Criteria and Indicators
for Sustainable Forest Management

CD-ROM USER MANUAL



Criteria and Indicators
for Sustainable Forest Management

CD-ROM USER MANUAL

Featuring CIMAT Version 2

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Customer Assistance

Customer assistance on installation of C&I CD-ROM is available from CIMAT development team through CIFOR's headquarters. Or email to ‹cimat.support@cgiar.org›

1. OVERVIEW

Introduction

This CD-ROM contains the following products and publications of the CIFOR C&I research project and its network of collaborators.

- CIMAT (Criteria and Indicators Modification and Adaptation Tool) Version 2. A computer software package designed to help users modify, customize and adapt the CIFOR C&I generic template and C&I sets of CIFOR plantation, CIFOR community managed forest, International Tropical Timber Organization, Forest Stewardship Council, African Timber Organization and the Indonesian Ecolabelling Institute to meet local conditions and expectations. CIMAT also allows its users to develop an entirely new set of C&I from an "empty" set. CIMAT will assist users by giving suggestions at any stage. Furthermore, CIMAT also provides guidance for assessment of C&I using Multi-Criteria Analysis (MCA) i.e. Ranking, Rating and Pairwise Comparisons (Analytic Hierarchy Process or AHP). CIMAT can also be treated as a 'learning tool' for those who are merely interested in exploring the C&I knowledge stored on it.
- CIMAT Version 2 Tutorial. The tutorial is developed to help users learn CIMAT interactively and step by step, followed by some case studies. It contains some basic examples on how to perform particular tasks in CIMAT. As it is equipped with voice, audio devices will be required.

- Criteria and Indicators Papers. A collection of CIFOR's C&I research outputs. We have grouped these outputs into four categories; C&I Toolbox, C&I Papers, Other Related Papers and CIMAT Related Papers. The C&I Toolbox deals with guidelines for development and application of C&I for a particular forest management unit. C&I Papers consist of both published and unpublished papers produced by CIFOR and it's collaborators based on the C&I research carried out since 1994. Other Related Papers, although not directly related to C&I, provides supporting references for their development and application. The last one provides more information on CIMAT.

What's New in This CD-ROM

This is the second version of the C&I CD-ROM. The first one was released in 1999. In this version we have addressed comments and inputs from many different users who have gotten the chance to practice with the first version. Furthermore, we have also included some new features in this CD-ROM.

You will find in this version some new features as follows:

- More C&I sets added
- New Applier Mode (for C&I assessment)
- Guide Mode removed
- More features in Modifier Mode

In this version C&I Resource Book Bata Base (RBDB) has been removed because most information on it is now being integrated in CIMAT and in C&I Papers. Another application that is also detached from the CD-ROM is CIMAT's Guide Mode. This mode is now exactly the same with the CIFOR's C&I Generic Template (unmodified) in Modifier Mode.

Organization of User's Manual

This manual is divided into 7 sections:

- **Overview**: covers introductory information regarding the user manual.
- **System requirements**: explains system specifications needed for the CD-ROM to perform optimally.
- **Getting started**: provides instructions on how to install the CD.
- **CIMAT**: explains the following subjects: (1) Getting acquainted with CIMAT (2) How to create a new C&I set most suited to a particular forest management unit (FMU) by: adding, deleting, restoring, and moving C&I items in the generic template or other C&I sets. (3) How to get detailed information on an item. (4) How to use the hierarchy diagram and work in Guide mode. (5) How to use the Search facility. (6) How to use the Help menu. (7) How to save your work. (8) How to assess a C&I set and (9) How to create and print reports.
- **C&I Papers:** briefly describes how to access information that has been organized within this mode.

- **Case Studies:** describes steps associated with a particular task in CIMAT (e.g. deleting an item, moving an item, using menus, etc.)
- **Credits**: information on the development team and CIFOR collaborators.

2. SYSTEM REQUIREMENTS

The following system specifications are recommended:

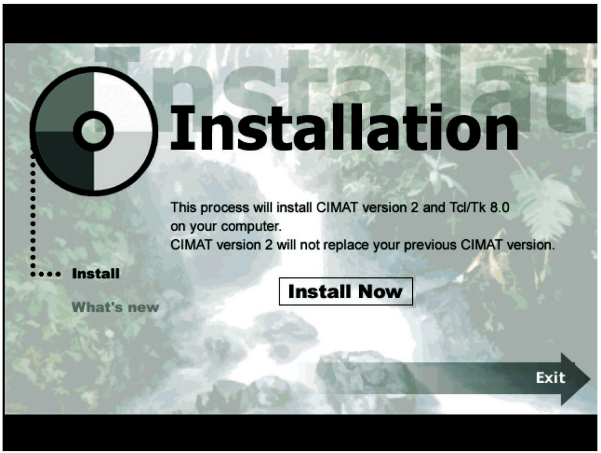
- Hardware: IBM PC or compatible, with 486 DX2 or Pentium processor (minimum 486 DX), Super VGA monitor with minimum 800 x 600 resolution. Sound Card is optional (required for interactive tutorial)
- CD-ROM drive: 4-speed or higher
- Operating system: Microsoft Windows 95/98/NT/2000 is required
- Memory: 32 Mb RAM (minimum 16 Mb)
- Hard disk space: minimum 17 Mb

3. GETTING STARTED

Installation

- ❑ Insert the C&I CD into your CD-ROM drive
- ❑ Click on MS Windows' **Start** menu button and select **Run...**
- ❑ In the Run dialog box, type the driver letter for the CD-ROM followed by a colon (e.g. **D:**)
- ❑ Click the Browse button. In the browse dialog box, click on the file named **Install.exe**
- ❑ Click the **Open** button
- ❑ In the Run dialog box, click **OK**
- ❑ When the options screen appears, click on the **Install Now** button to install the following applications CIMAT and Tcl/Tk. C&I Papers and CIMAT Tutorial can be run directly from the CD ROM (see Figure 1)
- ❑ Follow the screen directions to complete the rest of this installation. In each case, after entering the required information in a dialogue, click the **Next›** button to proceed. When you reach the last dialogue, click the **Finish›** button to complete the installation or click the **‹Back** button to change information you have entered at an earlier stage

Figure 1. The installation screen



Running the Application

- ❑ After the installation is complete, **Restart** your computer to ensure that the program is properly registered by the system, so that the application works properly
- ❑ The **Shortcut** for each application will appear in the **Program Menu** (see Figure 2)
- ❑ CIMAT 2 splash screen will be shown if you run CIMAT 2 (see Figure 3)

Figure 2. CIMAT 2 Shortcut under Program Menu

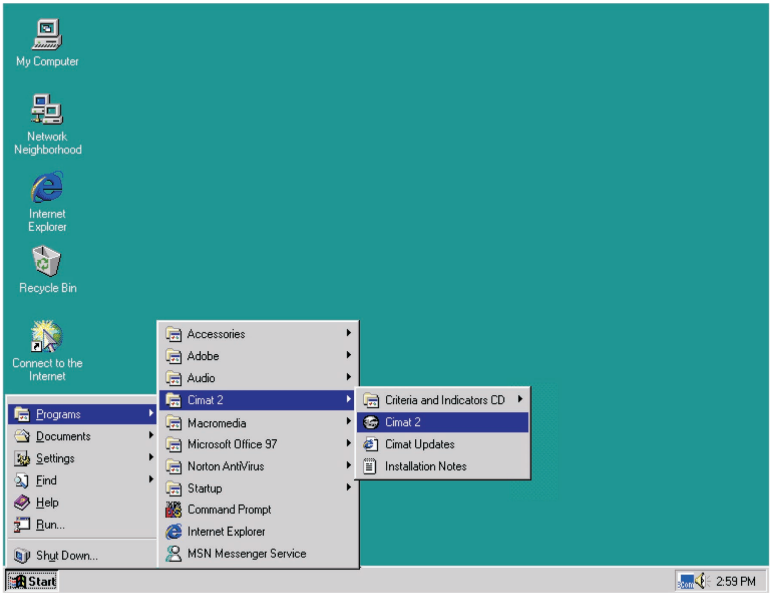
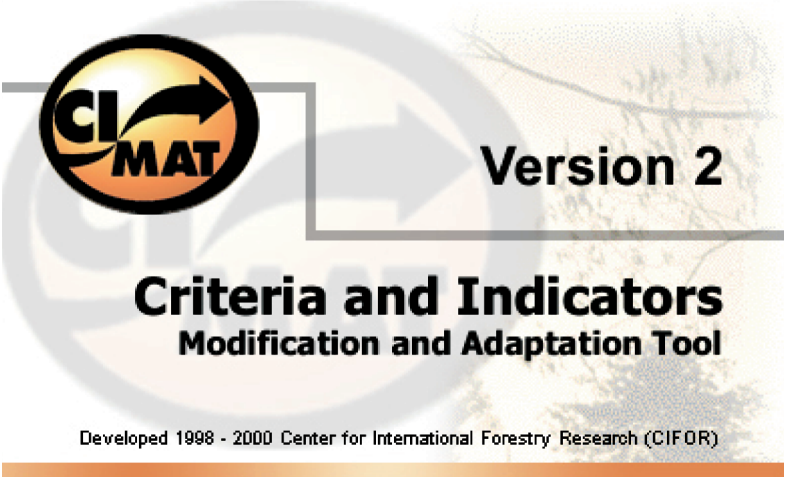


Figure 3. CIMAT 2 splash screen



4. CIMAT

Introduction

CIMAT stands for Criteria and Indicators Modification and Adaptation Tool, and is a computer software program designed to assist you in the development of *criteria and indicators (C&I)*[1] for the sustainable management of forests. CIMAT is specifically intended to assist in the creation of C&I adapted or customized to the conditions and context of a particular forest management unit (FMU). Furthermore, CIMAT also provides guidance for the assessment of C&I. CIMAT builds on comprehensive research conducted by the Center for International Forestry Research (CIFOR), one of the principal research institutes involved in C&I development. CIFOR's research has culminated in the development of *tools*[2] and a *generic C&I template*[3] that together constitute the core of CIMAT's knowledge base.

