



# User's Guide

International Environmental Technology Centre  
United Nations Environment Programme  
Osaka  
Japan



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# EnTA Online

## Introduction

*EnTA Online* is an interactive, e-learning package designed to increase dissemination, aid promotion and facilitate the application of Environmental Technology Assessment (EnTA). The ultimate aim is to increase the uptake and use of environmentally sound technologies (ESTs).

EnTA is a decision support tool whereby a proposed technology investment project is described and appraised in terms of its potential influence on the environment, the implications for sustainable development and the likely cultural and socio-economic consequences. Furthermore, the assessment process requires consideration of alternative technologies, and other options, thereby providing a mechanism for comparing the impact of a variety of possible technology interventions. Thus EnTA helps planners, decision makers in government, the private sector, communities and other stakeholders, to reach a consensus on the technology intervention that is expected to be the most environmentally sound, socially acceptable and economically viable, for a specified location and application.

EnTA is being developed and promoted by the United Nations Environment Programme's (UNEP) Division of Technology, Industry and Economics, and specifically by its International Environmental Technology Centre (IETC) and its Production and Consumption (P&C) Branch, as well as by other international governmental and private sector organisations.

## EnTA Online

*EnTA Online* was designed using state of the art content development and delivery methods, based on the established EnTA methodology and on best practices in e-learning. *EnTA Online* has been designed so that users "learn by doing". Interactive activities, and a case study, are used to facilitate the learning process by completing the key elements of an assessment. Constructive feedback and a flexible learning approach that reflects the user's competencies and level of interest assist the learning process. The user can monitor their progress throughout the learning package, so they gain the most from their e-learning experience.

*EnTA Online* can be accessed via the Web (Internet) or from a CD-ROM. The package is AICC (Aviation Industry Computer-based Training Committee) compliant and SCORM (Sharable Content Object Model) compatible, allowing it to be integrated with other compliant e-learning packages and with compatible learning management systems. User performance is tracked in order to give high quality feedback to the user, and for assessing the quality and relevance of the e-learning package itself.

## Objectives

*EnTA Online* is a learning assistance tool to be used by decision makers, planners and other technology stakeholders who wish to improve the quality of their decisions with respect to the identification, appraisal and selection of the most environmentally sound technology for use in a particular location, for a specific application. The learning and outreach package is also designed to be used by educators and other practitioners who seek to enhance the ability of others to make sound environmental decisions related to technology choices and use.

As a result, *EnTA Online* is intended to meet the following objectives:

- to develop an appreciation of the need to consider implications for the environment when evaluating technology-based development plans and technology options;
- to clarify the concepts, criteria and methods used to assess the potential environmental impacts of a planned technology investment;
- to enhance skills in undertaking an assessment of a proposed technology-based investment, and any plausible alternatives; and
- to demonstrate the outcome of a process of analysis and application designed to illustrate that e-learning environments can include quality teaching and learning approaches and materials, thereby engaging the user in meaningful teaching and learning activities.

## **Content**

Consistent with the EnTA methodology, the training package consists of five main steps. In addition there are preparatory and follow-up activities. A summary of the objectives of each step, and the amount of time a typical user will take to complete each step, are provided below.

It is possible to complete the steps in any order, by clicking on the preferred item in the menu that is always present on the left of the computer screen. However, users are encouraged to complete the steps in a sequential manner.

### **EnTA Preparation**

Objective:

- To establish the goals of the assessment as well as identify the ways these goals will be achieved.
- To secure the commitment of key players in the assessment and identify the resources (financial, human, technical etc) that are available to the assessment team.

Time Required : 25 Minutes

### **Step 1: Technology Description**

Objective:

- To gain a comprehensive understanding of the life cycle of the technology intervention, including inputs and outputs and other resource requirements that are likely to generate pressures on the environment.

Time Required : 25 Minutes

### **Step 2: Identifying Environmental Pressures**

Objective:

- To identify the environmental pressures and human health and safety hazards that might arise from the technology intervention.

