance provider should work with the MEO to determine if the EO needs to research every new subsector the provider encounters; they may decide that a minimum number of assistance requests from a new subsector is required before it must be classified. The provider also should determine if the caseworker must wait for a decision from the EO, or proceed with the screening as if the MSE does not have impacts of concern. It is very important to develop a process that does not ignore "unknown" subsectors. Otherwise, unusual assistance requests from MSEs with potentially significant adverse impacts may fail to be flagged for an EIA.

Figure 1



choose to initiate a second level of screening to see if the impacts generated by the MSE merit a full EIA. This second screening would focus on the activities of the individual MSE to categorize the MSE's specific impacts and determine if they meet EIA thresholds. In practice, however, such a screening is unlikely to exempt MSEs, and may not offer significant time or cost savings over a full EIA.

If it is determined that the MSE does not generate impacts of concern, then it should be screened for known opportunities for cleaner production (CP). Most enterprises will offer opportunities with and without financial payback. If the MSE sector is known to offer CP opportunities with financial payback, then it is recommended that the assistance provider link a CP assessment with the assistance request. A CP assessment is not mandatory, but it will strongly support any other assistance activities because of its potential to improve financial performance.

If an MSE has unknown CP opportunities, it is recommended that the caseworker notify the provider's EO so that the EO may track that subsector and decide whether to conduct further research. The EO may need to consult with mission staff as part of this effort. Whether or not the screening process calls for a CP assessment, the requested assistance can be approved and processed once the CP screening step is completed.

Developing a Custom Screening Process

It is important to keep in mind that sound environmental design and implementation should be tailored to the local conditions of each project. A particular activity that is environmentally harmful in one instance may be helpful in another. Thus, assistance providers will wish to develop a customized screening process to suit their clientele and operating conditions.

Sound environmental design and implementation should be tailored to local conditions. An activity that is environmentally harmful in one instance may be helpful in another.

What if these guidelines don't make sense for my organization?

The guidelines recognize that credit and BDS providers operate under diverse service models. Each individual organization has a particular focus and set of capabilities that make wholesale implementation of any general guidelines unwise. Furthermore, these organizations work with large numbers of clients, and these clients vary enormously in terms of their business profiles and their potential for successfully adopting new approaches to doing business (including environmentally sound approaches). Credit and BDS providers are thus encouraged, and expected, to work with USAID to adapt USAID's criteria, procedures and forms to meet their own situations. For example, they should:

- look at common mitigation or CP opportunities for the kind of clients they most frequently work with and try to judge how feasible they are in terms of technical demands and cost;
- identify environmental technologies and processes with a high rate of return; and
- set screening thresholds to identify MSEs that will need to implement environmental measures in exchange for assistance.

How do I set threshold criteria for environmental performance?

As mentioned in the "Roles and Responsibilities" section, developing a screening process requires collaboration between the assistance provider and the mission (and in some cases the intermediate credit institution). The mission and the assistance provider should use these guidelines and the IEE as a basis for setting up a tailored screening process that suits both parties. These guidelines do not attempt to identify specific

In screening its applicants, a provider needs to consider how far giving a loan or business services to a commercial activity will contribute to a substantial environmental problem if the effects of the activity are not mitigated.

thresholds for deciding which sectors and what kinds of enterprises should be targeted for regulatory compliance and/or CP implementation. Each organization and program should set specific thresholds for its activities. Factors to consider in deciding on screening thresholds may include:

- The environmental risk presented by enterprises of a particular sector, in general;
- The extent to which a loan or BDS support to a business activity will contribute to a substantial environmental problem if the effects of the activity are not mitigated;
- The extent of opportunities for profitable CP;
- The size of the enterprise;
- The significance of the assistance being given to the enterprise (e.g., the size of the loan or the level of BDS support).

These guidelines offer several tools to aid assistance providers and missions in developing their own threshold criteria. To help them determine if an MSE generates damaging environmental impacts, Annex B includes a list that classifies a wide variety of MSEs according to the potential severity of their environmental impacts. Assistance providers may wish start with this list to select and categorize the MSEs with whom they work. Alternatively, they may wish to focus on only the highest-priority subsectors, such as those for which CP fact sheets have been prepared (see chapter 4). Assistance providers may also wish to check with local environmental regulatory agencies, which sometimes prepare their own lists of sectors of concern.²

Do I need to consider compliance (or lack thereof) with in-country environmental regulations?

BDS and credit providers should identify all relevant environmental regulations and municipal ordinances (including relevant zoning requirements, if any) that apply to the MSEs with which they work. These organizations should help their clients meet or exceed in-country standards.

To what extent should entrepreneurs, workers and communities be involved?

In customizing their environment review procedures (and in conducting EIAs), organizations may wish to set up an interactive appraisal process. This would involve working closely with enterprise owners/staff and affected communities, who are best suited to understanding and responding to MSE environmental issues. Doing so can result in the

² For assistance providers that choose to screen individual enterprises, Annex C provides a sample MSE loan screening form which could also be adapted to suit BDS needs. This form is a comprehensive example of an enterprise-level screening form—likely to be used only for enterprises of a subsector known to present environmental impacts of concern. An assistance provider choosing to screen individual enterprises would need to develop its own, focused version of this form, along with appropriate decision-making criteria and procedures.

development of better understanding of the problems and constraints, as well as workable, creative solutions that gather support from all parties.

One such approach is known as Participatory Subsector Analysis (PSA). Under PSA, MSE community and organization members examine every stage of production or distribution for inefficiencies. This process can help stakeholders understand “a whole array of factors related to the production process, working environment, technology, resource use, and end use of waste.”³ Excellent reference works are available to provide guidance on PSA and other methods of involving the community in developing solutions to MSEs’ environmental problems.⁴

It should be noted that while stakeholder involvement can lead to higher project success rates, it can also come with high transaction costs. That is, it can require much more investment of time and resources per project than other approaches because of the give-and-take involved. Support and credit organizations for MSEs have to balance these transaction costs with the need for location-specific information and stakeholder buy-in. For example, it is unrealistic and imprudent to expect assistance providers to perform an assessment and obtain stakeholder participation for the smallest individual MSE loans.