CIMAT was developed for a variety of user groups including certification bodies, government officials, forest managers, donors, project managers, scientists, and any additional parties having an interest in developing or learning about C&I for sustainable forest management.

Important Update Information

CIMAT and all corresponding documents will be updated regularly to keep the knowledge as current and accurate as possible. To be notified when updates are available, check the CIMAT homepage at URL: http://www.cifor.cgiar.org/CimatWeb/ie4/acm.htm

The more you know about CIMAT, the more you can do with it. This manual will help you to learn how to use CIMAT. It will guide you through all the basic steps in creating a new C & I set, navigating the current C&I knowledge base, and provide support for assessment and monitoring of C&I.

To master CIMAT you can contact CIFOR for a training course.

Customer Assistance

Customer assistance on the use of CIMAT is available from CIMAT development team through CIFOR's headquarters. Or email to ‹cimat.support@cgiar.org›

Getting Started with CIMAT

To start CIMAT double click on the CIMAT button on the main task screen (see Figure 3). The first screen of CIMAT will appear as shown in Figure 4.

Figure 4. First screen of CIMAT

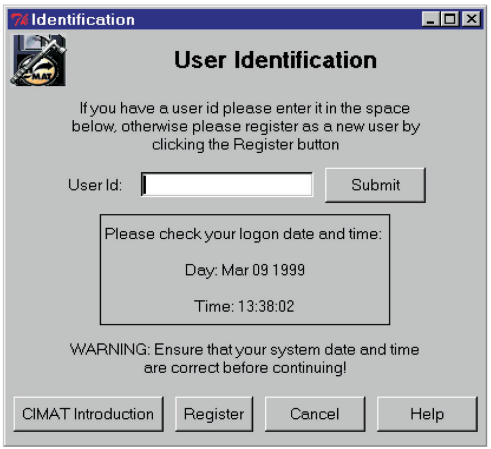


Getting Acquainted with CIMAT

Following the opening title screen (click on the "Begin" button), the program takes you directly to the user identification

screen (see Figure 5). If you are a first time user or if you are changing specifications in your user profile (e.g. if you are developing C&I for a new forest management unit) you will need to register. Click on the "Register" button and then fill in all of the information required. As a first time user, we suggest you take a minute to read the introductory screen, which describes briefly what tasks you can perform using CIMAT. To open the introductory screen, click on the "CIMAT Introduction" button.

Figure 5. View of the registration screen

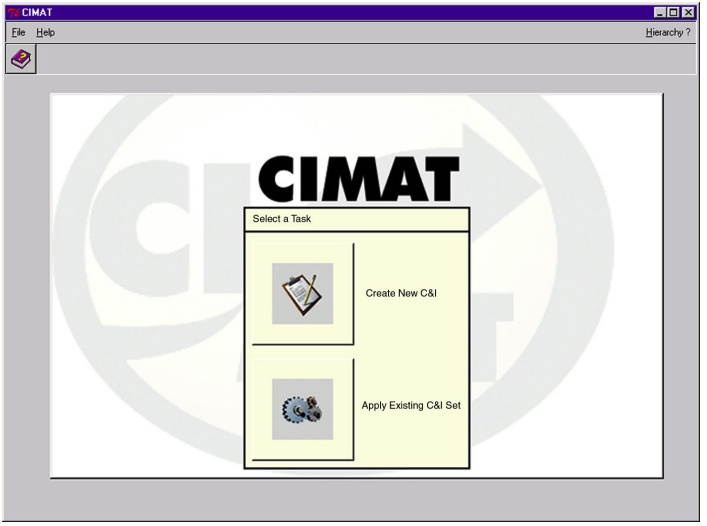


Once you have successfully registered, the program will ask you to enter your "User ID" that you have created at the registration stage in order to proceed. **You must memorize your "User ID" because you will need it for future use.**

Creating a New C&I Set

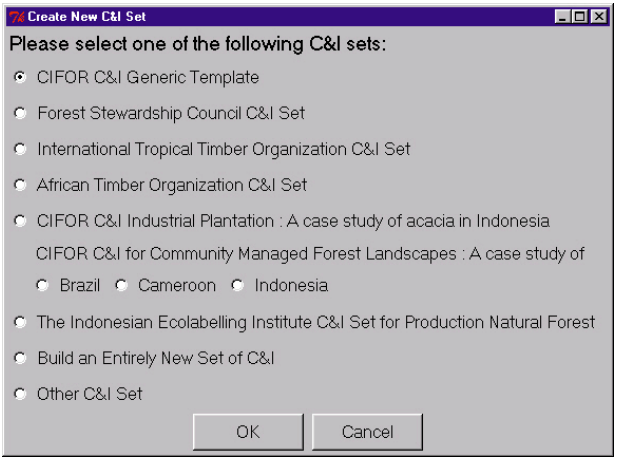
One of the tasks facilitated by CIMAT is the creation of a new C&I set that is most suited to the Forest Management Unit (FMU) you are dealing with (see Figure 6).

Figure 6. View of task screen where you select a task



To create a new C&I set you should select the "Create New C&I" button, then select one of the sets provided as a base set. You have eleven options (see Figure 7). You should choose "Build an entirely new set of C&I" if you want to start from an empty set. "*Other C&I set*" is a set of C&I that was previously developed in CIMAT for a specific context with the extension .cim.

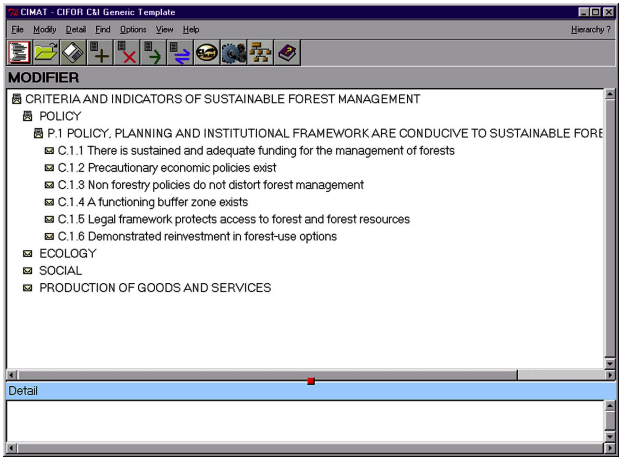
Figure 7. The screen where you define the starting platform.



If you select the first set (default choice), CIFOR C&I generic template, then the program will take you to Figure 8.

Note that the "envelopes" are click-able. Clicking on them will enable you to scroll up and down the C&I items. To modify a particular item you must highlight it (i.e. point to it with your mouse and click left once) and then go to the "Modify" menu. The

Figure 8. View of "modifier" mode for creation of the new C&I set



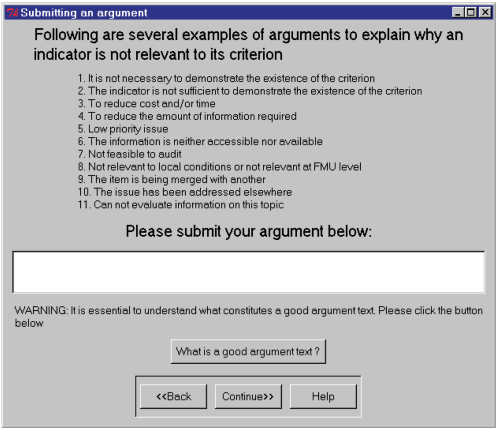
"Modify" menu is the key to developing a local C&I set. It allows you to carry out modification (adaptation or customization) of the C&I generic template or another C&I set developed in CIMAT to meet local management, ecological, economic and social requirements. Once you are in the "Modify" menu please select the modification you want to perform. Your options are to delete, add, change, restore or move an item. The five commands are sufficient to fully customize a set of C&I to local conditions. You will be required to submit an argument justifying why such an item needs to be modified. This is the main way CIMAT learns or acquires new knowledge, and in turn makes it available to a subsequent user, of that particular set of C&I. Therefore, please take time to provide the best arguments you can with appropriate commentary.

