
Chapter 3 Institutionalizing Environmental Capacity

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The previous chapter introduced mitigation strategies that MSEs can use to control their environmental impacts. This section addresses the challenges facing credit and BDS providers in effectively reviewing MSE activities for compliance with USAID regulations and in improving the overall environmental and economic performance of MSEs. This section also provides credit and BDS providers with a framework for incorporating environmental concerns into their operations, without needing to become environmental experts themselves. This chapter will assist them in both understanding how to develop a screening process to identify potentially damaging enterprises and to identify adverse environmental impacts and cleaner production mitigation opportunities for those enterprises.

This section also provides a discussion of many aspects of implementing these guidelines that may be critical to success—including 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.

Screening - Which MSEs to focus on?

One of the first steps in applying environmental oversight to MSE activities is for BDS and credit providers to categorize the MSEs they work with by the types of environmental impacts they generate, in order to readily identify and screen MSEs that may create environmental impacts of concern. 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 (loan,

business planning, accounting training, etc) requires 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 allows for rapid and easy processing of a large number of assistance requests by staff with limited environmental expertise. This framework emphasizes flexibility and collaboration to best suit the wide variety of scenarios used for MSE development. This framework is also expected to be easily modified to address the specific needs of each BDS and credit provider. (See section below **Developing a Customized Screening Process**) Although it may seem burdensome at first, initial screenings should increase the efficiency of BDS and credit organizations 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

USAID mission, providing oversight of the assistance providers programs

Intermediate credit institutions, that 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 USAID Mission -- in order to provide assistance to many MSEs while mitigating the greatest potential environmental impacts.

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

Assistance Provider. The Assistance Provider is the entity that will be directly providing the requested assistance (loan, training, technical assistance, etc) to the MSE. For this framework, the Assistance Providers consist of BDS and/or credit providers. The role of the Assistance Provider is to work with the MSE to ensure that any assistance meets USAID requirements for environmental performance. To fulfill this role, the Assistance Provider has three main responsibilities. First, the Assistance Provider is responsible for creating appropriate screening criteria and procedures. This is accomplished in collaboration with the USAID Mission and referencing the governing IEE. Second, the Assistance Provider is responsible for assisting the screened MSEs in creating and implementing required Mitigation and Monitoring Plans. Third, the Assistance Provider is responsible for oversight for any monitoring activities required in the Mitigation and Monitoring Plan. 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.

Mission. The Mission's role is to provide oversight for the Assistance Provider's development activities. In this oversight capacity, the mission has two main responsibilities. First, the Mission is responsible for collaborating with the Assistance Provider to develop and approve their screening process. Second, the Mission is responsible for assisting the Assistance Provider in addressing any assistance requests that are not covered by the existing process. For example, the Mission would assist the Assistance Provider in screening MSEs newly identified as generating environmental impacts of concern. Typically, the Mission Environmental Officer (MEO) participates in these activities.

Intermediate Credit Institutions (ICIs). ICIs play an intermediary role between the Mission and direct credit providers. In this role, ICIs should be responsible for ensuring that direct lenders develop appropriate screening procedures, as described above, and providing information to the Mission verifying the implementation of the screening procedures.

Screening Process

The screening process is expected to be completed by Caseworkers without environmental expertise, using simple tools and may take no more than a few minutes to complete. (See figure XXX, which provides an overview of the proposed sample screening process.) It begins with an assistance request that the Assistance Provider has determined to be 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 CP opportunities, and (3) MSEs which do not require any further environmental action. It is expected that Assistance Providers will categorize the most commonly assisted MSE subsectors in advance, in collaboration with the Mission Environmental Officer.

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 approved¹. This is discussed below in the section **EIA for MSEs**. 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 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 or if a minimum number of assistance requests from new subsectors are required before they must be classified. The Assistance Provider also should determine if the caseworker must wait on a decision from the EO, or proceed with the screening as if the MSE does not have impacts of

¹ Even though an enterprise belongs to a sector which generates environmental impact of concern, it may not necessarily generate impacts which require a full EIA. An Organization may choose to initiate a second level of screening to determine if the impacts generated by the MSE merit a full EIA. This second level of 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, such a screening is unlikely to exempt MSEs, and may not offer significant time or cost savings over a full EIA.

concern. It is very important to develop a process that does not entirely neglect "unknown" subsectors, in the event that an unusual assistance request with potentially significant environmental impacts of concern is not identified for EIA.