Time Required : 20 Minutes

### **Step 3: Preliminary Judgement of Impacts**

Objectives:

- To express the environmental pressures (identified in a general way in Step 2) as environmental impacts and then aggregate them for the five environmental outcome categories or endpoints.
- To consider the economic viability of the technology intervention.

Time Required : 20 Minutes

#### **Step 4: Comparison of Options**

Objective:

- To consider if there are alternative ways to achieve the same goals as those to be met by the existing or proposed technology.

Time Required : 15 Minutes

#### **Step 5: Consensus and Recommendations**

Objective:

- To facilitate a consensus regarding the environmental and related performances of the proposed technology intervention.

Time Required : 15 Minutes

#### **Follow-up Activities**

Objective:

- To document and present the assessment findings.

Time Required : 10 Minutes

## **Multimedia-based Learning**

Through the use of animation, sound, activities, quizzes, feedback and moderated discussions, *EnTA Online* is designed to be highly interactive and engaging. In this way the medium becomes an integral part of the learning process. Multimedia-based learning does have its limitations, but through careful instructional design and content development these have been avoided, or reduced to a minimum. The result is a high quality, and relevant, teaching and learning experience.

The learning experiences offered through *EnTA Online* reflect three principles of effective professional development:

- *technical and intellectual rigour* – the package has been developed by an international organisation which insisted on extensive consultation, review and evaluation, and that the content and delivery be as free as possible from cultural and other biases;
- *experiential learning* – through the application of the “learning by doing” approach, users execute the key steps in an environmental technology assessment, based on a case study; thus users analyse and interpret concepts, methodology and information through a variety of forms, including text, tables, diagrams, photographs, interactive activities and links to relevant Web sites; in this way the user develops new skills and increased understanding, and is thus personally empowered to facilitate selection of a technology that is anticipated to be the most environmentally sound, socially acceptable and economically viable, either directly or by educating and training other stakeholders;

- *reflection* – reflection is an integral part of the professional development experience; through interactive activities, reflective questions and feedback opportunities, *EnTA Online* encourages the user to contemplate the relevance and applicability of the learning process, in terms of both the increased understanding and skills that are being acquired.

## Flexibility

The package has been designed to suit users across the range of experience with, and competency in, technology assessment (be it with an environmental or broader focus) and related decision support tools such as environmental impact assessment (EIA), life cycle analysis (LCA) and environmental risk assessment (EnRA).

This is achieved by giving the user full control over their progress through the package, and the opportunity to return to, skip and repeat any of the learning modules. Thus the learning experience is totally self paced. Extensive supporting information can be accessed by the less experienced user, or by those seeking a more in-depth understanding. No prior knowledge or skills are required. Clear and concise instructions guide the user through the package. Those with more experience and expertise can avoid this guidance and proceed at their own pace.

Moreover, the user can leave, and return to, the package at any time. On their return, they will be taken to their last location in the package before they exited. All previous results, feedback and other information will still be available to the user.

Considerable effort has been made to ensure the package is accessible and appealing to users from different cultural and other backgrounds. *EnTA Online* has been developed in accord with “good practice strategies” in the cross-cultural delivery of environmental training packages and programmes.<sup>1</sup> These guidelines address issues of language and effective, culturally appropriate pedagogy, thereby allowing generic environmental education and training programmes to share the same potential for local relevance and cultural sensitivity as locally-based approaches to environmental training and education, albeit in a very different form.

The package is available in two formats:

- on the internet at <http://www.EMlearning.net/Tools/EnTA/>; and
- as a CD-ROM.

Either format provides the user with access to not only the e-learning package, but also to various information resources and support systems.

A simple visual and consistent design, that uses an appealing range of colours and icons, contributes to the ease and enjoyment of the learning experience. This also allows the *EnTA Online* to be used on a computer that has relatively simple hardware specifications and only basic software applications. Data transfer volumes are also kept to a minimum, thereby avoiding long response times during page loads over the Internet.