Deleting an Item

To delete an item (see Figure 9):

- ❑ Highlight the item
- ❑ Go to the "Modify" menu
- ❑ Select "Delete" and then click on the "Argument" button
- ❑ If you want to submit an argument, click on "Define Personal Argument" otherwise highlight one of the arguments in the list box and click the "Pick" button (see Figure 9)
- ❑ Follow the subsequent steps

Figure 9. View of "Submitting an argument" for deleting an item



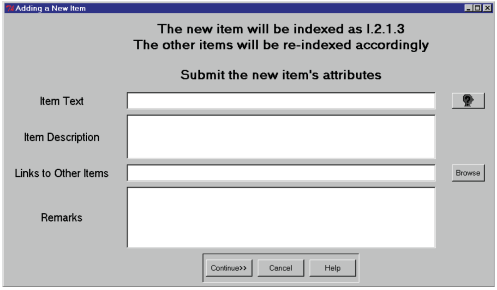
Adding a New Item

To add an item:

- ❑ Highlight the item
- ❑ Go to the "Modify" menu
- ❑ Select "Add New"
- ❑ Select the item you want to add and define where it fits in the hierarchy (i.e. same level or lower)

- Submit item's attributes including item's text (clicking on the "head button" will allow you to access information on how best to define an item), description, link to other items and remarks, and then click the "Continue" button. The "Browse" button is a convenient tool to help create links (see Figure 10)
- You will be asked to submit an argument. If you want to submit your own argument, click on "Define Personal Argument", otherwise highlight one of the arguments in the list box and click the "Pick" button
- Follow the subsequent steps

Figure 10. View screen where you submit new item's attributes at the adding new item stage.



Changing an Item

To change an item:

- Highlight the item
- Go to the "Modify" menu
- Select "Change"
- Define whether you want to perform a "Minor" change or a "Substantive" change. A minor change does not alter the meaning and value of the item. On the other

hand, a substantive change will give a new meaning or interpretation to the item.

- ❑ Follow the subsequent steps

Restoring an Item

The deleted item can be restored with the following steps:

- ❑ Highlight the deleted item (the deleted item is shaded gray)
- ❑ Go to the "Modify" menu
- ❑ Select "Restore"
- ❑ You will be required to define the argument for restoring either by selecting a countered argument (i.e. presently not accepted by CIMAT as valid) in the list box and making it accepted or by giving your own argument by clicking on the "Argument" button
- ❑ Follow the subsequent steps

Moving an Item

To move an item to another place in the hierarchy:

- ❑ Highlight the item
- ❑ Go to the "Modify" menu
- ❑ Select "Move"
- ❑ Define the new index for the item. The "Browse" button is a convenient tool to help you define the index
- ❑ Follow the subsequent steps

Using the Hierarchy Diagram

The hierarchy diagram enables a quick overview of the structure of a set of C&I. It shows how items are organized in different hierarchical levels: principle, criterion, indicator, and verifier. To view the hierarchy diagram you should (applicable for both applier and modifier mode):

- ❑ Highlight an item on the list, for instance a principle
- ❑ Click "View Hierarchy Diagram" toolbar
- ❑ Select the first option or if you want to view the hierarchy of all the items select the second option
- ❑ Now every item on the hierarchy can be highlighted to obtain detailed information

Getting Detailed Information on an Item

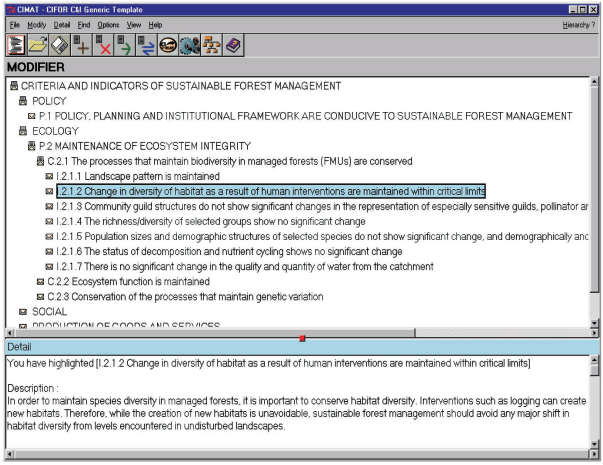
Each item in the C&I hierarchy has detailed information pertaining to definition, measurement methods, relevance, the source of the item, history etc. To obtain such information you should follow these steps:

- ❑ Highlight an item
- ❑ Go to the "Detail" menu
- ❑ Select "All" to view all information
- ❑ The detail of the item is displayed in the bottom screen.

If for instance you modify an item, you should delete a verifier. CIMAT will record these changes in the history (see Figure 11). Thus CIMAT maintains a transparent and

up to date knowledge base of changes, their justifications and the context in which changes were made and the identity of the person changing the item.

Figure 11. The detail information of an item is displayed in the bottom screen.



Comparing Two Sets of C&I

CIMAT has the ability to compare two different sets of C&I. CIMAT can inform the user of three things.

1. **Broad comparison** of the two sets of C&I will summarize their contents in a numerical manner. This will give a picture of where gross differences in detail and elaboration occur between the sets. (e.g.: '*set 1 has 1 principle, 3 criteria, 15 indicators and 43 verifiers for ecology, whereas set 2 has 1 principle, 1 criterion, 3 indicators and 7 verifiers for ecology*').

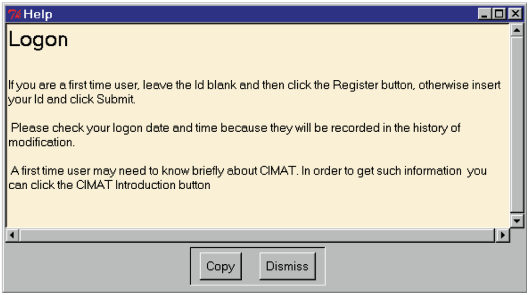
2. **Object matching** will provide a comparison of the individual indicator in the two sets. This will provide a complete description of all the indicator objects, which the two sets have in common, plus all the differences. This will be carried out principle by principle, and will involve exhaustive matching of object texts. It will line up all those indicator objects, which occur in both sets and all those, which are different in the two sets.
3. **Argument comparison** will compare the reasoning (argumentation) involved in generating the two sets. This will exploit CIMAT's recording of the user's reasoning when making changes, and the histories of the objects, to provide a comparison of how different users reason in different ways in modifying the generic template. It will have three parts. (a) Controversy Analysis provides a picture of which indicators have been controversial in one instance but not in another. (b) Ancestry analysis is useful in comparing two different users' modification of the same generic template and (c) Argumentation Analysis will provide an analysis of where differences in the argumentation occur.

To compare the two C&I sets:

- ❑ Go to the "File" menu in the menu bar
- ❑ Select "Compare Two Existing C&I sets"
- ❑ You will be required to choose two *.cim files to be compared
- ❑ Follow the subsequent steps

Using Help

Figure 12. View of "window help" on logging on



CIMAT offers two types of help: main help and context sensitive help. The former can be accessed through the "Help" on the menu bar, while the latter appears in each window (context-sensitive). An example of context-sensitive help on logon is shown in Figure Figure 12. The main help provides information and knowledge pertaining to C&I and also serves as a general guide for users. Context sensitive help is intended to guide the user who is trying to perform a specific task, for instance submitting an argument for deletion, submitting user's identity, submitting C&I text etc.

Using Search

The search facility enables you to find a particular item in the C&I hierarchy using a keyword. Use the "Find" menu in the menu bar, for instance if you want to find the word "ecosystem" in the C&I hierarchy:

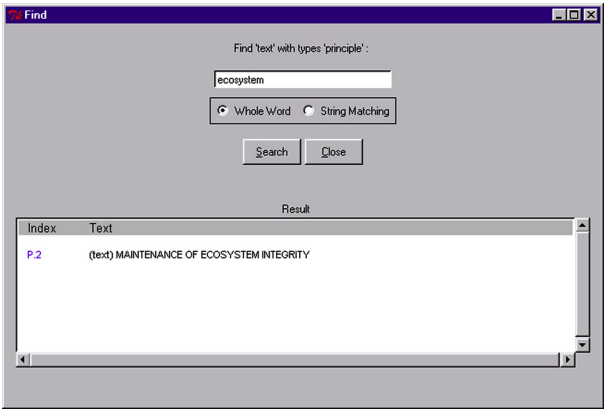
- ❑ Select "Find" from the menu bar, then select "Find..."
- ❑ Define at what level and in what field the search should be performed, for

instance at the level of principle, criteria etc. and in the field of item text and then click "OK". You can search in more than one level or field

- ❑ Write ecosystem in the text box and then click the "Search" button
- ❑ You have the option of searching for a string such as 'eco' or 'sys'. Typing one of these strings will return the word ecosystem but will also return other words, which contained those strings (e.g. economics, systems).

The result can be seen in Figure 13.