For the smallest loans, it is recommended that providers rely upon standardized tools as starting points. Stakeholder participation is perhaps most useful in helping providers set up standard screening protocols and to process MSE assistance requests that will require an EIA.

Environmental Impact Assessment for MSEs

The purpose of any EIA is to identify and mitigate environmental impacts, preferably during the design phase of the project. This is also the goal of EIA for MSEs, but the small scale of most MSE assistance projects places serious limitations on its scope. Because of the low cost of individual MSE assistance activities, EIAs must be inexpensive to complete and, when possible, offer mitigation strategies that are also inexpensive or offer financial benefits to the MSE. A suggested EIA procedure for MSEs is shown in Figure 2, next page.

Once the initial screening process has shown that the MSE requesting assistance belongs to a subsector with problematic environmental impacts, the assistance provider and MSE must work together to develop a mitigation and monitoring plan (MMP) to address the MSE’s specific impacts. This MSE cannot receive assistance until the MMP is in place.

EIA begins by identifying the specific environmental impacts generated by the MSE. Once the impacts are identified, they must be assessed to determine if mitigation is required. For each impact that requires mitigation, a mitigation option must be selected. As discussed in Chapter 2, these can be CP options, pollution control options, or some

Participatory Subsector Analysis: Pros and Cons

To customize their screening processes, assistance providers may decide to conduct a Participatory Subsector Analysis (PSA). Under PSA, MSE community members and provider staff look closely at every stage of production or distribution for inefficiencies. This can lead to

- better understanding of the firms’ problems and constraints
- workable, creative solutions that gather support from all parties

On the other hand, because of the give-and-take involved, it can require

- much more time and resources per project than other approaches

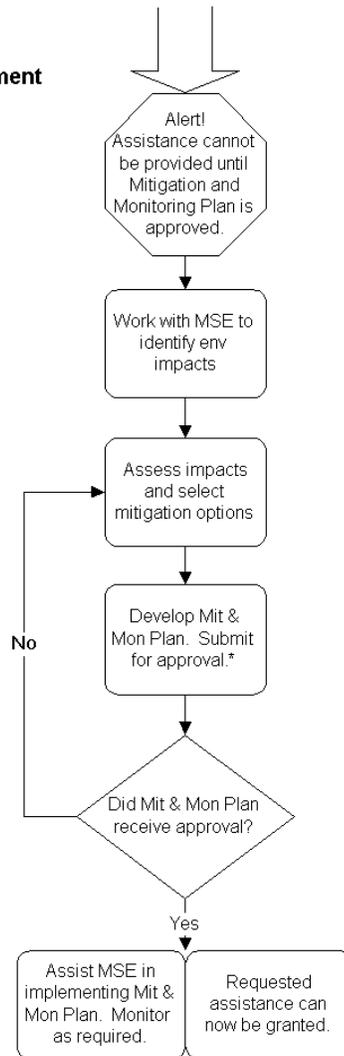
For the smallest loans, providers should probably start with standardized assessment tools.

³ Srinivas and Pallen 1998.

⁴ e.g., Srinivas and Pallen, Pallen.

Figure 2

Environmental Impact Assessment (EIA) Flowchart



* Plan may need to be submitted to MEO for approval. Thresholds for submitting should be negotiated with MEO in advance.

Because most MSE assistance projects are so small, EIAs must be inexpensive to complete and, when possible, offer mitigation strategies that are also inexpensive or offer financial benefits to the MSE.

combination of the two. The mitigation strategy must ensure that the impacts are reduced to required levels, regardless of financial payback.

The selected options should be then formally written down as an MMP. This plan must be approved by the assistance provider's EO or, if necessary, the mission, before implementing the mitigation strategies. Assistance is contingent on approval. Although the assistance provider may internally process the assistance request, it cannot give any credit, training, or other assistance until the MMP has been approved.

Once the MMP is approved and the assistance begins, the provider must aid the MSE in implementing the plan. The MMP may specify that monitoring is to be performed by either the MSE or the assistance

provider. In either case, it is recommended that the provider perform some monitoring or oversight of the MSE's compliance with the MMP.

Guidance for Writing Mitigation and Monitoring Plans

Guidance for choosing mitigation strategies is covered in Chapters 2 and 4 of this section of the *Guidelines*. Chapter 2 introduced pollution control and CP mitigation strategies for MSEs. Chapter 4 describes various mitigation strategies for specific MSE subsectors known to have both significant environmental impacts and CP opportunities. In addition to the guidance provided in these chapters, there are two other topics to be considered when preparing MMPs.

First, assistance providers often work with MSEs in the same or related subsectors. Thus the types of impacts they generate and the preferred mitigation strategies may be consistent from project to project. If so, assistance providers may choose to create templates for MMPs. These templates would reduce the cost and decrease the time required to create them. Using consistent MMPs may help providers to "fast-track" similar projects through the approval process, and a small number of templates may serve to cover the majority of MSE projects requiring mitigation. These templates should be approved by the USAID mission, and input from the micro-entrepreneurs, their employees, and their communities should be used when drafting specific MMPs from the templates.

Second, even if the types of projects or MSEs it works with are too varied for the provider to use templates for MMPs, many may be common to all MMPs. Good practices that can be followed, in varying degrees, by a wide variety of micro-enterprises⁵ include:

Work Space Organization and Storage Strategies

- ✓ Rearrange work space to reduce risks, improve efficiency, and make it easier to keep the space orderly and clean.
- ✓ Use pans and screens to prevent deposits of oil, liquid wastes or water from accumulating on the surrounding floors.
- ✓ Keep work areas clean, remove all rubbish from the work space, and situate receptacles for waste and debris in convenient places.
- ✓ Never use gasoline to clean things.
- ✓ Ensure that there is proper ventilation for indoor operations.
- ✓ Install proper lighting.
- ✓ Set aside special areas for storing raw materials, finished products, tools and accessories..
- ✓ Keep hazardous products away from wells, springs and other water sites

⁵ Sources: Srinivas and Pallen 1998, citing multiple sources.