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<sup>1</sup> Halse, C. and J.E. Hay: Reflecting culture: A research-based solution to a practical problem in contemporary environmental training and education. Submitted to *Environmental Education Research*.

## Adaptation

*EnTA Online* has been produced using a content development tool (Click2learn's Toolbook Instructor) that facilitates translation and/or adaptation of the package, without the need for advanced technical expertise and software.

## Getting Started

Your computer must have Macintosh, Windows, Linux or another operating system that is capable of running at least a version 4.x browser such as Internet Explorer 4.01 SP1+ or Netscape 4.06+. Please note that the package does not function if Netscape 6.x is used. The CD-ROM version will run only under a Windows operating system.

The only plugin required is Macromedia's Flash. This is available free of charge from the Internet.

Your monitor should be SVGA monitor, or better, and capable of 800x600 resolution in 16-bit true colour. A 16 bit stereo sound card and speaker are desirable, but not essential.

Users who wish to access *EnTA Online* via the Internet should open their browser and go to <http://www.EMlearning.net/Tools/EnTA/>

Users who access the package from a CD-ROM should insert the CD in the relevant drive. The package may start automatically, or need to be started manually, depending on the options you have set in your computer. Users who access *EnTA Online* from a CD will be encouraged to connect their computer to the Internet when they have completed the training in its entirety. This one-time Internet session will be used to send your results to the main *EnTA Online* database, so they can be assessed and personal feedback provided.

From either the Internet or CD, the opening page will give you the following options:

- About – this provides a brief description of *EnTA Online*, its developers and how the learning will be conducted;
- e-Tour – a multimedia introduction to, and overview of, *EnTA Online*; and
- Start – this link takes you to the log-in page; if you are a first time user you should click on the register here link.

## Completing an Assessment Using EnTA Online

The training programme is based on the EnTA Manual "Anticipating the Environmental Effects of Technology". A copy of the Manual can be accessed by going to the Resources link.

The training uses a case study to facilitate an understanding of the environmental assessment methodology. However, to ensure that you can complete the training in a reasonable amount of time, a shortcut approach has been adopted whereby you will complete activities based on only one or two examples for each step of the assessment process. This means that you are not completing an assessment in its entirety. But the "learning by doing" training will give you a good idea of what is involved and required in a full assessment.

As in the EnTA methodology itself, there are five main steps in the training session. In addition, the training sessions covers the preparation and follow-up activities in an EnTA. Each of the five steps in the training session include:

- Goal and objective of the step
- Main text and assessments
- Recap and Feedback

You can complete the steps in any order you wish, by using the navigation bar on the left hand side of your screen to select the desired step. But it is desirable to complete the assessment in a systematic manner, especially if you are using the EnTA methodology for the first time.

## Navigating the Package

The main navigation bar is accessible at all times. You can use this to move through the package. The main navigation bar consists of the following links:

**EnTA Online Logo:** takes you to the opening page of the package.

**About:** introduces the developers and promoters of EnTA and describes why EnTA might be useful to you.

**ETour:** presents an animated tour of EnTA-Online.

**Start:** gives you access to the interactive training package.

**eCourses:** provides links to other eCourses on environmental management topics.

**Resources:** provides access to relevant information resources, as well as links to other websites.

**Glossary:** explains key terms used within this package.

**FAQ:** answers some key questions about Environmental Technology Assessment (EnTA).

**Search:** enables a keyword search of the package.

**Exit:** logs you out of your current training session.

The training navigation bar is also present on the left-hand-side of the screen, throughout the entire training session. It consists of the following links:

**Overview:** presents a brief overview of EnTA.

**EnTA Preparation:** Preparations for an EnTA include the assessment team establishing the assessment goals, developing an appropriate framework for meeting the goals, securing the commitment of key players, and identifying the resources that are available to the team. Consistent with the scale of the assessment, this phase might also include establishing the tasks, responsibilities, timetable and a detailed budget.