Figure 13. Result of searching



Saving Your Work

If you want to save your work after modifications to a particular C&I set, follow these steps:

- ❑ Go to "File" in the menu bar
- ❑ Go to "Save"
- ❑ Give the file a name and then click the "Save" button. Note that all the files created under CIMAT are given the default extension of .cim

If you worked with another set and you want to save the modifications, go to the "File" menu and select "Save". However, if you want to save your work in a different file, then follow these steps:

- ❑ Go to "File" in the menu bar
- ❑ Go to "Save as" and select the CIMAT file (.cim)
- ❑ Give the file a name and then click the "Save" button

Creating and Printing Reports

To create reports in CIMAT it will be necessary to save your work as a text file or a postscript file. To save as a text file:

- ❑ Go to the "File" menu
- ❑ Go to "Save as"
- ❑ Go to "Text file (.txt)"

- ❑ Define the range of C&I you want to save whether all C&I, all corresponding sub-ordinates or as a displayed screen
- ❑ Give the file a name and click the "Save" button

To save your work as a hierarchy picture:

- ❑ Highlight an item
- ❑ Go to the "File" menu
- ❑ Go to "Save as"
- ❑ Select "Postscript (.ps)
- ❑ Give the file a name then click the "Save" button

The program will save the item you highlighted and its corresponding sub-ordinates.

To print the C&I items:

- ❑ Open the file that you have saved to a hard disk or a floppy disk via Notepad or MS Word or any other word processing software
- ❑ Print

To print the hierarchy picture:

- ❑ Open the file that you have saved to a hard disk or a floppy disk using GhostView (included in C&I CD).
- ❑ Print

Cimat Applier

General

Applier is intended to guide the user in the assessment and evaluation of the criteria and indicators (C&I) set. The assessment and evaluation are based on the C&I set that has been developed/modified/customized to meet a particular context using the CIMAT (modifier mode). The assessment is based on the real performance of a particular indicator.

Multi-Criteria Analysis (MCA) and Analytic Hierarchy Process (AHP) are used to facilitate this process. MCA is a tool that can help evaluate the relative importance of all criteria involved, and reflect their importance in the final decision-making. MCA enables multiple users to enter his or her judgements, and make a distinct, identifiable contribution to a jointly reached conclusion. The AHP approaches decision making by arranging the important components of a problem into a hierarchical structure similar to a family tree. In the context of C&I assessment, the AHP method is a useful decision-making tool because it is a good fit with the existing hierarchy of Principles, Criteria, Indicators, and Verifiers. The AHP method reduces complex decisions into a series of simple comparisons, called Pairwise Comparisons the elements of the decision hierarchy. By synthesizing the results of the comparisons, AHP can help you arrive at the best decision and provide a clear rationale for the choice you have made.

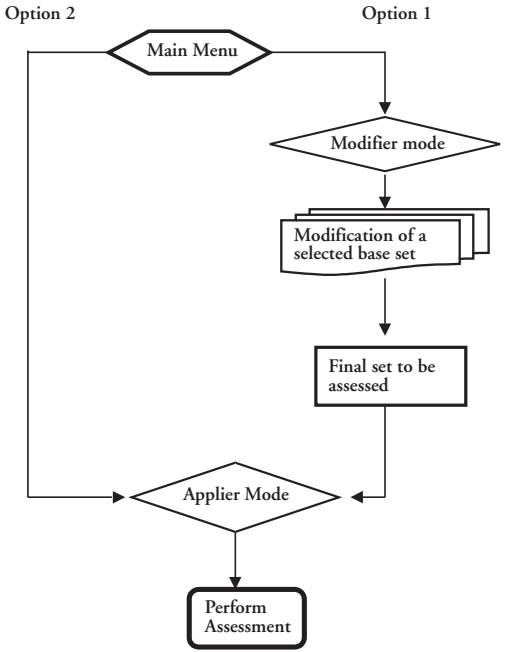
The processes involved in C&I assessment are divided into two stages; (1) weighting and (2) scoring. In the earlier stage you need to define the relative importance of the items on the same hierarchical level (i.e. P, C, I, V). This can be done by choosing one of the following methods: Pairwise comparisons, ranking and rating. In the later stage you will need to assign a score for each item based on your personal judgement regarding the performance of the item against a real condition. If you have completed the entire process you will arrive at the SFM score. This score reveals the current understanding/achievement of SFM for a particular context. You have to note that all of these can be done either individually or in a group.

Starting the Assessment

The assessment of C&I can be carried out once you have identified the final set of the C&I to be assessed. The final set of the C&I can be developed in the Modifier mode of CIMAT. There are some options for a starting platform or base set that can be modified in this mode (i.e. The CIFOR Generic Template, Forest Stewardship Council C&I set, ITTO C&I set, African Timber Organization C&I set, CIFOR Plantation C&I set, CIFOR Community Managed Landscape C&I sets, LEI C&I set and other C&I sets that have been developed before within CIMAT). If modification to the base sets is deemed unnecessary, then you may switch to the Applier mode directly and perform an assessment based on any of those sets.

Figure 14 describes how you get into the Applier mode.

Figure 14. Flowchart of the steps to get into the applier mode



Weighting

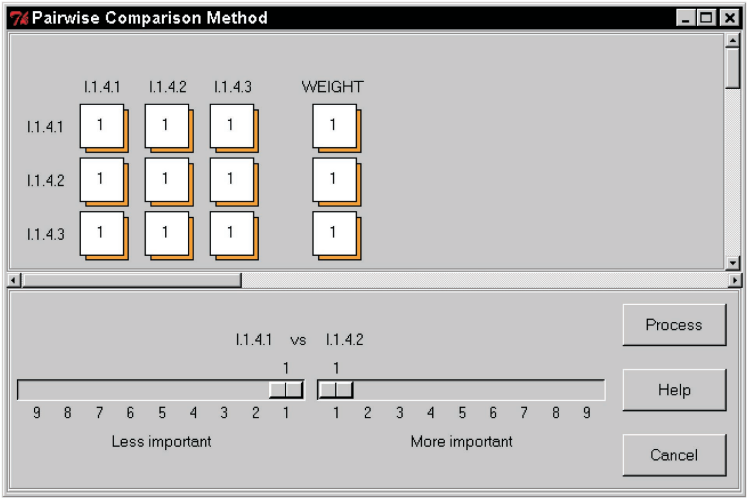
You can weight items either from the lowest (verifier) or highest (principle) level. However, you must weight items under one super ordinate at once (i.e. all criteria under P.1 must be weighted before you move to another principle).

To weight an item:

- ❑ Highlight its super ordinate
- ❑ Go to "Apply" and then click on the "Weighting"
- ❑ Define how you want to weight the item (i.e. individually or in a group).
- ❑ Select a method from three existing methods provided in CIMAT (i.e. Pairwise comparisons, Ranking and Rating)
- ❑ Follow the subsequent steps or see Case Study 13 for details
- ❑ To view the weight of the item you will need to refresh your screen. To do this, click on the relevant envelope twice (see Figure 15).

NOTE: If you are working in a group then the subsequent user can enter his/her judgements by clicking on the "New User" after the previous user has completed his/her turn.

Figure 15. View of Pairwise comparison method for weighting I.1.4.1 to I.1.4.3



In the pairwise comparison method (for example on the above case) you need to compare the relative importance of each item to the other items for example:

- I.1.4.1 vs I.1.4.2
- I.1.4.1 vs I.1.4.3
- I.1.4.2 vs I.1.4.3

To compare I.1.4.1 vs I.1.4.2 click on the first row, second column and to compare I.1.4.1 vs I.1.4.3 click on the first row, third column, etc. You will see on the bottom screen which items you are comparing. If you think that I.1.4.1 is more important than I.1.4.2 drag the cursor on the right hand side (More important side) to the right, otherwise drag the left hand side (Less important side) cursor to the left. Please note that 9 means strongly more important or strongly less important. If you have finished comparing each single item, click on the "Process" to view the result. To save your work, click on the "Save" and to change your judgements, click on "Re-enter".

You can complete weighting for the rest of the items using the same way described above.

NOTE: The diagonal value is always 1 because the item is being compared to itself

Scoring

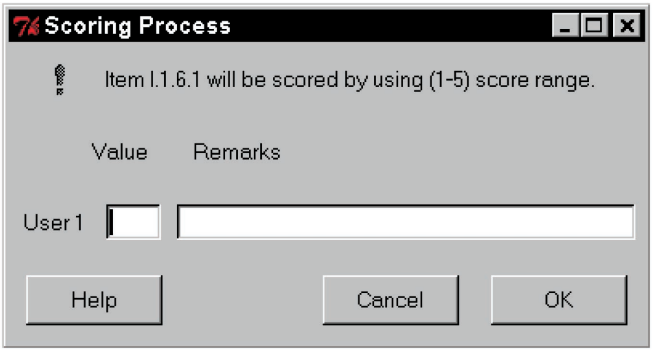
Scoring must be performed from the lowest hierarchical level (verifier/indicator). The score of the next level up item is determined by the weights and scores of its subordinates.