If it is determined that the MSE does not generate impacts of concern, then the enterprise should be screened for known cleaner production (CP) opportunities. Most enterprises will offer CP 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 the potential for CP to improve financial performance. If an MSE has unknown CP opportunities, it is recommended that the Caseworker notify the Assistance Provider's EO so that he/she may track that subsector whether to conduct further research. The EO may need to consult with Mission staff as part of this research. 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 Screening Process

The following questions should help construct customized guidelines for your organization. The text provides detailed advice of adapting the guidelines for different organizations.

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

How do I set threshold criteria for environmental performance?

How to consider compliance with the host country's environmental regulations?

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

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 detrimental in one instance may be beneficial in another. Thus, Assistance Providers will wish to develop a customized screening process to suit their clientele and operating conditions.

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

These guidelines recognize that credit and BDS providers operate under different service models and each individual organization has a particular focus and set of capabilities that make wholesale implementation of any set of guidelines for recommendations unwise. Furthermore, these organizations work with large numbers of clients, and these clients have vastly different business profiles and potential for successfully implementing any new approach to doing business (including environmentally sound approaches). As such, credit and BDS providers are encouraged and expected to work with USAID to adapt the criteria, procedures and forms to meet their own situations. For example, they should strive to understand the local technical and cost feasibility of common mitigation or cleaner production opportunities for the kind of clients they most frequently work with, identifying environmental technologies and processes with a high rate of return. They should also identify screening thresholds that identify MSEs of concern, of which environmental measures will be required in exchange for granting the assistance request.

How do I set threshold criteria for environmental performance?

As mentioned in the Roles and Responsibilities section, developing this screening process requires collaboration between the Assistance Provider and the Mission (and in some cases the ICI). The Mission and the Assistance Provider should use these guidelines and the IEE as a basis for establishing a tailored screening process that suits both parties. These

guidelines do not attempt to identify specific thresholds for determining which sectors and what kinds of enterprises should be targeted for regulatory compliance and/or best business practice implementation. It is recognized that such threshold determinations should be made on an organization-specific and/or program-specific basis. Factors that may be considered in determining screening thresholds may include:

- The environmental risk presented by enterprises of a particular sector, in general
- The extent to which the loan or BDS support, without mitigation, will contribute to a substantial environmental problem
- The extent of opportunities for profitable cleaner production
- The size of the enterprise
- The significance of the assistance being provided to the enterprise (e.g., the size of the loan or the level of BDS support)

These guidelines do offer several tools to aid Assistance Providers and Missions in developing their own threshold criteria. To determine if an MSE generates environmental impacts of concern, Annex B includes a list that classifies a wide variety of MSEs according to the significance of their environmental impacts. Assistance Providers may wish to use this list to select and categorize the MSEs with whom they work.

Alternatively, they may wish to focus on only 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 lists of sectors of concern.²

How to consider compliance (or lack thereof) with in-country environmental regulations?

BDS and credit providers should identify all relevant environmental regulatory regulations and municipal ordinances (including relevant zoning requirements, if any) that apply to the MSEs with which they work. These organizations should strive to 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 initiate interactive appraisal processes, working closely with enterprise owners/staff and affected communities, which are the groups best suited to understanding and responding to MSE environmental issues. Doing so can result in better understanding

² For Assistance Providers choosing to implement enterprise-level screening, 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 implement enterprise-level screening would need to develop their own, focused version of this form along with appropriate decision-making criteria and procedures.

problems and constraints, and lead to developing workable, creative solutions that garner support from all parties. One possible approach, Participatory Subsector Analysis (PSA), involves examining "every stage in the production or distribution of a particular good or service to identify inefficiencies. This process can be used to understand a whole array of factors related to the production process, working environment, technology, resource use, and end use of waste."³ Excellent references are available to provide guidance on PSA and methods of involving the community in developing solutions to environmental problems of MSEs.⁴

It should be noted that, while stakeholder processes can lead to higher project success rates, they also can come with high transaction costs—that is, they can require much more investment of time and resources per project than other approaches because of the give-and-take involved in such situations. MSE support and credit organizations have to balance transaction costs with the need for location-specific information and buy-in. For example, it is perhaps unrealistic and imprudent to expect an assessment and stakeholder participation to occur for the smallest individual MSE loans. For the smallest loans, it is recommended that providers rely upon more standardized tools as starting points. Stakeholder participation is perhaps best utilized for identifying standard screening protocols and for processing MSE Assistance Requests that will require an EIA.

EIA for MSEs

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

A suggested EIA procedure for MSEs is shown in **figure XX**. Once the initial screening process has determined that the MSE requesting assistance belongs to a subsector with environmental impacts of concern, the Assistance Provider and MSE must work together to develop a Mitigation and Monitoring Plan to address the MSE's specific impacts. No assistance can be provided to this MSE until the Mitigation and Monitoring Plan is in place.

