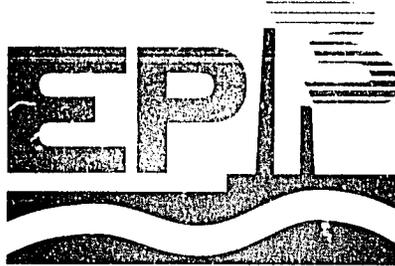


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Environmental Pollution
Prevention Project

A Report of the
Office of Environment and Natural Resources
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EP3 ASSESSMENT PROCEDURES

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EP3 ASSESSMENT PROCEDURES

These procedures provide a guide for EP3 consultants and in-country staff in preparing for, conducting, and following up on pollution prevention assessments at facilities in EP3 countries. The procedures cover three phases of activities associated with completing EP3 pollution prevention assessments:

- Pre-Assessment, which covers the steps leading up to an assessment, including selecting facilities, negotiating agreements with facilities selected for assessments, and gathering data on facility operations to help focus the assessment team's efforts;
- Assessment, which includes the steps associated with conducting the actual pollution prevention assessment. The assessment phase covers the identification and analysis of opportunities and preparation of a report summarizing findings and recommendations; and
- Post-Assessment, which includes the activities that in-country staff and consultants are primarily responsible for after an assessment is completed. This phase continues indefinitely and is intended to ensure that facilities receive ongoing support in implementing pollution prevention programs.

For each phase of the assessment process, the Procedures identify and describe the steps involved; provide an estimated level of effort; identify the party that is generally responsible for conducting the activity, list cautions and assumptions related to the activity, and identify deliverables (if any) associated with that activity.

EP3 emphasizes that these procedures are a guide, not a set of rules, for conducting pollution prevention assessments. For example, the level of effort estimates will vary depending on the complexity of a facility's operations. Some assessments may require significantly less time to complete than the estimates listed in the Procedures, while others may require substantially more. Similarly, while the Procedures identify a responsible party for each activity, responsibilities may vary depending on the conditions surrounding a particular assessment. Also, it may be appropriate to streamline the process in certain situations, eliminating or abbreviating certain steps that are unnecessary.

EP3 invites you to use these procedures and intends to use them in its in-country programs. EP3 will revisit these procedures periodically and modify them as appropriate.

EP3 ASSESSMENT PROCESS: Pre-Assessment Preparation Phase
(6/8/94)

Step to Accomplish Activity	Description	Level of Effort	Party Responsible	Cautions/Assumptions	Deliverables (if any)
1. Identify Companies and Rank	<p>Consult local sources/clearinghouse to collect any published information on facility's operations and activities. Local sources include: AID Mission, local government entities, NGOs, trade associations</p> <p>Build interest and momentum by holding an industry-wide meeting to announce the project and solicit interested facilities</p> <p>Provide brief training/introduction to pollution prevention to facility owners/managers</p> <p>Use the following criteria to assist in selecting companies:</p> <ul style="list-style-type: none"> - Scale/size of facility (ft², # employees, level of production) - Number of processes with toxic metals, hazardous chemicals, air emissions - Extent to which plant is representative of the industry in terms of processes, age, etc. - Public perception - Government perception: compliance/regulatory status of the facility; has sector been targeted? - Size relative to other plants in the industry - Environmental impacts: does facility threaten any critical resources (e.g., H₂O supplies)? - Willingness of company to invest, innovate - Financial status - Leader or well known in trade association - Personal knowledge of facility/managers - Willingness to participate in the project; interest in potential benefits of applying pollution prevention techniques 	<p>2.5 days to develop list of candidates</p> <p>1-2 months lead time required to prepare for such a meeting</p>	<p>Local EP3 Office/ Coordinator</p> <p>Local EP3 Team with help from US Team</p>	<p>Assumes use of EP3 protocol for selecting industries</p> <p>Size/scale of facility should be appropriate to EP3 resources/capabilities</p> <p>Could also target selected processes in a plant rather than full facility if opportunities are significant</p> <p>Requires conscious effort to gather all possible data on facility</p> <p>This is critical activity as it impacts ultimate success of full assessments later</p> <p>Circulation of documentation on selection process to EP3/Core for review?</p> <p>Provides opportunity to understand historical context for what/why of past action/inaction</p> <p>Follow up by providing information on no- and low cost opportunities to other facilities in that sector</p>	<p>Documentation on facilities considered and chosen/rejected, including qualitative information gathered from contacts</p> <p>List of more candidate facilities than will be assessed in case some are determined poor candidates for full assessments</p>