To score an item:

- ❑ Highlight the item
- ❑ Go to "Apply" and then click on the "Scoring"
- ❑ Define how you want to score the item (i.e. individually or in a group).

- ❑ Define the score range you prefer (i.e. 1- 5 or 0 - 100) (see Figure 16)
- ❑ Follow the subsequent steps or see case study 14 for details
- ❑ To view the score of the item you will need to refresh your screen. To do this, click on the relevant envelope twice.

Figure 16. View of screen for submitting score for an item.



NOTE: In any case you can attach remarks onto a score, but this is not mandatory. The reason for attaching remarks is to ensure that any important justification for giving an item a particular score is maintained within the system and this might be useful for future references.

Unweighting

Unweighting is a facility in CIMAT to enable you to reset the weight of a particular item's subordinates (a reverse of weighting). By performing unweighting the weights of the item's subordinates will be eliminated and left blank, and therefore the item becomes weightless.

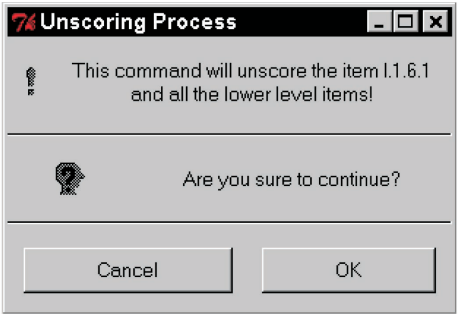
To unweight an item:

- ❑ Highlight the item's super ordinate (i.e. to unweight indicators highlight a criterion of which the indicators are part of)
- ❑ Go to "Apply" and select "Unweighting"
- ❑ Click "Yes"

Unscoring

Unscoring is a facility in CIMAT to enable you to reset the score of a particular item (a reverse of scoring). By performing unscoring, the score of a particular item will be eliminated and left blank, and therefore the item becomes scoreless (see Figure 17).

Figure 17. View of confirmation screen within the "Unscoring" process



To unscore an item:

- ❑ Highlight the item
- ❑ Go to "Apply" and select "Unscoring"
- ❑ Click "Yes"

Weight and Score History

The weight and score of an item is kept in the "History" (i.e. weight history and score history). To view the weight/history of an item:

- ❑ Highlight the item
- ❑ Go to the "Detail" menu
- ❑ Select either "Weight History" or "Score History"
- ❑ The result will be displayed in the bottom screen

Example of the weight history is as follow:

> ***Weight History :***
> *On Assessment 1 [Mon May 08 11:35:33 2000] this item was weighted 30.56 using Ordinal Ranking method by David Granger [Indonesia, Asia, tropical, natural, concession commercial]*

Sustainability of Forest Management (SFM) Score

The SFM Score that reflects the performance of a FMU can be obtained from the following steps

1. Defining relative weights for all C&I items using one of the following techniques: Pairwise Comparisons, Ranking or Rating. The relative weights of C&I items can be defined from the highest hierarchical level (i.e. principle) to the lowest one (i.e. verifier) or vice versa. However, it is recommended to use the earlier approach for easiness. The relative weights are given to all items under one super ordinate. For example, if indicator I has four verifiers (i.e. V.1, V.2, V.3 and V.4), then the relative weights of those verifiers can be said as WV_i, where i = 1, 2, 3, 4. The relative weight of a particular item reflects the relative important of the item in comparison to other items under the same super ordinate.
2. After defining relative weights, scores need to be given to all items. To do this you must start from the lowest level (i.e. verifiers or indicators). Using the example in step 1, the score of V_i can be formulated as SVi. If you have got WVi and SVi then the score of indicator I (let's say SI) is calculated by CIMAT using the following formula: $SI = WV_i \times SV_i$. In other words, if all verifiers have been weighted and scored then the score of their related indicators will automatically be obtained. This technique also applies to other hierarchical levels, for instance the relative weights and scores of indicators are used to get the scores of related criterion and so on.
3. Finally, the SFM score for a particular FMU can be obtained after the relative weights and scores of principles being defined using the same method as described

above. The SFM score is intended to estimate the overall performance of the FMU at the time (t_1) it is being assessed.

For monitoring purposes, users can re-assess the performance of the FMU using the same C&I set at different time frame (t_2). Comparison of SFM scores between t_1 and t_2 tells us whether there is an improvement or otherwise during the period of t_2-t_1. CIMAT SFM graphic draws the SFM scores at t_1, t_2, ... t_n, and connects them with a line so that we can see the trend.

SFM Score History

SFM score history displays the SFM score of a particular FMU which is the aggregation of the scoring and weighting of the C&I items used to assess the FMU in question. The score lies between 0 to 100. To view the SFM score history:

- ❑ First you will have to complete the weighting and scoring processes for all items in the C&I you use to assess a particular FMU
- ❑ You will see the SFM score on the top right of the screen. To see the history:
- ❑ Go to the "SFM" menu
- ❑ Select "SFM Score History"
- ❑ The SFM score history will be displayed on the bottom screen.

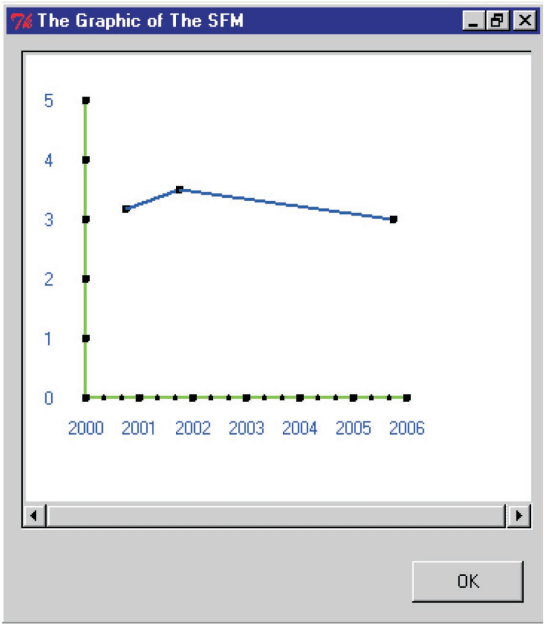
SFM Score Graphic

SFM score graphic shows the fluctuation of the SFM score over period of time. If you have done some assessments within this period of time and you have saved this assessment in CIMAT then CIMAT will display the dynamic of SFM score within this interval.

To view the SFM score graphic:

- ❑ Go to "SFM" menu
- ❑ Select "Score Graphic"
- ❑ Define time interval to be shown in the graphic
- ❑ Click "OK"

Figure 18. The example of SFM graphic captured from three simulated assessments



Endnotes

[1] Criteria and indicators (C&I) are tools, which can be used to collect and organise information in a manner that is useful in conceptualising, evaluating, communicating and implementing sustainable forest management.

[2] Tools are sets of methodologies and technical guides, published in the form of working papers, books, software etc., for the purpose of developing, implementing and communicating criteria and indicators. These tools constitute an essential component of CIFOR's research outputs on C&I.

[3] The "generic template" is a comprehensive set of C & I compiled from CIFOR's research that is tested and evaluated over 1,100 C & I for the sustainable management of forests. The C&I set outlined in CIMAT is generic to commercially-managed natural forests in the humid tropics. The use of the term "generic" is also intended to emphasise that the C&I provided by CIMAT can be modified and customised to comply with local conditions. These C & I, therefore, can be used both as a flexible set and as an operational "mother" set. Importantly, the term "generic" also implies that these C&I can be employed by a variety of user groups.

5. C&I PAPERS

Introduction

The C&I papers included in the CD-ROM provide information on C&I development and application. The papers have been stored in Help html format. There are four categories of papers presented here: C&I Toolbox, C&I Papers, Other Related Papers, and CIMAT Related Papers. The first category provides guidelines for development and application of C&I. The second gives additional information based on CIFOR's research on testing C&I for sustainable forest management. The Other Related Papers, while not directly related to C&I development and application, do provide useful supporting information. Finally, CIMAT Related Papers gives brief information on CIMAT.

Getting Started

You can view C&I papers by clicking "Criteria and Indicators Papers" (see Figure 2)

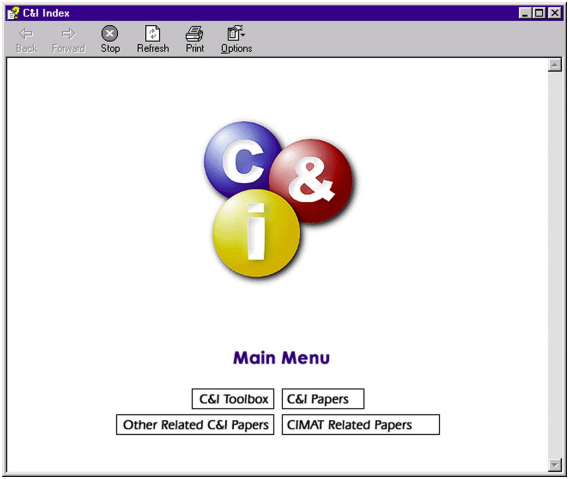
- ❑ under Program Menu› CIMAT 2› Criteria and Indicators CD (if you do not install it into your local disk, you have to put your C&I CD at the proper CD drive).
- ❑ under Program Menu› CIMAT 2› (if you install it into your local disk).