Advantages of Templates for MSEs' Mitigation and Monitoring Plans

If assistance providers work with many MSEs in the same few sectors, they may find it helpful to create templates for mitigation and monitoring plans (MMPs). Using templates, providers may:

- shrink the cost and the time needed to create MMPs.
- be able to "fast-track" similar projects through the approval process

A small number of templates may cover most MSE projects requiring mitigation.

Tips on Monitoring Programs

- EIA monitoring should be integrated into existing monitoring programs.
- Choose relevant indicators for monitoring.
- Link monitoring to employees' activities and reviews.
- Work with partners to maximize resources and expertise.
- Monitoring can be intermittent and based on a sample.
- Cleaner production can reduce monitoring costs.

- ✓ Store flammable products away from all sources of heat or ignition. Remember that heat sources include electrical appliances, engines and motors.
- ✓ Store toxic substances out of the reach of children and animals. If possible, place them in a separate locked cabinet or other secure structure.
- ✓ Keep hazardous materials in plastic containers (preferably the original containers) with tight-fitting lids. If the product is in a rusting metal or breakable container, the container should be placed within a larger plastic container with a tight-fitting lid. Clearly label the outside container with the contents and date. This label should be in a language, or use signs, understandable to people in or near the workplace.
- ✓ In home-based enterprises and farming communities, keep toxic materials away from food supplies.
- ✓ Designate specific places for handling and storing effluents and waste materials.
- ✓ Avoid using newspapers and other flammable material for packing.
- ✓ Never throw away or bury wastes in or around abandoned wells.

Worker Protection Strategies

- ✓ Assess any health and safety risks to workers from dust, fumes, odors or pollutants.
- ✓ To prepare for possible poisoning, keep clean water nearby and tell co-workers what sort of chemicals or pesticides you are using and where the labels are.
- ✓ If someone inhales pesticides or toxic chemicals, get workers to fresh air immediately.
- ✓ Shorten work periods and provide enough rest breaks to eliminate accidents caused by fatigue and to reduce health risks and annoyances caused by excessive machinery noise and vibration.
- ✓ Reduce the potential for injury by taking into account the physical differences between workers, including height, strength, and ability to handle mental stress.
- ✓ Ensure that workers use proper protective equipment, especially when toxic substances are involved.
- ✓ Ban smoking and drinking on the job.

- ✓ Insist that workers wash thoroughly after handling dangerous or poisonous substances and wash before eating, drinking or smoking as well as after using the toilet.

Monitoring Techniques and Guidance

Monitoring is the last step in the EIA process. Historically, poor performance monitoring has plagued attempts to fundamentally integrate environmental assessment into development agencies' daily activities. Yet little real change or learning on the part of either MSEs or providers occurs without effective performance monitoring systems and follow-up.

Furthermore, performance monitoring is typically *required* of private voluntary organizations (PVOs) as part of the Initial Environmental Evaluation (IEE) that ensures that a project will comply with USAID Regulation 216. Such monitoring is useful to USAID and assistance providers for several reasons:

- It shows whether, and to what extent, PVO staff are actually implementing guidelines;
- It ensures individual responsibility and accountability for implementing specific parts of the guidelines;
- It provides mechanisms for reminding PVO staff to implement guidelines (such as checklists that must be filled out for every loan);
- It provides feedback on whether environmental and economic objectives are being achieved, whether such objectives/priorities should be revised, whether mitigation techniques (including CP) work, the actual cost of such mitigation techniques, the effectiveness of partner organizations, and how guidelines might be improved;
- It ensures that mitigation measures are actually carried out by MSEs, particularly those that might otherwise cause significant environmental harm;
- It provides justification to managers and staff for the resources spent on such activities; and
- It reveals when training is needed to improve performance.

Monitoring Tools

Performance monitoring typically involves using checklists and forms that staff fill out to indicate the activities they have conducted, mitigation measures they have taken, monitoring they have carried out, follow-up actions that are needed, and the results of these activities. Table 1 (next page) provides a monitoring overview template that BDS and credit organizations could revise, based on the program monitoring that they already conduct and on the screening and EIA processes that they develop.

Example of Performance Measures/Indicators

- Was the client aware of environmental impacts prior to contact with credit or support agency?
- Does the customer understand the cost implications of pollution?
- Has the customer evaluated pollution prevention opportunities?
- Did the MSE sign the form committing to environmental mitigation techniques?
- How many mitigation techniques were agreed upon?
- How many mitigation techniques were completed within one month of agreement? Three months? Six months?
- Did staff follow up with MSE within one month/three months/six months?
- What was the environmental/health impact of the mitigation measures? (Acquiring pre-mitigation baseline data can be particularly useful in this regard.)
- What was the cost impact of implementing these measures?
- What is the percentage of staff from direct credit providers who have received environmental training?
- What is the percentage of loans that follow environmental criteria?
- What is the average repayment rate for loans that follow environmental criteria vs. that of other loans?

Table 1. Sample Impact, Mitigation and Performance Monitoring Matrix

| Adverse impact | Mitigation technique | Expected cost / impact | Responsibility for informing/ training the MSE and date completed | Responsibility for ensuring that mitigation technique is completed and date completed | Outcome of mitigation technique (e.g., money saved/adverse impacts avoided) and other comments |
|----------------|----------------------|------------------------|---|---|--|
| | | | | | |
| | | | | | |

Other monitoring tools and techniques include:

- Checklists or tables filled out by caseworkers (e.g., loan reviewer, trainer) as they complete activities;
- Pre- and post-application forms, with information provided by MSE owners/managers;
- Interviews with plant personnel, neighbors and/or municipal authorities;
- Inspections of a company's activities;
- Air and water sampling; and
- Splitting development assistance into segments—the MSE must perform mitigation properly for one segment before it can receive the next segment.