EIA begins with 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 combination of the two. The mitigation strategy should be selected to

³ Srinivas and Pallen 1998.

⁴ e.g., Srinivas and Pallen, Pallen.

ensure that the impacts are mitigated to required levels, regardless of financial payback.

The selected mitigation options should be then formally written down as a Mitigation and Monitoring Plan. This plan must be approved by the Assistance Provider's EO or, if necessary, the Mission before implementing the mitigation strategies. Approval for the MSE's requested assistance is contingent on approval for the Mitigation and Monitoring Plan. Although the Assistance Provider may internally process the assistance request, no credit, training, or other assistance may be provided until the Mitigation and Monitoring Plan has been approved.

Once the Plan has been approved, the Assistance Provider is free to approve the requested assistance. The Assistance Provider then must aid the MSE in implementing the Mitigation and Monitoring Plan. The Plan may specify monitoring to be performed by either the MSE or the Assistance Provider. In either case, it is recommended that the Assistance Provider perform some monitoring or oversight of the MSE's compliance with the Plan.

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 Cleaner Production 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 Mitigation and Monitoring Plans.

First, it is expected that the Mitigation and Monitoring Plans created by Assistance Providers for their clients will have significant commonalities. As Assistance Providers often work with MSEs in the same or related subsectors, 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 Mitigation and Monitoring Plans. These templates would reduce the cost and decrease the time required to create these plans. Also, using consistent Plans may help "fast-track" similar projects through approval. A small number of templates may serve to cover the majority of MSE projects requiring mitigation. These templates should be approved by the Mission, and input from the micro-entrepreneurs, their employees, and their communities should be used when drafting specific Plans from the templates.

Second, even if the types of projects or MSEs are too varied to use templates for Mitigation and Monitoring Plans, environmental health and safety guidelines may be common among Plans. Good environmental,

health and safety practices that can be followed, to varying extent, by a wide variety of micro-enterprises⁵ include:

Work Space Organization and Storage Strategies

- Rearrange work space to reduce risks, facilitate order and cleanliness, and improve efficiency.
- Use pans and screens to prevent deposits of oil, liquid wastes or water on the surrounding floors.
- Keep work areas clean, remove all rubbish from the work space and situate receptacles for waste and debris in convenient locations.
- Never use gasoline for cleaning purposes.
- Ensure proper ventilation of indoor operations.
- Install proper lighting.
- Set aside special areas for storage of raw materials, finished products, tools and accessories.
- Store flammable products away from all sources of heat or ignition. Remember 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 products away from wells, springs and other water sites.
- Keep hazardous materials in plastic containers with tight fitting lids (preferably the original). If the product is in a rusting or 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 close proximity to the workplace.
- In home-based enterprises and farming communities, keep toxic materials away from food supplies.
- Designate locations for handling and storage of 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

⁵ Sources: Srinivas and Pallen 1996, citing: ILO 1994a; ILO 1996; ILO 1997; Kogi, Phoon and Thurman 1989; Matchaba-0Hove 1996; Ontario Crafts Council 1980; Stratz 1996.

- Assess any health and safety risks to workers as a result of 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 pesticides or toxic chemicals are inhaled, get workers to fresh air immediately.
- Reduce length of work periods to eliminate accidents caused by fatigue and health risks and annoyances caused by excessive noise and vibration of machinery; provide for rest breaks.
- Reduce the potential for injury by taking into account the differences in the physical makeup of workers, including heights, strengths, and ability to handle mental stress.
- Ensure the use of proper protective equipment especially when toxic substances are involved.
- Ban smoking and drinking.
- Wash thoroughly after handling injurious or poisonous substances and wash before eating, drinking, smoking or using the toilet.

Monitoring Techniques & Guidance

Monitoring is the last step in the EIA process. Historically, poor performance monitoring has been the bane of both attempts to integrate environmental assessment into daily development agency activities and attempts to change the manner in which institutions operate. Little real change or learning on the part of either MSEs or Assistance Providers occurs without effective performance monitoring systems and follow-up. Furthermore, performance monitoring is typically *required* of PVOs as part of an Initial Environmental Evaluation (IEE) that insures a project will comply with USAID Regulation 216. Such monitoring is useful to USAID and Assistance Providers for several reasons:

- To indicate whether and to what extent staff are actually implementing guidelines;
- To ensure individual responsibility and accountability for implementing specific parts of the guidelines;
- To provide mechanisms to remind staff to implement guidelines (such as checklists that must be filled out for every loan);
- To provide 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;

- To ensure that mitigation measures are actually implemented by MSEs, particularly MSEs that might otherwise have significant adverse environmental impacts; and
- To provide justification to managers and staff for the resources spent on such activities;
- To identify the need for training to improve performance.