Step to Accomplish Activity	Description	Level of Effort	Party Responsible	Cautions/Assumptions	Deliverables (if any)
5. Draft and Finalize Contract with Facility	<p>Use prototype contract developed by EP3 Core:</p> <ul style="list-style-type: none"> - Require management to commit to a continuing program of pollution prevention and clean production - Require management to commit to participate in the process - Require facility to accept no/low cost options based on trials and provide list of acceptable rejection reasons - Specify baseline information needed and require facility to provide certain baseline information, as appropriate - Clearly state what EP3 does and does not provide - Address issue of confidentiality and dissemination of assessment results - Include workplan and schedule (see Step 6 below) <p>Visit facility in person (if necessary) and discuss contract to insure clear understanding and commitment</p>	1 day per facility	In-country EP3 Office/Coordinator	<p>The standard format for these contracts should not change too much until EP3 begins to charge for services</p> <p>The standard contract will be translated by the local office</p> <p>Contracts must be signed by both the in-country EP3 Office representative and the facility.</p> <p>Originals of all contracts must be sent to EP3 Core</p>	Two copies of the signed contract (one to be sent to EP3 Core)
6. Develop Draft Statement of Work (SOW) and Schedule	Based on information collected during the initial visit and using the prototype developed by EP3 Core, develop draft SOW for procuring experts and schedule for conducting the assessment	1 day	<p>In-country EP3 Office/Coordinator with review from EP3 Core</p> <p>Involve local consultants who are assisting with selection and/or full assessment</p>	Workplan should focus on highest opportunities in facility as described in pre-assessment information	Draft SOW that can be used to identify consultants and preliminary schedule

Step to Accomplish Activity	Description	Level of Effort	Party Responsible	Cautions/Assumptions	Deliverables (if any)
7. Organize Local/US Participation	<p>Check Association guides to identify industry experts</p> <p>Send out notices requesting consultant candidates using prototypes developed for both local and U.S. experts. Draft SOW should accompany these notices.</p> <p>Select team members based on all information gathered about facility and information on consultants</p>	1-2 days per facility	In-country EP3 Office/Coordinator and EP3 Core	<p>Pre-selecting could save time</p> <p>Ensure candidates have basic skills necessary (typing, computer, etc.)</p> <p>Get clearance for proposed team members from AID and local EP3 office</p>	<p>Team comprised of individuals with appropriate industry/pollution prevention expertise</p> <p>Biosketches for all experts</p> <p>BioData sheets for all experts</p> <p>Acceptance of team and clearance for travel</p>
8. Collect and Summarize Pre-Assessment Data	<p>Collect data to establish effluent and production baseline (EPB):</p> <ul style="list-style-type: none"> - Overall history of facility and surroundings - Any very obvious pollution prevention options - General observations (maintained equipment, obvious problems, worker safety, level of support, structure of management, etc.), procedures governing materials handling and storage - Very basic materials flow diagram - Operational unit descriptions - Lists of chemicals used, input materials, levels of production, cost data, waste generation data, age of facility and equipment, etc.) <p>Prepare report that summarizes data collected</p>	1 day per facility (2 people @ 1/2 day each)	In-country EP3 Office/Coordinator and local consultants	<p>Need to link individual performing initial walkthrough (Step 3) with individual conducting this activity (if they are not the same) to exchange information</p> <p>Use local consultants chosen for full assessment for this task</p> <p>Send results to U.S. team and EP3 Core</p>	Report summarizing plant's effluent and production baseline that experts can use to prepare for the assessment
9. Finalize Arrangements with Facility (Optional)	<p>Revisit facility in person (if necessary)</p> <p>Outline activities conducted to date, describe potential schedule, reaffirm commitment</p> <p>Confirm participation of appropriate facility personnel</p> <p>Provide information on U.S. experts if possible</p> <p>Identify additional information not found in pre-assessment to be gathered prior to arrival of assessment team</p>	2 hours per facility	In-country EP3 Office/Coordinator	Spend sufficient time to clarify schedule, actual activities, confirm initial data, communicate what is expected/needed, review MOU	Any additional information gathered

EP3 ASSESSMENT PROCESS: Assessment Phase
(6/8/94)