Guidance for Monitoring Programs

In setting up overall monitoring programs, consider the following suggestions and observations:

Cleaner production can reduce monitoring burdens. Using CP as the primary mitigation strategy can help reduce the need for monitoring MSEs and thus the costs. Because CP approaches are integrated into a business’ production process, a business is much more likely to continue to use them even when oversight is lacking.

Integrate with existing monitoring mechanisms. Assistance providers should strive to keep monitoring mechanisms short and practical. New environmental performance measures should be integrated, to the greatest extent possible, with existing performance monitoring. For example, a section on environmental issues can be added to reports that staff must fill out when processing loans. This will help ensure that the issues are not overlooked, that it appears as less of an additional burden to staff, and that an information collection system is already in place.

Choose relevant indicators. The box on the previous page gives examples of both external and internal performance measures and indicators. Providers should identify indicators most useful to them.

Link monitoring to employee activities. Performance monitoring systems can be most effective when responsibilities and timelines for specific actions and mitigation measures are clearly specified. Assistance providers, for example, might revise job descriptions or work plans for caseworkers to specifically state that the provider will review caseworkers' performance to see whether they have ensured that environmental screening procedures were followed and that essential environmental mitigation steps were implemented.

Work with partners. When appropriate, work with partners to implement monitoring programs. Doing so may reduce monitoring costs. (See guidance below on partnering.)

Monitoring doesn't have to be continuous. Necessary oversight of MSEs could be accomplished efficiently through periodic, statistically significant sampling of all MSEs served.

Incorporate monitoring into reports to USAID. MSE development organizations may wish to use oversight mechanisms such as checklists to help in preparing annual reports to USAID, which are currently required by USAID's policy on microenterprise development. The monitoring activities may also be integrated with other kinds of monitoring conducted as part of USAID's Assessing the Impacts of Microenterprise Services (AIMS) project. This project has created and disseminated a set of low-cost tools for impact assessment, some qualitative, some quantitative.⁶ MSE development organizations may also consider integrating environmental performance monitoring systems into the system of evaluation tools created and provided by the SEEP Network.⁷

Table 2. Benefits of Cleaner Production

| Monetary Benefits | Other Benefits |
|--|---|
| Increases profitability through reduced input materials and energy costs | Reduces long-term liabilities |
| Improves product quality | Improves worker health and safety; reduces accident risks |
| Increases throughput | Reduces environmental pollution and resource degradation |
| Avoids regulatory and compliance costs | Improves company image to community and customers |
| | Increases competitive advantage |

⁶ More information on current performance evaluation tools for microenterprise development is available at www.mip.org, the Web site of USAID's Microenterprise Innovation Project.

⁷ According to its Web site, "The Small Enterprise Education and Promotion (SEEP) Network is an association of more than 56 North American private and voluntary

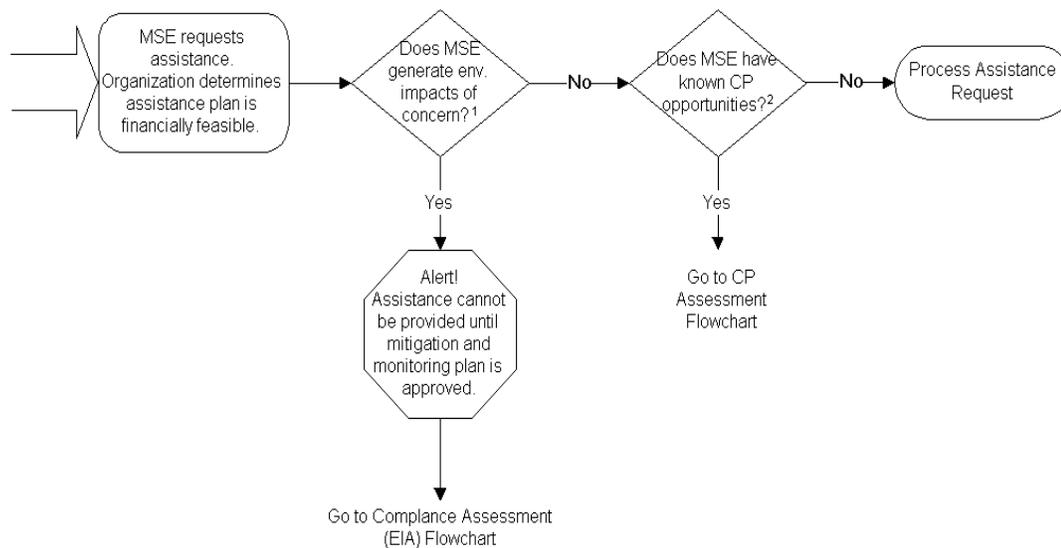
Cleaner Production (CP) Assessments for MSEs

As a reminder from chapter 2, Cleaner Production (CP) is a problem-solving strategy that uses a collection of analytic tools to improve the efficiency of production processes and improve profitability. It is a business-focused, profit-driven approach that can be transparently integrated into a business planning process. It is relevant to all sizes of enterprises, from home-based to multinational. Some of the benefits of CP are summarized in Table 2 (previous page).

CP assessments for MSEs follow an approach similar to EIAs, as shown in the following flowchart (Figure 3). However, where an EIA's focus is on finding and mitigating environmental impacts, CP assessments for MSEs will typically focus on improving MSEs' profitability by reducing waste and using input materials and energy more efficiently.

Figure 3

Suggested Environmental Screening Process for MSE Assistance Requests



1 Staff of assistance providers should be able to make this determination quickly by referencing a list of MSE sectors chosen as having environmental impacts of concern. This list will be developed in collaboration/negotiation with MEO. If it is unknown whether an MSE subsector generates environmental impacts of concern, it is necessary to notify the Organization's EO so that he/she may research this subsector and/or consult with the Mission. Each organization must set an internal policy as to whether this question must be answered before the assistance request can be approved.