Monitoring Tools

Performance monitoring typically involves using tools such as checklists and forms that staff fill out to indicate the activities they have conducted, mitigation measures taken, monitoring carried out, follow-up actions needed, and the results of these activities. The table below, provides a monitoring overview template that organizations could revise, based upon both the program monitoring that they already conduct, and upon the screening and EIA processes that they develop.

Sample Impact, Mitigation and Performance Monitoring Matrix

| Adverse Impact | Mitigation Technique | Expected Cost / Impact | Responsibility for Informing/ Training the MSE & Date Completed | Responsibility for Ensuring Mitigation Technique Completed & Date Completed | Outcome of Mitigation Technique (E.g., Money Saved/Adverse Impacts Avoided) & Other Comments |
|----------------|----------------------|------------------------|---|---|--|
| | | | | | |

Observations on Monitoring Programs

- Cleaner production can reduce monitoring costs
- CP monitoring should be integrated into existing monitoring programs
- Choose relevant indicators for monitoring
- Link monitoring to employee's activities and reviews
- Work with partners
- Monitoring does not have to be continuous.

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
- Break up development assistance into segments—with the provision of subsequent segments linked to proper implementation of mitigation measures.

Guidance for Monitoring Programs

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

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

Integrate with existing monitoring mechanisms. BDS providers and credit institutions 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, adding a section on environmental issues to reports that staff must fill out when processing loans 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. **Box 3.3o** gives examples of both external and internal performance measures and indicators. The BDS and credit institutions should pick the most useful ones for 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. For example, employee job descriptions or work plans might be revised to specifically state that Caseworkers' performance will be reviewed to determine 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 incorporate oversight mechanisms into the preparation of Annual Reports to USAID, which are currently required by USAID's policy on microenterprise development. The monitoring activities may also be harmonized with those conducted as part of USAID's "Assessing the Impacts of Microenterprise Services (AIMS) Project," which has created and disseminated a mix of qualitative and quantitative low-cost impact assessment tools.⁶ MSE development

3.3o: Example of Performance Measures/Indicators

Was the client aware of environmental impacts prior to contact with credit or support agency?

Does customer understand cost implications of pollution?

Has 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, etc.?

What was the environmental/health impact of the mitigation measures? (Acquiring pre-mitigation data can be particularly useful in this regard.)

What was the cost impact of implementing these measures?

Percentage of staff from direct credit providers who have received environmental training?

Percentage of loans that follow environmental criteria?

Repayment of loans following environmental criteria vs. other loans?

⁶ More information on ongoing performance evaluation tools for microenterprise development are available at www.mip.org, the website of the Microenterprise Innovation Project. As explained on the site, "The Microenterprise Innovation Project is the U.S. Agency for International Development's (USAID) initiative to support technical and financial assistance, research and training on best practices in microenterprise development and finance. The components of USAID's microenterprise program are: Microenterprise Best Practices (MBP); Assessing Impact of Microenterprise Services (AIMS); Implementation Grant Program (IGP); Technical Assistance to USAID Missions (MicroServe); and Program for Innovation in Microenterprise (PRIME Fund)."

organizations may also consider integrating environmental performance monitoring systems into the system of evaluation tools created and provided by the SEEP Network.⁷

Cleaner Production (CP) Assessments for MSEs

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 multi-national. Some of the benefits of CP, discussed in Chapter 2, are summarized in **Table XX** below.

Table xx: 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 |

CP Assessments for MSEs follow an approach similar to EIAs, as shown in **figure XX**. However, where an EIA's focus is on the mitigation of environmental impacts, CP assessments for MSEs will typically focus on improving the profitability of the MSE through increased efficiency in the use of input materials and energy, and reduced waste.

Another important difference is the timing of assistance approval. For EIAs, assistance cannot be provided until the completion of the EIA because it is a regulatory requirement. 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 In many cases, it may be desirable for the MSE to

⁷ According to its website, "The Small Enterprise Education and Promotion (SEEP) Network is an association of more than 56 North American private and voluntary organizations which support micro and small enterprise programs in the developing world. The Network's mission is to advance the practice of small and microenterprise development among these organizations, their international partners, and other practitioners." More information can be found at www.seepnetwork.org.

⁸ it is recommended that CP assessments also be undertaken as part of an EIA process, to help determine the most cost-effective approach to mitigating adverse

engage in a CP assessment before the assistance is provided. For example, if the requested assistance is a loan 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. If the requested assistance is 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 XXI** below summarizes the similarities and difference between EIAs and CP assessments.