Step to Accomplish Activity	Description	Level of Effort	Party Responsible	Cautions/Assumptions	Deliverables (if any)
1. Brief Assessment Team in U.S. Prior to Leaving for Country	Brief U.S. participants on country, plants to be assessed Review work to be done and deliverables Brief participants on administrative items	3 days per facility (1.5 days per consultant - (includes travel))	EP3 Core Staff	May not be necessary if participants have worked for EP3 in the same country Should be done at least 2 weeks before trip (for screening purposes). However, this is often not possible Can be done through conference call	Pre-Assessment Report prepared by in-Country Office/consultants Activity Initiation Briefs (AIBs) for all participants that include Statement of Work, schedule, deliverables, and budget Signed agreements with experts (pro bono and paid consultants)
2. Brief Assessment Team in Country Prior to Beginning Assessment	Discuss roles, planned activities and schedule Answer questions on cultural issues, pre-assessment report, and any pollution prevention options identified during the pre-assessment phase	3 hours per team member (including local consultants and EP3 in-country office staff)	EP3 In-Country Office	Meeting in the same city as plants preferred Structured meeting Update on political/social travel issues Confirmation of all previous arrangements Cover translation issues Mission should be informed, but their involvement is optional	Assignments Revisions to schedule, etc... Emergency contacts and phone numbers
3. Meet with Plant Manager/Owner	Meet with facility owner (or his designated representative) and plant manager (if different from above) to review goals for the assessment, present/introduce experts, confirm information/data available, and determine management concerns Reconfirm confidentiality of report and expectations for the assessment	1 hour per team member (including local consultants and EP3 in-country office staff)	EP3 In-Country Office and Assessment Team	Plant knows the team is there to work and time is limited	A 7 assessment package for plant management: - Biosketches of consultants - Statement of Work for assessment - Schedule

Step to Accomplish Activity	Description	Level of Effort	Party Responsible	Cautions/Assumptions	Deliverables (if any)
4. Walk Through Facility to Review Operations at Different Phases	<p>Inspect the entire facility's operations</p> <p>Observe any extremely hazardous conditions for workers and/or team</p> <p>After the walkthrough, meet as a group to review observations and plan next steps</p>	2-4 hours per team member (including local consultants and EP3 in-country office staff)	Assessment Team	<p>May require 2 or 3 visits to view all manufacturing operations</p> <p>Don't get into details</p> <p>Start at the end of the process and work backwards</p>	<p>None:</p> <ul style="list-style-type: none"> -- Visual observations only -- Notes for further investigation -- Confirm schedule - make assignments for work that needs to be done. -- Prioritize
5. Obtain Detailed Information	<p>Complete block flow diagram (inputs-outputs) and information on unit operations. Quantify to maximum extent raw materials used, energy and water consumption, waste quantities (by type) generated, product quantities generated</p> <p>Obtain cost information for items listed above</p> <p>Prioritize operations that have the greatest pollution prevention potential</p> <p>Meet as a group at the end of each day to review findings and discuss data gaps and to plan activities for the next day</p>	1 day per team member (including local consultants and EP3 in-country office staff)	Assessment Team	<p>Important to stay focused</p> <p>Get input from plant personnel</p> <p>Assumes facility has monthly raw data on costs, energy use and water use</p>	Sections of draft report
6. Identify All Potential Pollution Prevention Opportunities	Brainstorm and list all qualitative opportunities for pollution prevention: no-cost, low cost, high cost, energy efficiency	1/2 day per team member (including local consultants and EP3 in-country office staff)	Assessment Team	Assumes information is available on manufacturing process and alternatives	A list of all opportunities

Step to Accomplish Activity	Description	Level of Effort	Party Responsible	Cautions/Assumptions	Deliverables (if any)
7. Conduct Economic/Technical Analysis to Prioritize Options	<p>Identify process changes required and what actions will be needed to implement these changes</p> <p>Develop implementation schedule</p> <p>Quantify cost of capital required and payback period</p> <p>Evaluate effects of various options on needs for improving/installing treatment</p> <p>Discuss with plant personnel</p> <p>Meet as a group at the end of each day to review results and discuss data gaps</p>	1/2 day per team member (including local consultants and EP3 in-country office staff)	Assessment Team	Plant participates in decisionmaking	Sections of draft report
8. Prepare Draft Report with Recommendations and Presentation Materials	Prepare draft report with recommendations using model supplied by EP3 Core and addressing all items specified in the SOW	1 day per team member (U.S. experts only)	Assessment Team	<p>Goal is to have 95 percent of final report completed in-country</p> <p>EP3 Assessment Procedure available on computer</p> <p>Plant participates</p> <p>Computers available ant time allocated for expert to enter information</p> <p>Clarify how future values are calculated and who to contact with questions</p> <p>The in-country EP3 program Manager is responsible for seeing that the draft is acceptable before the team leaves the country</p>	Draft report and presentation materials