The first screen of C&I Papers is displayed in Figure 19.

Exploring the C&I Papers

There are four categories of the papers: *C&I Toolbox*, *C&I Papers, Other Related Papers and CIMAT Related Papers.*

Figure 19. First screen of the C&I papers

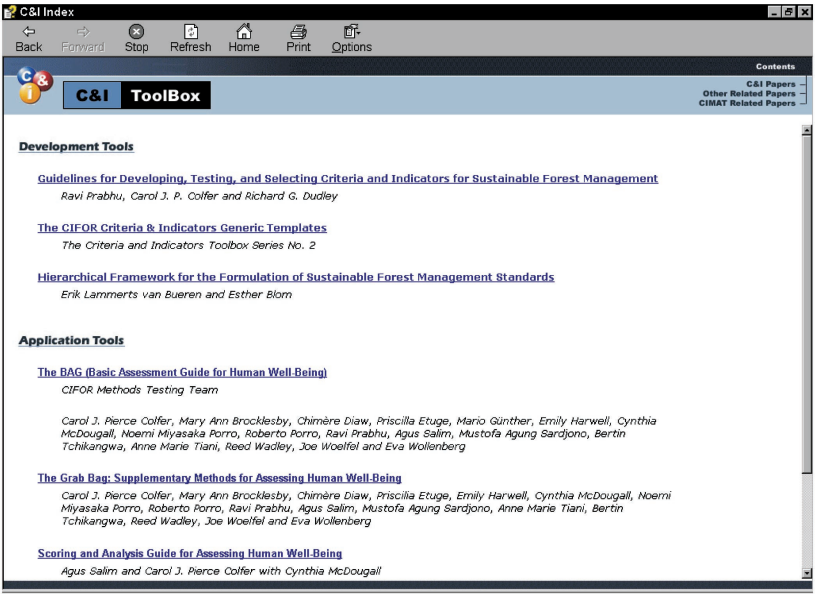


Simply clicking on one of the three topics offered (i.e. left click on your mouse) will expand it to reveal the list of papers contained as shown for the C&I Toolbox in the figure.

The C&I Toolbox cover page (see Figure 20) can be used as a source of reference for developing and applying criteria and indicators. Peer reviewers have reviewed all the

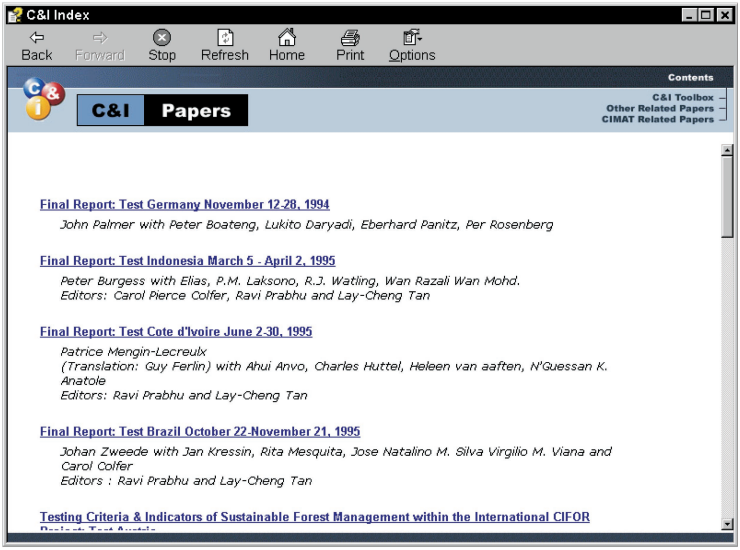
papers included in the C&I Toolbox. We have used two categories; development tools and application tools.

Figure 20. View of the C&I Toolbox screen



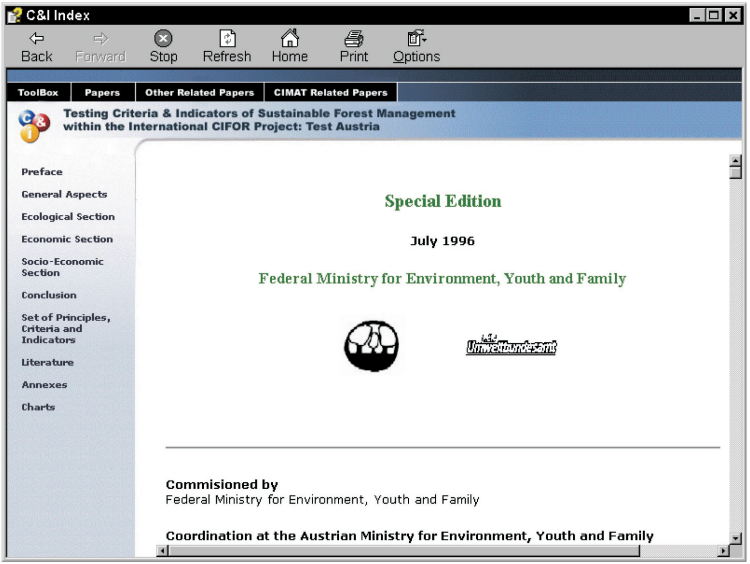
The "C&I Papers" can be accessed directly from the main menu of the C&I papers. The first screen of the C&I papers is displayed in the figure below. You can double-click the hypertext to go to each paper (see Figure 21).

Figure 21. View of the C&I Papers screen



The “Other Related Papers”, while not directly related to C&I development and application, do provide useful supporting information. Figure 22 shows the layout of the papers.

Figure 22. Paper layout



6. CASE STUDIES

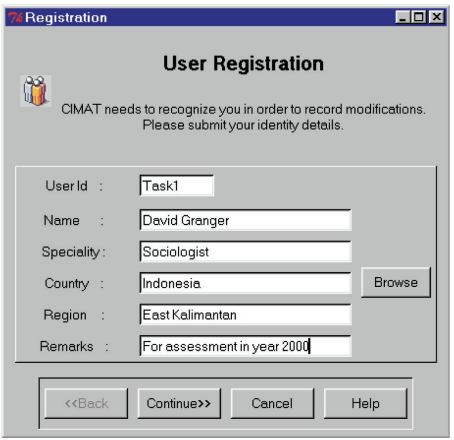
General

Case study 1. Registration

A first time user or user who wants to change his/her specifications in user profile needs to register. To register:

- ❑ Click "Begin" from the opening screen of CIMAT. You are now in the "Identification" screen and are ready to register (see Figure 5).
- ❑ Select "Register" from the screen shown in Figure 5 then Figure 23, called "Registration screen" will appear. Now you must fill in all fields and then click "Continue". Below is an example of how to complete the registration.

Figure 23. Example of a completed registration screen



- ❑ Now you are asked to give specifications of the FMU you are working with. You must complete this by clicking on the appropriate buttons (see Figure 24).

- Click "Continue" and you will be informed about the status of your registration. If you are successful Figure 25 will be displayed.
- Now you are registered and ready to work with CIMAT. You must memorize your User ID, in the above example, this reads as **Task1.** Please also note that the ID is case sensitive. Now you may click "OK"
- You will be directed to the screen shown in Figure 26, and you need to enter your ID and then click "Submit"
- Now you are in the main screen of CIMAT from which you can continue (i.e. develop a new C&I set or carry out an assessment)

Figure 24. Example of completed FMU specifications

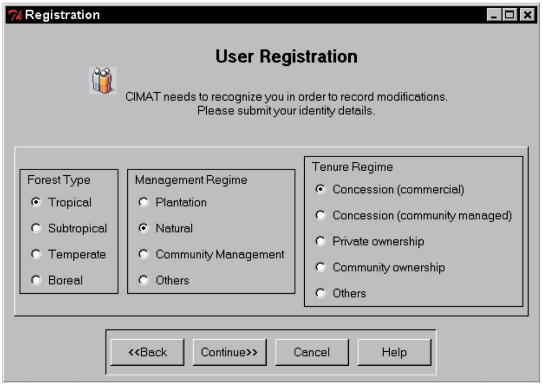


Figure 25. View of confirmation screen after registration

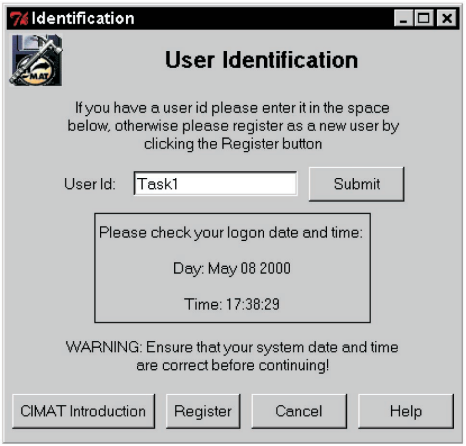


Case study 2. Choosing a starting platform

To develop a C&I set for a particular FMU you can modify and customize one of the following sets:

- ❑ CIFOR C&I Template
- ❑ Forest Stewardship Council C&I Set
- ❑ International Tropical Timber C&I Set
- ❑ African Timber Organization C&I Set
- ❑ CIFOR C&I Industrial Plantation
- ❑ CIFOR C&I for Community Managed Forest Landscape: A Case Study of Brazil, Cameroon and Indonesia
- ❑ The Indonesian Ecolabelling Institute C&I Set for Production Natural Forest
- ❑ Build an entirely new set of C&I
- ❑ Other C&I Set. This is a set of C&I that was previously developed in CIMAT for a specific context (this set has the extension *.cim)

Figure 26. Submitting user ID



After submitting your User ID CIMAT will take you to the task screen (see Figure 6).