For a CP assessment, different personnel may be needed from those who conduct the EIA. The EIA typically requires more environmental expertise. CP assessments, on the other hand, require more business and process engineering-oriented skills. **(See section below on Partnering with other organizations)**. Consequently, Assistance Providers may wish to explicitly 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 staff of Assistance Providers may begin to implement CP even 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 integration of CP.

impacts. In situations in which CP assessments are part of the EIA process, the request for assistance cannot be granted until after the mitigation and monitoring plan is approved.

Table XXI: Similarities and differences between EIAs and CP Assessments.

| | EIA's | CP Assessments |
|--------------------------------------|--|--|
| Process Steps | Identify environmental impacts, assess impacts, select mitigation options and create Mitigation & Monitoring Plan, implement Mitigation & Monitoring Plan, monitor as required | Problem and opportunity identification, prioritization, implementation, monitoring/ evaluation, and seeking additional opportunities |
| Timing of assistance approval | Because EIA is a regulatory requirement, assistance cannot be provided until completion of the EIA process. | CP assessment is 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. |
| Focus | Mitigation of environmental impacts. | Improved profitability, which also reduces environmental impacts. |
| Personnel | Personnel general require more environmental expertise | Personnel generally require more business, accounting, or process engineering expertise. |

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 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. Specifically, a CP assessment will typically examine the condition of the facilities and equipment; the steps in the manufacturing process; inputs including energy, water, raw materials, and chemicals; waste disposal practices; waste & pollution created; 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, instituting 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 for existing input material(s). | |
| <input type="checkbox"/> | 3. Better Process Control | Changing working procedures, machine instructions, and process record-keeping 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, changing the order of process 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 original product or new processing steps to transform waste. | |

CP projects themselves are generally put onto one of two classifications: (1) Projects that involve very little or no capital investment, or (2) Projects that require an investment of capital.

- (1) **Little investment required.** Many CP opportunities that can be identified for MSEs fall into this category— these are “low hanging fruit” opportunities that can have a significant impact on the efficiency of a MSE. In this case, the Assistance Provider is providing capacity building for simply identifying and implementing CP improvements.
- (2) **Capital investment required.** CP opportunities that require an investment of capital require a profitability assessment to determine the cost effectiveness of implementation. For this type of project, the Assistance Provider can both provide assistance in conducting the profitability assessment, and possibly include additional lending resources to the MSE for implementation.

Assistance Providers will need to design their own assessment protocols to suit the needs of their staff and reflect the working conditions of the MSEs they assist. An assessment protocol can range from simple protocols (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., quantification of waste and comparison with similar facilities). Assistance Providers may also wish to partner with CP experts to assist in the identification of 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 facilitate the identification of cost-saving opportunities by Assistance Providers and MSEs themselves. 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 assist them in improving their accounting system. Even micro-scale enterprises should have some sort of accounting system, even if it is very rudimentary. The adage, “What gets measured gets managed,” certainly applies in the case of trying to identify opportunities to reduce wasted input materials and energy. While many MSEs may be aware of their total cost of inputs, they are typically aware of neither the actual cost of waste and inefficiencies, nor of opportunities to reduce them. The box at right provides an example of how much it can benefit a business to identify these costs.

Case Study: Olive Oil Bottler (Lebanon)

A CP assessment performed at this facility revealed a significant amount of wasted olive oil caused by a frequently overflowing reservoir. The accounting records did not account for the costs to the business associated with this loss, and therefore went unchecked 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.

Full cost accounting takes standard managerial accounting a step further by revealing hidden costs and difficult to quantify costs that relate to material and energy use. This information can provide additional insight into areas of waste that can be reduced through the implementation of CP improvements. Full cost accounting is a technique that identifies cost centers which are either misallocated as overhead costs or not otherwise accounted for at all in the present system and allocates them to the appropriate business process, making process inefficiencies more apparent. For example, accounting records may track raw materials used and final product shipped, but not track the amount of scrap waste generated; not having an awareness of waste generation will lead the MSE to ignore potentially cost-saving measures. Other types of costs which may not be accounted for include lost sales because of returned products, replacing equipment because of poor maintenance, and future depreciation costs of new waste treatment equipment.

Full Cost Accounting uses data from the accounting system (general ledger), data records from various departments, activity-based costs such as labor and regulatory compliance, non-product outputs & process losses, and colleagues & employees to properly identify and allocate previously unidentified sources of waste and inefficiency. In some cases, MSEs may wish to supplement these records with industry, vendor, consultant, business partner, or government data sources. This data may only be an estimate of the actual cost. Even so, the estimates can dispute incorrect assumptions about the true costs of doing business for the MSE, and where efficiency opportunities 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 costs savings that will be achieved through the CP project but that are ignored during traditional profitability assessments. The following four elements of full cost accounting help bring more accurate data to the analysis.