2 It is expected that staff of assistance providers make this determination quickly by referencing a list of MSE sectors chosen as having significant CP opportunities. Assistance Providers will generate this list internally based on institutional knowledge and tools provided in these guidelines. If it is unknown whether an MSE has known CP opportunities or the opportunities do not offer significant financial payback, the organization must set an internal policy as to how to proceed. At a minimum, the EO should be notified so that he/she may research this subsector. It is recommended that a CP assessment be performed whenever technically and financially feasible.

organizations which support micro- and small enterprise programs in the developing world.” More information can be found at www.seepnetwork.org.

Another important difference is the timing of assistance approval. Assistance cannot be provided until the completion of the EIA, if required under regulations. CP assessments, on the other hand, are not ordinarily a regulatory requirement. Therefore, the assistance provider can determine whether to (a) require a CP assessment before granting assistance, or (b) incorporate CP into the assistance itself.⁸

It is often wise for the MSE to perform a CP assessment before providing the assistance. For example, if a loan is requested for new production equipment (boilers, vats, dryers, etc.), it may make more sense to wait until after the CP assessment has identified cost savings with the existing equipment or the most efficient new production equipment before granting the loan. On the other hand, if the request is for management training, it may make sense to integrate CP concepts into the training. The assistance provider is free to approve and implement the requested assistance as best suits each situation. Table 3 below summarizes the similarities and differences between EIAs and CP assessments

CP assessments for MSEs will typically focus on improving their profitability by reducing waste and using input materials and energy more efficiently.

Table 3. Comparison of EIAs and CP Assessments

| | EIAs | CP Assessments |
|--------------------------------------|---|--|
| Process Steps | Identify environmental impacts, assess impacts, select mitigation options and create Mitigation and Monitoring Plan (MMP), implement MMP, monitor as required | Identify problems and opportunities, prioritize, implement, monitor/evaluate, and seek additional opportunities |
| Timing of assistance approval | Because EIA is a regulatory requirement, assistance cannot be provided until the EIA process is complete | CP assessment is not ordinarily a regulatory requirement, therefore the assistance provider can decide whether to (a) require a CP assessment before granting assistance, or (b) incorporate CP into the assistance itself |
| Focus | Mitigation of environmental impacts | Improved profitability, which also reduces environmental impacts |
| Personnel | Personnel generally require more environmental expertise | Personnel generally require more business, accounting or process engineering expertise |

⁸ However, USAID recommends including CP assessments in the EIA process, to help determine the most cost-effective approach to mitigating adverse impacts. When CP assessments are part of the EIA process, the request for assistance cannot be granted until after the mitigation and monitoring plan is approved.

A CP assessment may need different personnel from those who conduct the EIA. The EIA typically requires more environmental expertise. CP assessments, on the other hand, require more skills in business and process engineering. (See section below on partnering with other organizations). Consequently, assistance providers may wish to create in-house CP assessment capacity. BDS providers, for example, may choose to train their field staff in CP assessment skills to complement their existing capabilities in accounting and technology selection. (See section below on training.)

It is important to note that many caseworkers may begin to implement CP even just with the basic understanding of CP presented here. In the beginning, however, partnering with CP specialists and/or providing CP training to staff may help accelerate its use.

Designing a CP Assessment Protocol

An assessment is a methodical examination and review of the MSE's business activities, ranging from production to accounting. The purpose of assessing is to carefully examine a facility's production processes and identify CP opportunities.

Although it can be helpful to have a CP expert perform the assessment, a layperson can also perform simple assessments with useful results. Many BDS and credit provider field staff who regularly visit their clients' places of business may have already performed tasks similar to a simple CP assessment.

A CP assessment will typically examine

- the condition of the facilities and equipment;
- the steps in the manufacturing process;
- production inputs, including energy, water, raw materials, and chemicals;
- waste and pollution created;
- waste disposal practices; and
- health and safety risks.

As discussed in Chapter 2, there are a variety of CP approaches to improved efficiency. It is important for a CP assessment to at least consider opportunities in each of these categories when evaluating an MSE. The checklist on the next page details these categories, and can be photocopied to help conduct field assessments.

| Sample CP Assessment Checklist | | |
|--|--|--------------------|
| Approach | What to Consider | Field Notes |
| <input type="checkbox"/> 1. Good Housekeeping | Preventing leaks and spills, setting up preventive maintenance schedules, regularly checking equipment, making sure employees follow official work procedures. | |
| <input type="checkbox"/> 2. Input Substitution | Substituting less expensive, less dangerous, or more efficient input material(s) for existing input material(s). | |
| <input type="checkbox"/> 3. Better Process Control | Changing working procedures, instructions for operating machinery, and record-keeping about the production process to increase throughput, reduce waste, and/or improve product quality. | |
| <input type="checkbox"/> 4. Equipment Modification | Altering the existing process equipment to increase throughput, reduce waste, and/or improve product quality. | |
| <input type="checkbox"/> 5. Technology Change | Replacing the existing technology or changing the order of production steps to increase throughput, reduce waste, and/or improve product quality. | |
| <input type="checkbox"/> 6. Product Modification | Changing the characteristics of a product to increase throughput, reduce waste, and/or improve product quality. | |
| <input type="checkbox"/> 7. Energy Efficiency | Making changes in any aspect of business operations to reduce energy consumption or cost. | |
| <input type="checkbox"/> 8. Onsite Recovery and Reuse | Capturing and reusing materials that were previously wasted. | |
| <input type="checkbox"/> 9. Waste-to-Product | Identifying an end market and marketing a material formerly considered waste. May involve changes in processing of the original product or new processing steps to transform the waste. | |

CP projects themselves generally fall into one of two classifications:

- (1) **Projects requiring little investment.** Many CP opportunities that can be identified for MSEs fall into this category— these are “low-hanging fruit” that can have a significant impact on the efficiency of a MSE. In this case, the assistance provider is simply helping to identify CP opportunities while building capacity to identify and implement CP improvements.
- (2) **Projects requiring capital investment.** CP opportunities that require an investment of capital must have a profitability assessment to see if they will be cost-effective. For this type of project, the assistance provider can help with the profitability assessment and may also help secure extra funds for the MSE for implementation.