To choose a starting platform click on "Create New C&I" icon and then you will arrive at the screen where you can choose the platform to start with by clicking on the appropriate radio button (see Figure 7).

In this case, let's choose the CIFOR C&I Generic Template. If you click "OK" you will be taken to the "Modifier" screen of CIMAT where you can start to develop a C&I set through modification processes (e.g. adding, deleting, etc) (see Figure 8).

NOTE: The "envelopes" are clickable. Clicking on them will enable you to scroll up and down the C&I items.

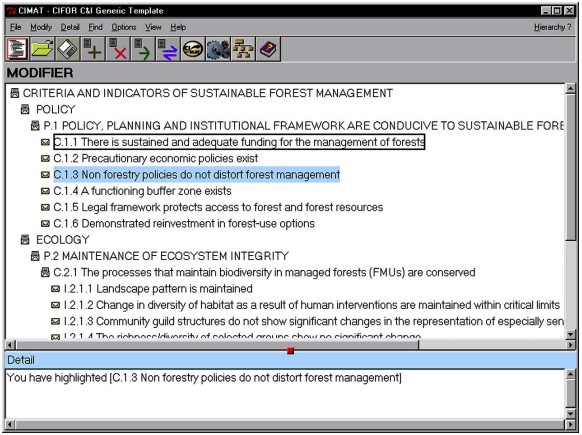
Developing a New C&I Set

Case study 3. Deleting an item

Once you define which set you will use as a starting platform (case study 2) you can start modifying the set to meet your local conditions. Click on the envelopes to scroll down the C&I items. Now you will see the hierarchy of principles, criteria, indicators, and verifiers.

If you highlight an item (in Figure 27 you highlight criterion 1.3) it will be shown in the Detail window down at the bottom.

Figure 27. Highlighting C.1.3



To delete an item, highlight the item (Let's use C.1.3 above as an example) and then go to the modify menu and select "Delete" (see Figure 28).

You can see the reason why this criterion was included in the C&I hierarchy in the bracket [...]. If you want to know more about this argument click "Argument Detail", and if you want to proceed click the "Argument" button. In the latter case you will find in Figure 29.

You can either select one of the existing arguments in the list of existing argument box (currently it is empty as there is no argument previously entered) to counter argument A2027 or you can create your own personal argument by clicking the

Figure 28. Deleting C.1.3

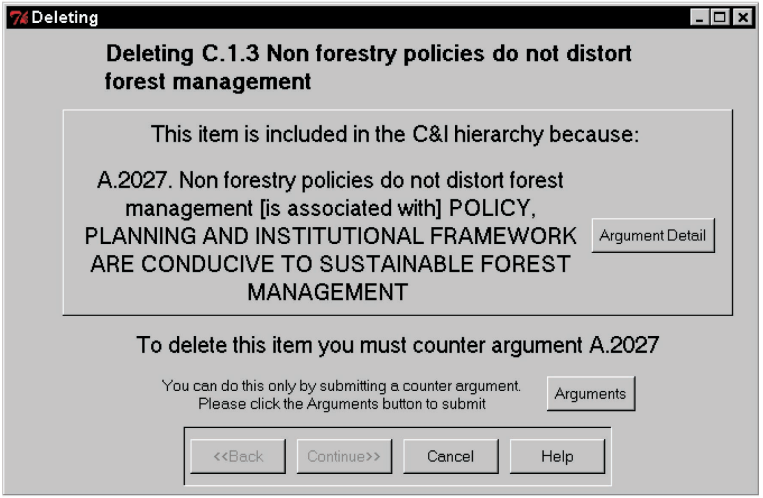
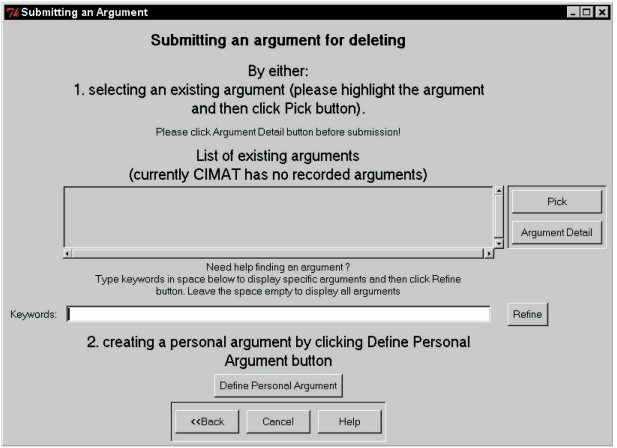


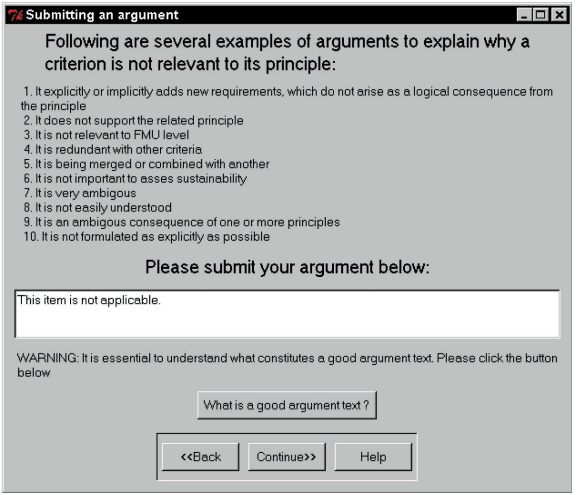
Figure 29. Defining argument for deleting



"Define Personal Argument". In this case you can only choose the later option. The "Keywords" is used to sort out existing arguments based on a specific word. If you write a word (e.g. policy) in the space and click "Refine", all arguments that have word "policy" will be displayed in the list box.

Now let's continue by clicking on "Define Personal Argument" and you will arrive at the screen shown in Figure 30.

Figure 30. Submitting an argument for deleting C.1.3



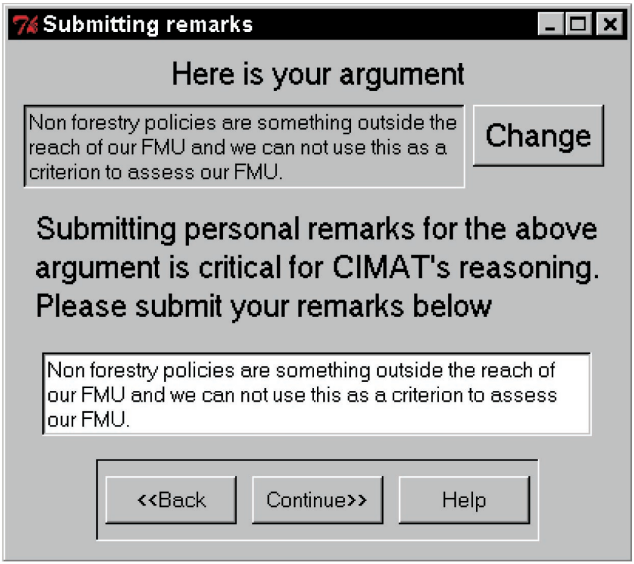
You can submit your argument in the space provided. In this space there is a sentence that says:

“This item is not applicable”.

This is a default argument that can be changed at any time. Let’s define an argument for deleting C.1.3 as follow: “Non forestry policies are something outside the reach of

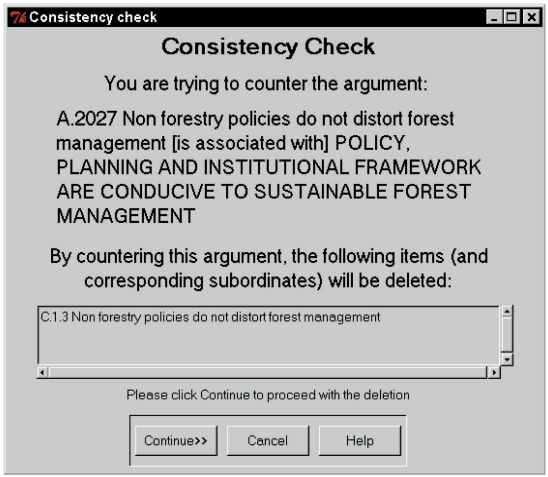
our FMU and we can not use this as a criterion to assess our FMU". Click "Continue" and then you will see Figure 31.