- The inventory of costs, savings and revenues includes hidden, indirect and less tangible items typically omitted from project analysis;
- Costs and savings are directly allocated to specific processes, products and activities instead of pooled in overhead accounts;
- Time horizons for calculating profitability are extended to capture longer-term benefits; and
- Profitability indicators capable of incorporating the time value of money and long-term costs and savings are used.

For more details on using full cost accounting for the identification of Cleaner Production opportunities, see “Total Cost Assessment Guidelines (DRAFT),” Environment Canada, June 1997, section 7.⁹ http://www.emaweb.org/library_detail.asp?record=2

⁹ Full Cost Accounting is often referred to as Total Cost Accounting or Environmental Management Accounting.

Case Study: Printing and Laminating Company (Zimbabwe)

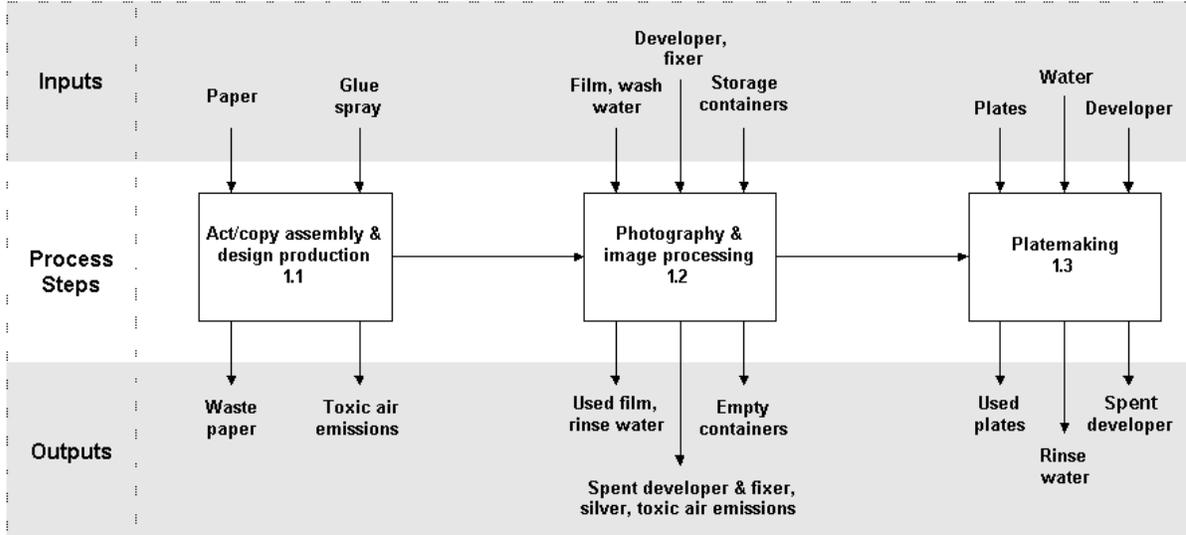
This business prints and laminates film for the food packaging industry (e.g., potato chip bags). During a CP assessment, staff generated a process map and noted on it the value of the lost materials associated with operations (e.g., resulting from printing errors). The CP team noticed that the cost of lost materials was significant, and that one of the causes of loss was the delay between when a printing problem developed and when it was identified. The company decided to make a CP investment in a quality control camera at a cost of about US \$100K. The annual cost savings from reduced material waste was about US \$40K per year.

Process mapping

Process mapping is a structured approach to understanding and assessing facility activities. It is used to make process relationships visible and to aid in identifying efficiency improvements between different areas and departments. Often, personnel do not have a good understanding of aspects of the business other than their own. The generation of a process map should be done collaboratively among various employees from a business in order to capture the important interrelationships between various operations and the cost and waste implications of each. A sample process map is included below for a Lithographic Printer. (see figure XX). Key elements of the process map include:

- Linear flow of the various stages in production from left to right.
- Initial process maps should aim at simplicity; additional detailed maps can be generated subsequently.
- 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.

Figure 1: Sample Process Mapping for Lithographic Printer



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 lost through 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 assist in properly allocating costs for Full Cost Accounting. Material flow quantities can be added to a process map to help determine what fraction of input materials end up as waste. Cost information can then be added based on these quantities. In this way, the process map aids in providing a framework for owners and managers to approach their business from a “systems” perspective.

Additional information on Process Mapping can be found in the article, “Understanding a process with Process Mapping,” *Pollution Prevention Review*, Summer 1997. <http://www.pojasek-associates.com/Reprints/understanding-a-process-with-process-mapping.pdf>

Building Organizational 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 upon which to their own screening and compliance materials can be modeled.