Step to Accomplish Activity	Description	Level of Effort	Party Responsible	Cautions/Assumptions	Deliverables (if any)
9. Present Draft Report with Recommendations to Plant Manager/Owner	<p>Present findings and recommendations on facility assessment to facility owner (or his designated representative) and plant manager (if different from above)</p> <p>Inform owner/manager that if they have any problems or concerns in implementing the Team's recommendations, they should not hesitate to contact the local EP3 Office</p>	1/2 day per team member (including local consultants and EP3 in-country office staff)	Assessment Team	<p>At least 1 hour should be spent emphasizing EP3's commitment to help facility implement report's recommendations. Implementation is likely to be slower if EP3's interest in providing ongoing support is not emphasized</p> <p>Presentation should stress that pollution prevention requires a sustained effort</p>	Draft report (in an acceptable form) to leave with plant managers and EP3 Country Office
10. Hold Debriefing in U.S. for EP3/AID Staff	Experts report on findings of assessment and recommendations to the rest of EP3 team in Washington, D.C.	1 day per team member + 1/2 day for all Core staff participating in the debriefing	EP3 Core Staff and Assessment Team	<p>Assumes EP3 Core/AID Staff read the report prior to the meeting</p> <p>Should take place within two weeks after the assessment has been completed</p>	Oral presentation on assessment and suggested revisions and changes in draft report
11. Finalize Report (if necessary)	Incorporate all comments from EP3 Core/AID staff and comments from EP3 Country Office	1-2 days per report (does not include translation)	EP3 Core Staff and Assessment Team	<p>Report should be finished within two weeks following the U.S. debriefing.</p> <p>Translation will be done by in-country EP3 Office</p> <p>At later stages of the EP3 country program, the local EP3 Office will be responsible for completing these reports</p>	Disk (Word Perfect 5.1) and hard copy of final report
12. Prepare Case Study	Prepare brief summary of the assessment report	1 day per report (does not include translation)	EP3 Core Staff	<p>Must be cleared by facility and local EP3 Office</p> <p>Translation will be done by in-country EP3 Office</p>	Disk (Word Perfect 5.1) and hard copy of 2-4 page case study
13. Prepare Sanitized Version of Report	Remove all country references and plant names from report	1 day per report (does not include translation)	EP3 Core Staff	<p>Plant and local EP3 Office must approve sanitized report</p> <p>Translation will be done by in-country EP3 Office</p>	Disk (Word Perfect 5.1) and hard copy of sanitized report

**EP3 ASSESSMENT PROCESS: Post-Assessment Phase
(6/8/94)**

Step to Accomplish Activity	Description	Level of Effort	Party Responsible	Cautions/Assumptions	Deliverables (if any)
1. Identify Group to Work With to Disseminate Information to Rest of Industry	These could be suppliers, trade associations, other industry groups that could assist in organizing meetings and disseminating information	1/2 day	In-Country Information Specialist and Engineer	Be sure that the plant that was audited knows this will be done and has a chance to review what will be used	None
2. Conduct Minimum Monthly Local Follow-up	<p>The first followup should take place two weeks after the audit and should be in person. Subsequent followup activities should take place monthly and can occur via phone. However, an in-person visit and plant walkthrough is recommended at least every three months</p> <p>Followup consists of reviewing the checklist (based on exhibit and implementation schedule in the audit report). Visit the facility if warranted by information provided via phone</p> <p>Purpose of monthly followup is to evaluate what has been done, what is needed, and who should satisfy needs identified. Implementation schedules should be adjusted as appropriate</p>	1 day per month per facility	In-Country Engineer	<p>Actions identified in the report are viable and cost effective</p> <p>Even when actions are "finished," they can not be removed from the checklist. They need to be monitored in order to quantify whether they are having an effect (cost savings, pollution reductions achieved). Goal is to ensure that they work in the long term</p> <p>Specific types and level of followup should be tailored to opportunities and identified and facility's need for assistance</p> <p>Monthly followup continues until end of program or until followup determined to be too trivial</p>	<p>Status Report that describes status of actions: what is finished and what remains to be done</p> <p>For finished items, report should say what was achieved (quantity of waste reduced, dollar savings achieved), what problems were encountered, what was learned. These items should be transferred to followup list to ensure that they are tracked and measured over the long term</p> <p>For unfinished actions, report should say why unfinished, where company is in implementation schedule, and whether there is a need for assistance. If assistance is needed, what type (local EP3, local consultants, EP3 Core, US assessor)?</p> <p>Report format can be based on Exhibit I (from assessment report) and updated as appropriate</p>