Assistance providers will need to design their own assessment protocols (rules and procedures) to suit the needs of their staff and reflect the working conditions of the MSEs they assist. Assessment protocols can range from very simple ones (e.g, a checklist of items to identify while walking around a facility) to complex procedures and tools to examine and measure performance in a variety of ways (e.g., quantifying waste and comparing the amounts with those of similar facilities).

Assistance providers may also wish to partner with CP experts to assist in identifying CP opportunities. CP expertise is particularly useful for larger and more complex enterprises and when CP is first being explored for a particular type of enterprise.

A CP assessment may use a variety of different methodologies or approaches to make it easier for assistance providers—and MSEs themselves—to detect cost-saving opportunities. These guidelines offer a summary of two methodologies: (1) full cost accounting, and (2) process mapping. Both of these techniques are considered well suited to an MSE situation, and are easy to understand and integrate well with common managerial best practices.

Full Cost Accounting

Good managerial accounting practices are important for any firm to be able to identify opportunities to reduce costs. Too often, MSEs do not have an adequate accounting system even for the most basic functioning of the business. As assistance providers work with MSEs, part of a CP assessment will be to help them develop and/or improve their accounting system. Even micro-scale enterprises should have some sort of accounting system, however rudimentary. The adage “What gets measured gets managed” certainly applies to the search for opportunities to reduce wasted input materials and energy. Many MSEs know the total cost of their inputs, but not the total cost of waste and inefficiencies, nor are they aware of opportunities to reduce them. The box at left provides an example of how much it can benefit a business to identify these costs.

Full cost accounting takes standard managerial accounting a step further by revealing hidden and difficult-to-quantify costs that relate to material and energy use. This can reveal new areas where CP improvements can

Case Study: Olive Oil Bottler (Lebanon)

A CP assessment performed at this facility revealed that a significant amount of olive oil was being wasted because of a reservoir that often overflowed. The accounting records did not reflect the costs to the business from this loss, and therefore went the loss had gone uncorrected by management. For an investment of US \$40 and two days of labor, the bottler realized a savings of about US \$40,000 per year.

reduce waste. Full cost accounting is a technique that (1) identifies costs which are either misallocated as overhead costs or not otherwise accounted for at all in the present system and (2) allocates them to the appropriate business process, making inefficiencies more apparent. For example, accounting records may track raw materials used and final product shipped, but not the amount of scrap waste generated; overlooking waste generation will lead the MSE to ignore potentially cost-saving measures. Other types of costs that may not be accounted for include lost sales from returned products, equipment that must be replaced because of poor maintenance, and future depreciation of new waste-treatment equipment.

To properly identify and allocate previously unidentified sources of waste and inefficiency, full cost accounting uses

- data from the accounting system (general ledger);
- data records from various departments;
- data on activity-based costs such as labor and regulatory compliance, non-product outputs, and process losses; and
- information from colleagues and employees.

In some cases, an MSE may wish to supplement these records with data from its industry, vendors, consultants, business partners, or government. These data may only be estimates of the actual cost. Even so, they can dispute incorrect assumptions about the true costs of doing business for the MSE, and indicate where opportunities for efficiency lie.

For projects that require a capital investment, full cost accounting principles can help provide a more accurate picture of the profitability of the investment by including cost savings from CP that are ignored during traditional profitability assessments. The following four elements of full cost accounting help bring more accurate data to the analysis:

- Its inventory of costs, savings and revenues includes hidden, indirect and less tangible items typically omitted from project analysis.
- It directly allocates costs and savings to specific processes, products and activities instead of pooling them in overhead accounts.
- It extends time horizons for calculating profitability to capture longer-term benefits.
- It uses profitability indicators capable of incorporating the time value of money and long-term costs and savings.

For more details on using full cost accounting to identify CP opportunities, see “Total Cost Assessment Guidelines (DRAFT),” Environment Canada, June 1997, section 7.⁹

http://www.emawebsite.org/library_detail.asp?record=2

Full cost accounting takes standard managerial accounting a step further by revealing hidden and difficult-to-quantify costs that relate to material and energy use. This can reveal new areas where CP improvements can reduce waste.

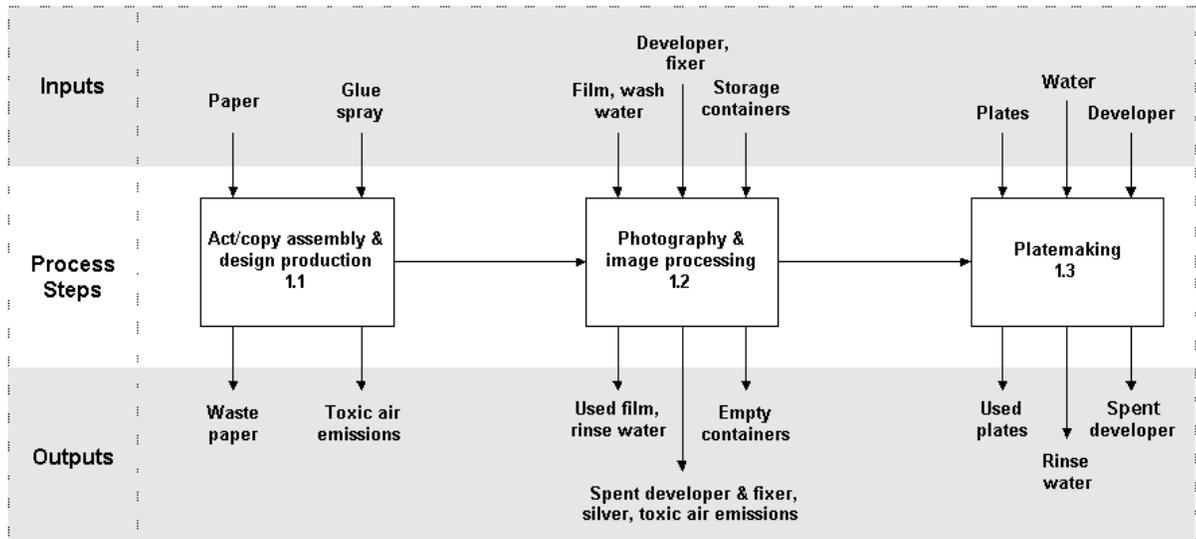
⁹ Full cost accounting is often referred to as total cost accounting, total cost assessment or environmental management accounting.