Training for BDS and credit institutions

Proper implementation of environmental guidelines may require training for staff of MSE development organizations, 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 on general and subsector-specific “good housekeeping” measures MSEs can use to mitigate their environmental impacts, focusing upon those measures that require only a modest amount of time or money to implement. Box 3.3m 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 the following topics:

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

3.3m: Training BDS Staff on Cleaner Production

In Mozambique in July 2002, BDS provider TechnoServe offered a new, 3-day training course to its professionals and professionals from other service and credit organizations. The USAID-funded course, entitled “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, 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. A basic assumption of the course is that, if BDS providers become skilled in cleaner production and environmental mitigation concepts, they are the best-suited organizations to provide such skills to their clients.

The 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 website (www.encapafrika.org).

- Cleaner production approaches and tools, particularly focusing on the business benefits to clients
- Clean technologies and methods for the prevention and mitigation of adverse environmental impacts;
- Use of environmental screening, guided questions, and classification procedures to be followed in the environmental review of MSEs. Ideally, the specific procedures and tools associated with environmental screening, EIA and CP assessment would be developed by the Assistance Provider in advance of 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 particular geographic areas. The cleaner production fact sheets, located in chapter 4, represent an example of 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. After receiving training on environmental issues and/or cleaner production, it is expected that Assistance Providers are best placed to determine how best to convey critical and relevant information to the MSEs with which they work. However, assistance providers may wish to consider utilizing direct MSE training materials developed by other organizations.

Partnering with other organizations

These guidelines should help to make environmental review procedures and cleaner production an integral part of all MSE support and credit activities. However, as noted above, it is recognized that BDS and credit providers will not always have the in-house expertise and/or resources to implement all guideline elements, particularly if they wish to extensively customize the guidelines. Also, the guidelines are intended to allow MSE development organizations to continue to focus on and excel at their primary missions. In fact, if properly implemented, these practices should improve short- and long-run economic outcomes. These organizations may wish to consider developing partnerships to maximize expertise and results, particularly until their own internal competency with environmental issues is well developed.

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

Potential partner entities 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. These different types of partner organizations/individuals may be appropriate depending upon the organizations' particular qualifications, resources, and/or mandate. Working with these organizations can help institutionalize these activities and make them more sustainable in the local context. Box 3.31 gives an example of how working with a trade association may be beneficial.

Tools for BDS and credit institutions

As mentioned above, these guidelines present several tools to help providers with screening, mitigation and monitoring. Chapter 4 provides cleaner production fact sheets for several MSE subsectors. These fact sheets provide additional understanding of adverse environmental impacts expected for the specific subsectors, and present mitigation opportunities that emphasize the use of cleaner production. Chapter 5 provides sample screening forms and other tools that may help credit/BDS providers to integrate these guidelines into their daily work.

- 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 wishing to conduct a more detailed screening, **Annex C** provides a sample enterprise-specific questionnaire, because knowing only the type of enterprise may be insufficient to fully understand the scope and scale of its potential environmental impacts. Several important enterprise-specific factors may also be considered, including the nature of the proposed activities and their magnitude, scale, location, duration of impact, importance, and environmental context. Helping MSEs fill out a screening questionnaire facilitates this evaluation for a second level of screening, which may be most useful in unusual cases, given the additional resources required to conduct such an assessment.

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

3.31: 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 viable options particularly 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. In the last 2 years, for example, both Ford and IBM have begun requiring their suppliers to be registered. Experts are beginning to focus on developing EMSs for small enterprises. Likewise, international standards exist for sustainable fisheries and agriculture.

Support and credit organizations should be careful, however, before investing resources in promoting such paths, because many observers have questioned the effectiveness of such approaches. Practitioners should ensure that MSEs' initial costs of 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 developing to help guard against free riders (i.e., companies that participate only for the benefits and do not change their environmental impact).

certain different kinds of MSEs. These fact sheets, presented in Chapter 4, highlight relatively simple and straightforward techniques to mitigate many of the most adverse impacts from specific MSE subsectors, focusing primarily on cost-effective cleaner production strategies. Fact sheets are available for the following subsectors: brick and tile production; leather processing; small-scale mining; food processing; metalworking, wood process 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 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, because Assistance Providers may wish to obtain such mitigation commitments from those assistance 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.

References and Resources

This section offers resources that BDS and credit organizations may find useful in developing their own context-specific guidelines for MSE activities. The best resources are likely to be found under “General Resources.” These most often link to a variety of subsectors, and are likely to be kept updated by their operators. Only a few additional subsector-specific sites have been provided.