Step to Accomplish Activity	Description	Level of Effort	Party Responsible	Cautions/Assumptions	Deliverables (if any)
<p>3 Provide Additional Help as Appropriate/Needed</p>	<p>Types of needs could include:</p> <ul style="list-style-type: none"> - financial (analysis of alternative funding options) - technology and equipment - equipment problem - vendor needed - training in technology - employee training - management training - demonstrations of the technology and hand-holding by those who have done it <p>First, the In-Country Engineer determines if need can be met in-country or whether US assistance is required</p> <p>If US assistance is needed, is Country Program willing to pay? If country is not willing to pay, is Core willing to pay to find solution? In-Country Program calls country lead at EP3/HBI</p> <p>Once a decision is made regarding who will pay, EP3/HBI lead works with other Core staff to find solution</p>	<p>1/2 day to several weeks</p>	<p>Could be In-Country Engineer, local consultant, US EP3, US assessor</p>	<p>Suggestor made that In-Country Engineer should have the option of contacting the US assessor directly rather than working through EP3/HBI. Arrangements must be made in advance for US assessor to provide responses to questions from the in-country engineer</p> <p>Question regarding who will pay for followup: Core or Country Program?</p> <p>Uncertainty regarding whether resources (Core and Country) will be adequate to ensure effective followup</p> <p>How to ensure timely response to implementation issues/questions raised. Should EP3 have one person who would serve as an "information broker?"</p>	<p>At a minimum, maintain a list of problems/issues raised and whether or not they have been resolved</p>

Step to Accomplish Activity	Description	Level of Effort	Party Responsible	Cautions/Assumptions	Deliverables (if any)
5. Evaluate Company's Efforts Every Six Months	<p>Conduct first evaluation six months after completion of audit and repeat/update every six months thereafter</p> <p>For items that have been implemented (finished), quantify cost savings (payback), environmental benefits achieved. Consider other factors/impacts, such as effects on product quality, worker health and morale, any evidence that pollution prevention has become part of the company's way of doing business</p> <p>Prepare/update the two-page industry case study to include new information</p>	2 days and must include a plant visit	In-Country Engineer	<p>At the beginning of the process (at the end of the assessment), make sure that there is a mechanism for tracking cost savings and environmental benefits on all actions</p> <p>May be necessary to periodically access company financial and production data</p> <p>Updating the case studies must be done part of this activity to keep information current</p>	<p>A report summarizing status of activities based on monthly reports for the period and that quantifies cost savings and environmental benefits and describes other effects on the company</p> <p>Updated case study describing benefits and other effects to disseminate to the industry</p>
6. Disseminate Information to Industry and Other Audiences	<p>Choose the information to disseminate from the "finished" list and six-month evaluation</p> <p>Choose the target audience. Plant managers? Owners of other companies in the same industry? Government personnel? The public?</p> <p>Choose the medium for communicating the information: meeting, awards ceremony, demonstration, newsletter, fact sheet</p> <p>Disseminate</p>	<p>Difficult to estimate</p> <p>Allow 1-2 months lead time to plan and schedule events</p>	In-Country Engineer plus appropriate staff from the facility and local EP3 Office		Depends on the activity
7. Evaluate EP3's Efforts to Disseminate Information Every Year	<p>Determine appropriate evaluation measures (number of facilities in the industry, industry associations)</p> <p>Quantify how many facilities have been reached, how many actions taken as a result of the information they received</p>	One week	In-Country EP3 Manager		A report summarizing the Country Program's efforts to disseminate information on pollution prevention potential throughout an industrial sector and evaluating the effectiveness of these efforts: methods used, facilities reached, actions taken as a result of EP3's efforts.