Process mapping

Process mapping is a structured approach to understanding and assessing a facility's activities. It is used to make relationships in a production process visible and to help people to find efficiency improvements that span different process steps.

Often, personnel do not have a good understanding of aspects of the business different from their own. Thus a process map should be constructed collaboratively by various employees from a business in order to capture (1) the important interrelationships between various operations and (2) the cost and waste implications of each. A sample process map for a lithographic printer appears below (Figure 4).

Figure 4: Sample Process Mapping for Lithographic Printer



Here are some key guidelines for making a process map:

- The various stages in production appear chronologically from left to right.
- Initial process maps should aim at simplicity; more detailed maps can be generated later.
- Input materials and energy for each step are depicted as arrows entering from the top.
- Waste and emissions are depicted as arrows exiting from the bottom.

Process maps can depict the entire process, a series of sub-processes, or an ancillary or intermittent process. For example, the process map above shows the inputs (coming from above) and outputs (exiting below) for the steps in the prepress process for lithographic printing. Using this type

of approach, it is easy to identify common inputs and consolidate similar inputs like chemicals. It is also easier to identify inefficiently used inputs (e.g., material that is lost as waste, scrap or pollution). A process map can be used as a visual aid when identifying potential efficiency improvements through the use of the “CP Approaches” checklist above. The box at right presents an example of how process mapping helped identify and resolve a costly inefficiency.

Process maps can also help to allocate costs accurately for full cost accounting. Material flow quantities can be added to a process map to help determine what fraction of input materials ends up as waste. Cost information can then be added, based on these quantities. In this way, the process map helps to give owners and managers a framework for approaching their business from a “systems” perspective.

Additional information on process mapping can be found in Pojasek 1997.

Building an Organization’s Environmental Capacity

In responding to these guidelines, BDS and credit institutions may find that they (or the MSEs that they work with) do not have all the skills or tools on hand to be able to effectively integrate environmental concerns into their daily operations right away. To address this capacity gap, BDS and credit providers may wish to consider training opportunities, partnering possibilities, and available tools and templates on which they can model their own screening and compliance materials.

Training for BDS and Credit Institutions

Proper implementation of environmental guidelines may require training for staff of organizations assisting in the development of MSEs, as well as for MSE owners, managers, and employees. Training may be available from private consultants, NGOs, national Cleaner Production centers, government agencies or international aid agencies. One example is the training available from the GTZ, the German development agency. Its Pilot Programme for the Promotion of Environmental Management in the Private Sector of Developing Countries (P3U) provides training in general and subsector-specific “good housekeeping” measures that MSEs can use to mitigate their environmental impacts, focusing upon those measures that require only a modest amount of time or money to implement. The box on the next page describes another example—a cleaner production training specifically designed to increase the value BDS staff provide to their clients. Similar training courses could be targeted specifically for credit providers.

Ideally, environmental training for BDS providers and credit organizations should include information about the following topics:

- General facts about MSEs and the occupational health and environmental issues associated with them.

Case Study: Printing and Laminating Company (Zimbabwe)

This business prints and laminates film for the food packaging industry (e.g., potato chip bags). During a CP assessment, the staff generated a process map and noted on it the value of the lost materials associated with operations (e.g., resulting from printing errors). The CP team noticed that the cost of lost materials was significant, and that one cause of loss was the delay between the development of a printing problem and the problem’s being detected.

The company decided to make a CP investment in a quality control camera at a cost of about US \$100,000. The annual cost savings from reduced material waste was about US \$40,000 per year.

Training BDS Staff in Cleaner Production

In Mozambique in July 2002, BDS provider TechnoServe offered a new, three-day training course to professionals from its own and other service and credit organizations.

The USAID-funded course, "Improving Micro and Small Enterprise Success Rates through Cleaner Production," oriented these professionals to the cost-saving and other business opportunities associated with cleaner production. It helped them identify ways in which they are already promoting some aspects of cleaner production, helped them begin to develop skills in identifying cleaner production opportunities, and encouraged them to effectively and efficiently integrate cleaner production thinking and environmental regulatory compliance into their everyday operations.

This well-received course is likely to be offered again in the future. In addition, a CD-ROM of the training materials is available from Tellus Institute, the lead trainer (CP@tellus.org). The training materials may also soon be available online at the ENCAP Web site (www.encapafrika.org).

- CP approaches and tools, particularly focusing on the business benefits to clients.
- Clean technologies and methods for preventing and mitigating adverse environmental impacts.
- Use of environmental screening, guided questions, and classification procedures in the environmental review of MSEs. Ideally, the specific procedures and tools used in environmental screening, EIA and CP assessment would be developed by the assistance provider before the training.

USAID partners may also wish to develop informational materials, outlining impacts and mitigation options, for use in particular subsectors of concern to their operations in specific geographic areas. The CP fact sheets in Chapter 4 illustrate the type of subsector-specific materials that staff may find useful.