Please note that internet links are constantly changing. If the link given here does not function properly, try to find the resource by typing its name into a search engine such as Google (www.google.com), which caches web pages, frequently enabling searchers to locate documents or pages that have been removed from the Internet. Alternately, visit the home page of the organization that created the document, and use their search engine to locate the document. For organizations that do not have search functions on their Internet sites, one can use advanced search features with most of the major search engines to conduct searches within single Web sites. As a last resort, of course, one can contact the appropriate organization to request a copy. (Contact information is usually one of the hyperlinks on an organization’s home page.)

In visiting the resources below, readers should note that cleaner production is also sometimes referred to as pollution prevention, waste minimization, and/or eco-efficiency.

Highlighted Resources

- *The Environmental Colours of Microfinance: Theory and Practice*. This web site offers information and links on the following six topic areas: workplace safety; economically viable solutions to environmental challenges; environmental management practices for microcredit program; community development and participatory practices; technological innovation; promoting environmentally based microenterprises. (<http://www.gdrc.org/icm/environ/environ.html>)
- *Global Pollution Prevention/Cleaner Production Network*. Organized by the US National Pollution Prevention Roundtable, this effort creates a global network of pollution prevention/cleaner production professionals. (<http://www.p2.org/intl/activities/new/main.html#activities>)
- *Information Resources on Industrial Pollution Prevention*. United States Agency for International Development (USAID). 2000. Contains guides, case studies, and articles focused on pollution prevention in food processing and other subsectors.
- *International Cleaner Production Cooperative*. Connects users to a network of international cleaner production expertise, as well as linking into many other US networks. (<http://es.epa.gov/cooperative/international/>)
- *International Cleaner Production Information Clearinghouse. CD Version 1.0*. United Nations Environment Program, Division of Technology, Industry and Economics (UNEP-TIE). 1999. Contains case studies, country profiles and cleaner production strategies for various subsectors.
- *International Web Site on Environmental Management Accounting*. Excellent starting point for information on EMA. Offers a searchable library, contacts and links. (<http://www.emawebsite.org/library.htm>)
- *New Ideas in Pollution Regulation*. Offers links to all World Bank environmental resources, and annotated links to non-Bank sites. Also offers an environmental search engine. (www.worldbank.org/nipr/)
- *North Carolina Department of Environment and Natural Resources, Division of Pollution Prevention and Environmental Assistance Service* (joint effort with United States Environmental Protection Agency Waste Reduction Resource Center). Offers a “web library” of links on cleaner production

(pollution prevention) practices and case studies in more than 20 subsectors (and growing), as well as tips for water and energy conservation. Mostly focused upon developed country cases. (www.p2pays.org)

- Pallen, D. *Environmental Sourcebook for Micro-Finance Institutions*. Canadian International Development Agency. 1996. (www.acdi-cida.gc.ca/microcredit)
- *Pacific Northwest Pollution Prevention Resource Center*. Fact sheets and reports on pollution prevention for a variety of subsectors. Mostly focused on developed country cleaner production strategies, which may not all be relevant to MSEs in developing countries. (www.pprc.org)
- *Small Business Environmental Home Page*. Offers publications and links regarding environmental issues at small enterprises in a wide range of subsectors. Many of the documents relate to US environmental regulations, but a number offer cleaner production tips. (<http://www.smallbiz-envioweb.org/pubsector.asp>)
- *United Nations Environment Programme*. Offers a wealth of resources on relevant environmental impacts and mitigation strategies. (www.UNEP.org)
- *UNEP Division of Technology, Industry and Economics -- Cleaner Production Activities*. Provides a library and links to cleaner production networks. (<http://www.uneptie.org/pc/cp/home.htm>)
- *UNEP -- Financing Cleaner Production*. Offers resources designed to help financial institutions understand the marriage of financing cleaner production activities, and to help cleaner production experts prepare credit-worthy investment proposals. Includes a library and training materials. (<http://www.financingcp.org/>)
- *United Nations Industrial Development Organization*. Offers resources on cleaner production, energy efficiency and other environmental issues, with information on different industrial subsectors. (www.unido.org)
- *USAID: Environment*. Home page for USAID's environmental information. Most notably, provides links to USAID environmental publications and to USAID and non-USAID environmental sites, organized by region and topic area. (<http://www.usaid.gov/environment/>)
- World Bank. *Pollution Prevention and Abatement Handbook*. 1998. This document, available online, is an excellent starting point for anyone looking to learn about the adverse environmental impacts of particular industrial subsectors and a wide variety of mitigation options available to address those impacts. Readers should note that the handbook is not specifically oriented toward MSEs. (<http://wbln0018.worldbank.org/essd/essd.nsf/Docs/PPAH>)

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