**Step 1: Technology Description:** This step includes describing the proposed technology by defining the technology options being considered, identifying the goals the technology is intended to satisfy, identifying the stakeholders and characterising the operation and development of the technology.

**Step 2: Identifying Environmental Pressures:** This step involves identifying the raw materials, land, energy, labour, infrastructure and supporting technologies required for the technology to operate, and the wastes and any hazardous products generated by the technology. The potential environmental and related pressures associated with each of these components are also characterised in this step.

**Step 3: Preliminary Judgement of Impacts:** The significance of the potential pressures identified in Step 2 are elaborated in this step, leading to an overall assessment of the environmental impacts. Information gaps and uncertainties are also characterised in this step, ultimately leading to a decision whether there is sufficient information to reach a conclusion regarding the impacts, and hence the appropriateness of the proposed technology intervention, from an environmental and related perspective.

**Step 4: Comparison of Options:** An important part of EnTA is consideration of alternative technologies that may also achieve the goals of the proposed technology investment. Other technologies are considered in this step in order to determine if they are indeed capable of achieving the same goals, but with lower overall environmental impact.

**Step 5: Consensus and Recommendations:** The fifth step uses all of the previously acquired information to determine if it is possible to reach a consensus as to the comparative suitability of the proposed technology, and its alternatives. This step also involves identification of any gaps and uncertainties in the assessment process that may be important in making a decision on environmental soundness of the proposed technology investment.

**Follow-up Activities:** Completion of the preceding five steps should not be considered the end of the assessment. Important follow-up actions include reporting the findings and recommendations to the interested parties, monitoring the use of the assessment findings and identifying where subsequent assessments might be strengthened on the basis of the recent experience.

**My Progress:** displays your personal achievements in completing the training activities, the time spent and the extent to which the individual steps in the training package have been completed.

**Help:** answers questions related to accessing and using of the package.

## **Exit**

You should always quit *EnTA Online* using the Exit button on the top-right of most pages. Clicking on the Exit button will bring you to the Exit page.

Exiting in this manner will ensure that all of your results are transferred to a database for storage. You will then be able to resume where you left off, the next time you return to *EnTA Online*.

If you have accessed *EnTA Online* from a CD, you will be encouraged to connect your computer to the Internet when you have completed the training in its entirety. This one-time Internet session will be used to send your results to the main *EnTA Online* database, so they can be assessed and personal feedback provided.

## Help

This link provides answers to the following questions:

- What are some Tips and Tools for getting the most out of *EnTA Online*?
- How does the training session work?
- Where do I start?
- How do I navigate the package?
- Where can I learn more about the Case Study?
- How do I complete the interactive activities?
- What are the software requirements for this package?
- How can I measure my personal achievement during the training?
- Who has access to my assessment results?

If your question is not included above, the email address of the *EnTA Online* administrator is provided. The administrator will respond to your question.

## Supporting Information

The following resources are available, and are accessible at all times:

- Information Resources;
- Related Web sites;
- Publications; and
- Photographs.

The resources listed below are available as Word or Excel documents. When clicking on the relevant links in the package, an additional browser window will open. You can close this window when you have finished accessing the information. All versions of Netscape and IE versions 2-4 will attempt to download the files to your local machine. Internet Explorer 5 and above will display them in the new browser window.

- EnTA Manual: "Anticipating the Environmental Effects of Technology: A manual for decision-makers, planners and other technology stakeholders";
- EnTA Worksheets;
- Background on Udanax, the location of the case study;
- Lead Acid Battery Recycling Case Study Scenario;
- Lead Acid Battery Recycling Worksheets;
- Medical Waste Case Study Scenario;
- Medical Waste Case Study Worksheets; and
- Background Paper: "Facilitating Uptake of Environmentally Sound Technologies: The Roles of Decision Support Tools".

## **Contact Us**

If you require further information please contact:

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