



7 Teacher's notes – Volume 7 Indicators and environmental controlling

"Indicators and environmental controlling" is the seventh volume of the UNIDO Cleaner Production Toolkit. It provides detailed information on the use of indicators in the framework of a cleaner production programme in a company. The theory of environmental controlling is explained and its application is facilitated by practical examples and worksheets for company work.

The teacher's notes provide comments on all **training units (workshops)**. The background material can be used as described below.

Use of the background material "Indicators and environmental controlling"	
Material	Comment
Textbook	The textbook contains basic information on environmental controlling and the introduction of an environmental control system as the continuation of a cleaner production programme. It focuses on the use of environmental indicators for benchmarking, feedback, setting of targets and following up the results of the implementation of cleaner production options. The textbook itself can be distributed as training material in workshops.
Examples	<p>The examples illustrate the use of indicators.</p> <ul style="list-style-type: none"> - Indicators for a marathon runner: This example is used in a discussion to understand the basic idea of indicators. The participants have to identify indicators for the diagnosis of the physical condition of an athlete after a 42 km-marathon race. This approach is then applied to the use of indicators in analysing the environmental performance of a company. - Indicators for a car: This example is similar to the first one. It explains the typical instruments which are used in cars to measure speed, fuel level, revolutions per minute, etc. This information is then applied to working with environmental indicators. - Indicators for an anodizing company: This example shows how typical indicators are formulated for an anodizing company, how they are derived from the relevant environmental aspects and how they are used and interpreted to identify options for improvement. - Chicken efficiency: This example shows how indicators influence the behaviour of people and what has to be considered in this case.
Exercises	In the training unit the exercise is designed for group work. The participants have to develop a basic controlling system for a textile company and identify suitable indicators to be used for the continuous improvement of this plant. This exercise illustrates the use of the worksheets included in this volume (see below).



Use of the background material "Indicators and environmental controlling"	
Material	Comment
Slides	The slides can be used as an introductory presentation on environmental controlling and the use of indicators. They provide an overview of the subject, present the essential elements of an environmental controlling system and describe the use and definition of environmental indicators in a CP programme.
Worksheets	<p>The worksheets are used for the identification of indicators, the deviation analysis, the development of a cleaner production programme and serve as a basis for an environmental report. The worksheets include:</p> <ol style="list-style-type: none"> 1. Identification of indicators (<i>Worksheet 7-1</i>): This worksheet helps to identify indicators by defining reference values, e.g. production volumes, the calculation of the actual indicator and the definition of a target value for the indicator. 2. Monitoring report (<i>Worksheet 7-2</i>): Using this worksheet, the deviation between actual and planned values can be analysed and corresponding measures can be identified. This worksheet can also be included in an environmental report. <p>The worksheets can also be opened as <i>doc.files</i>.</p>
Questions	<p>The questions check the participants' understanding of the information covered during the training course or workshop. Most of the information is included in the textbook, therefore links to the textbook are provided. The trainer can decide if and how he checks the participants' knowledge and if he wishes to use these questions.</p> <p>In addition, the questions can be used as a quick self-check for the trainer.</p>
Checklists	The checklists can be used to collect feedback during the implementation of an environmental controlling system and during company work.

Training course/workshop

The participants of a workshop or training course on "Indicators and environmental controlling" are consultants or trainers.

The following table shows an example schedule of a one-day workshop which is designed as part of a series of workshops. This schedule has proved to be efficient with different target groups.

The second table comprises the suggested materials, learning objectives and success indicators for the different teaching units.



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Example schedule of a training course/workshop				
Topic	Content	Time	Min.	Method
Welcome		9.00	15	
	Welcome of participants Programme of the day, organizational matters		15	Short presentation probably using a flipchart
Introduction to environmental controlling		9.15	75	
	Elements of a controlling system Idea of continuous improvement		75	Presentation by an expert, using overhead projector or beamer (partly slides), (partly textbook), (partly examples)
Coffee break		10.30	15	
Introduction to the use of indicators		10.45	105	
	What are the goals of indicators? How to develop a set of indicators? Examples for successful and unsuccessful use of indicators (Examples 7-3 and 7-4)		105	Start with two exercises, (Examples 7-1 and 7-2), interactively on the flipchart, indicators for a car and an athlete, presentation using beamer or overhead projector; (partly slides), (partly textbook),
Lunch		12.30	60	
Interactive exercise		13.30	120	
	Environmental controlling and indicators for a textile company (Exercise 7-1)		120	Presentation of the tasks, group work, presentation of the results
Break		15.30	30	
Discussion of indicators		16.00	30	
	Discussion of company-specific indicators: Which indicators could be used in different companies?		30	Introduction by the expert, discussion using a flipchart, documentation of different indicators on the flipchart
Discussion and continuation		16.30		
	Discussion on today's topics, summary of major aspects, continuation of the work, explanation of training materials and worksheets (worksheets), homework, organizational matters		30	Discussion
End		17.00		



Explanation of the topics of the training course	
Topic	Materials/learning objectives/success indicators
Introduction to environmental controlling and indicators	<p><i>Material transparencies:</i></p> <ul style="list-style-type: none">- Describing the background material and maybe some transparencies (slides) with national examples of the successful use of indicators in companies;- Textbook (textbook) of this volume and also textbook of the previous volumes such as introduction to CP, material flow analysis, energy flow analysis and team for reference. <p><i>Learning objectives:</i></p> <ul style="list-style-type: none">- Make the participants familiar with the concept of environmental controlling;- Make the participants familiar with the concept of environmental indicators;- Explain how to select company-specific indicators and how to use them for continuous improvement. <p><i>Success indicator:</i></p> <ul style="list-style-type: none">- The participants have an overview of the concept of environmental controlling and on the use and identification of indicators.
Exercise: Group work	<p><i>Materials:</i></p> <ul style="list-style-type: none">- Description of the task Exercise 7-1. <p><i>Learning objectives:</i></p> <ul style="list-style-type: none">- Visualize the actual situation in a company regarding the need for effective controlling;- Get used to analysing complex data and extracting information from a basic input/output analysis to draw up hypotheses and test these hypotheses by analysing the causes of problems;- Identification of measures and their evaluation;- Identification and definition of indicators, collecting values for them and defining programmes and reports. <p><i>Success indicators:</i></p> <ul style="list-style-type: none">- The participants carry out an input/output analysis on their own;- The participants establish hypotheses and determine causes of problems;- The participants can identify useful indicators and describe the process of environmental controlling and continuous improvement in short presentations.
Company work	<p>Regarding the identification of indicators in a company, several aspects have to be considered. After the first training or workshop, the CP-team will start to collect data and identify meaningful indicators. These are incorporated into a reporting system. Draw charts showing how the indicators develop over a certain period of time and use these charts as a basis for discussion in the environmental team. Maybe members of staff have explanations for specific deviations. Moreover, use the charts for feedback to operators. This feedback can motivate them to use good housekeeping measures in future in order to keep consumption indicators low.</p>