These guidelines recognize that BDS and credit providers are best placed to determine how to convey environmental and/or cleaner production information to client MSEs. However, providers may wish to consider using direct MSE training materials developed by other organizations.

Partnering with other organizations

These guidelines should help to make environmental review procedures and CP an integral part of all MSE support and credit activities. However, as noted above, BDS and credit providers may not always have the in-house expertise and/or resources to carry out every one of the guidelines' elements, particularly if they wish to extensively customize the guidelines.

Moreover, the guidelines are intended to allow MSE development organizations to continue to focus on their primary missions. (In fact, if properly implemented, these practices should help these organizations achieve their development goals by improving short- and long-run economic outcomes.) The organizations may wish to consider developing partnerships to maximize expertise and results, particularly until their own internal competency in environmental issues is well developed.

Partners might conduct EIAs or CP assessments of targeted enterprises, help prepare materials for trainings, oversee implementation of mitigation measures by MSEs, or conduct environmental evaluations of credit applications. For example, credit organizations may wish to partner with specialized technical consultants to provide their staff with environmental/CP training and/or train targeted clients in proper environmental procedures or CP methods. BDS and credit providers may already be partnering with such consultants to obtain other management training skills, making this a relatively easy add-on.

Potential partners include environmental NGOs; community groups; private consultants; technical organizations, such as National Cleaner Production Centers; local, regional or national environmental regulatory agencies; trade associations; universities; scientific/research programs; or

other even other BDS/credit providers that have developed more advanced environmental integration strategies. Their appropriateness depends on the organizations' particular qualifications, resources, and/or mandates. Working with these organizations can help providers integrate these activities into their internal structure and make them more sustainable in the local context. The box at right gives an example of how working with a trade association may be beneficial.

Tools for BDS and credit providers

As mentioned above, these guidelines present several tools to help providers with screening, mitigation, and monitoring.

First, the sample program-level screening form in **Annex A** will help identify proposed programs which USAID Regulation 216 might not allow or for which it might require mitigation. However, Regulation 216 does not directly address many of the activities undertaken by MSEs that may damage the environment—nor does it raise awareness of many cleaner production opportunities that could cost-effectively mitigate those impacts and improve the financial viability of enterprises.

Annexes B and C are designed to help users of these guidelines identify potentially damaging enterprises that are not expressly covered under Regulation 216, and to focus in on critical adverse impacts and a more complete range of mitigation opportunities.

- To help readers orient themselves, **Annex B** lists dozens of types of enterprises that commonly receive development assistance and divides them into three groups: (1) those that are expected to have beneficial impacts on the environment, (2) those expected to have minimal adverse environmental effects, and (3) those that are expected to have potentially significant adverse effects. Some BDS and credit providers will likely wish to develop much more targeted lists for subsectoral screening purposes, depending upon the types of enterprises with which they work frequently and about which more information is available. For instance, BDS and credit providers could focus most screening activities upon types of MSEs covered in the Cleaner Production Fact Sheets (see below).
- For those BDS and credit providers that wish to conduct a more detailed screening, **Annex C** provides a sample enterprise-specific questionnaire. Only knowing the category that the enterprise belongs to may not be enough for providers to fully understand the scope and scale of its potential environmental impacts. Several important enterprise-specific factors may also need to be considered, including the nature of the proposed activities and their magnitude, location, duration of impact, environmental context, and political, social and economic importance. Helping MSEs fill out a screening questionnaire helps providers to conduct this second level of screening, which they may wish to reserve for unusual cases, given the additional resources required to conduct such an assessment.

Trade Associations Promoting Environmental Action

In the past, trade associations have played a substantial role in helping mitigate environmental damage—such as by organizing participation in common waste treatment schemes or self-regulatory approaches. For example, the Kenya Flower Council (an association of flower growers) has been instrumental in developing and promoting a self-regulatory environmental standard.

Such self-regulatory approaches might be particularly viable options when MSEs are linked to international markets that seek assurances about the sustainability profile of their producers. For example, certain industries—such as electronics and automotive manufacturing—are increasingly requiring their suppliers to be registered to ISO 14001, an industry-developed international standard for environmental management systems (EMS). In the last two years, both Ford and IBM have begun requiring their suppliers to be registered. Likewise, international standards exist for sustainable fisheries and agriculture. Experts are now beginning to focus on developing EMSs for small enterprises.

Support and credit organizations should be careful, however, before investing resources in promoting such paths, because many observers have questioned the effectiveness of these approaches. Practitioners should ensure that MSEs' initial costs for setting up management systems do not overwhelm the benefits and that environmental goals could not be accomplished otherwise.

In addition, they should try to ensure that trade associations are acting in good faith and that mechanisms can be developed to help guard against free riders (i.e., companies that participate only for the benefits and do not actually change their environmental impact).

In addition, the **Cleaner Production Fact Sheets** may be used to generate screening lists and help caseworkers better understand the environmental impacts and mitigation opportunities associated with certain different kinds of MSEs. These fact sheets, presented in Chapter 4, highlight relatively simple and straightforward techniques for mitigating many of the most serious adverse impacts from specific MSE subsectors, focusing primarily on cost-effective CP strategies. Fact sheets are available for the following subsectors: brick and tile production; leather processing; small-scale mining; food processing; metalworking; wood processing and furniture making; and wet textile operations. The subsectors are chosen based upon several considerations, including their importance to the African MSE economy, their individual or cumulative adverse impact on the environment and workers' health, and the perceived extent to which USAID funding is currently assisting MSEs in the subsector and could potentially help mitigate adverse impacts. In addition, each fact sheet offers a substantial, annotated list of resources for those organizations seeking more information.

Annexes D and E provide supplemental tools to assist BDS and credit providers in improving MSEs' environmental performance. **Annex D** is a sample Environmental Commitment Statement for MSEs. Assistance providers may wish to obtain such mitigation commitments from applicants whose activities are likely to have impacts of concern. **Annex E** provides sample terms of reference that may be modified when hiring environmental consultants.