Figure 31. Submitting remarks for deleting C.1.3



You still have a chance to change the above argument if you feel the necessity. To do this, click "Change" and then write the change accordingly. In the second space below you may submit some remarks to your own argument if you feel it is important. Otherwise click "Continue" and then you will see Figure 32.

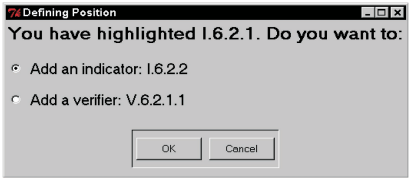
Figure 32. Consistency check



At this stage you will be informed which items will be deleted. In this case only item C.1.3 will be deleted. However, in some other cases you may find that other items can be deleted as well as the result of your argumentation. Therefore you need to look carefully at the argumentation (see argument network for details under case study 9). Click "Continue" to proceed and then you will be notified about the status of the item being deleted (whether successful or not). If you have successfully deleted the item click "OK" and then

refresh the C&I hierarchy by clicking on the item one level up (in this case P.1) twice. You will notice that C.1.3 is now gray-shaded and all other items under P.1 have been re-indexed accordingly.

Figure 33. Defining an index for item to be added into the hierarchy



Case study 4. Adding an item

Adding an item is a reverse of deleting an item. In this case a new item is added to the C&I hierarchy (e.g. a criterion, an indicator, etc.). Let's assume that we want to add a new indicator (to be indexed as I.6.2.2) under C.6.2. To do this you have to highlight I.6.2.1 and then go to the "Modify" menu and select "Add New". You will arrive at screen shown in Figure 33.

There are two options and in this case you have to choose the first option. Please note, when you add an item CIMAT will ask whether the new item you want to add is on the same level or lower than the item being highlighted. To proceed click "OK" and now you are ready to submit the attributes for the new item. Please complete the attributes accordingly. Figure 34 is an example of how to complete those attributes.

Click "Continue" to proceed. In the subsequence steps you will be required to submit arguments for adding the item to the C&I hierarchy. This task is similar to submitting arguments in the deletion process. Please follow the steps accordingly.

Figure 34. Submitting attributes for the new indicator

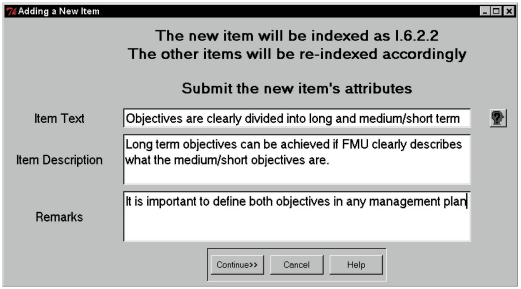
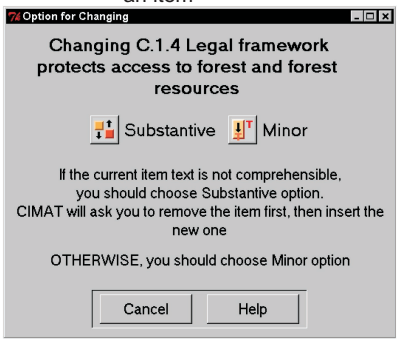


Figure 35. Defining options for changing an item

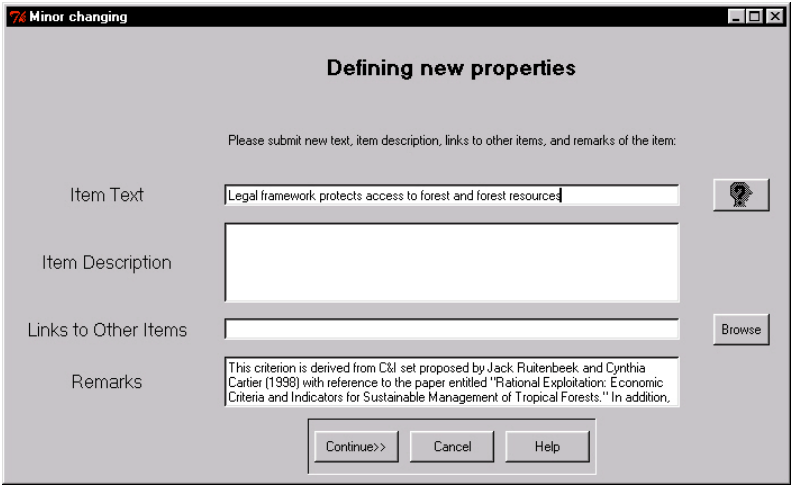


Case study 5. Changing an item

There are two types of changes: minor and substantive change (see "Adding a New Item" Section on page 15). Let's assume that we want to apply a minor change to C.1.4. Currently it reads "Legal framework protects access to forest and forest resources" and let's assume that we want to change it into "Legal framework protects and ensure access to forest resources". To do this highlight the item and go to the "Modify" menu and then select "Change". You will see Figure 35 where you have two choices; "Substantive" and "Minor" change.

In this case you need to choose the latter option. To proceed Click on the "Minor" button and you will see Figure 36.

Figure 36. Defining new properties of the item being changed minorly



Now you have to change the “Item Text” by typing the change as follows: “Legal framework protects and ensures access to forest resources”. The “Item Description” is optional, likewise “Remarks”. To continue click “Continue” and then follow the subsequent steps.

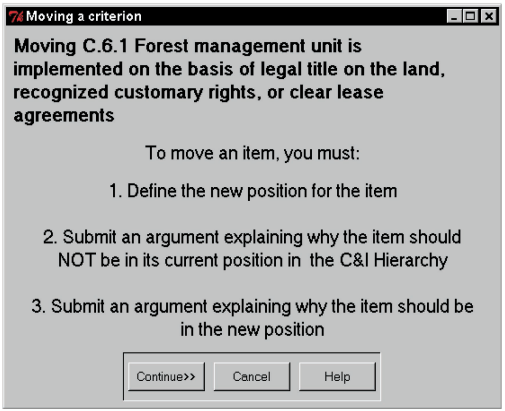
For the case of substantive change, the process consists of three stages:
1. Deleting the item being changed
2. Submitting a new item text
3. Placing the item in the hierarchy
In all the cases you will be requested to submit arguments.

Case study 6. Moving an item

All C&I items can be moved from one place to another in the C&I hierarchy. Moving an item to another position should only be done in the same hierarchical level. The consequence of moving a particular item would be that all corresponding subordinates of the item are also moved accordingly. Therefore, you must be very careful before deciding to move an item.

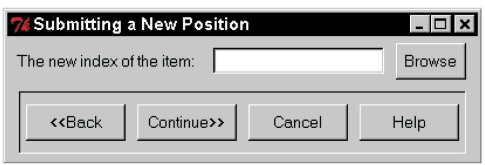
Let's assume that we want to move C.6.1 "Forest management unit is implemented on the basis of legal title on the land, recognized customary rights, or clear lease agreements" to become a criterion under P.1 (e.g. as C.1.5). To do this, highlight the item and go to the "Modify" menu and then select "Move". Now you should see Figure 37 which clearly describes the steps associated with moving the item.

Figure 37. View screen that describes steps associated with moving an item



Click "Continue" and then Figure 38 will appear. You are asked to define the new index of the item. In the space you should write C.1.5. Please be very careful when you write the index. There should be no space between characters and no period at the end. You can also submit the index using the "Browse" button. To do this click "Browse" and open the envelope until you find C.1.5 and highlight it. Finally click "Accept" and the index will be shown automatically on your screen.

Figure 38. Defining a new index for the item being moved

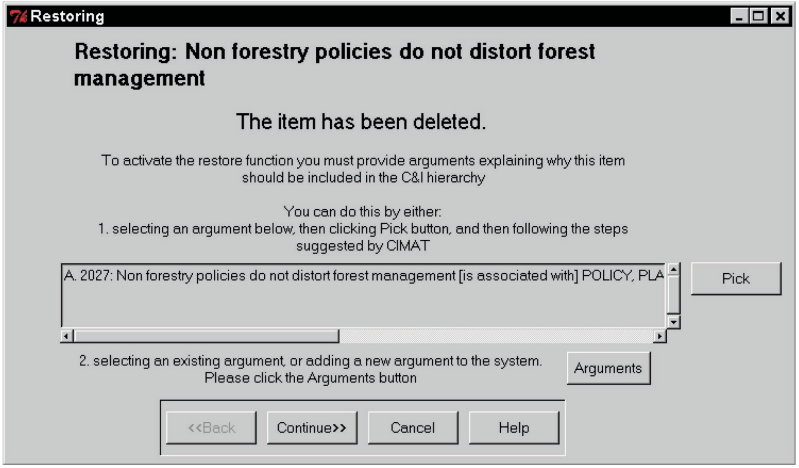


You will still have to follow two more steps: submitting an argument for deleting (removing) C.6.1 from its previous place and submitting an argument for adding it to the new position. Please follow the subsequent steps.

Case study 7. Restoring an item

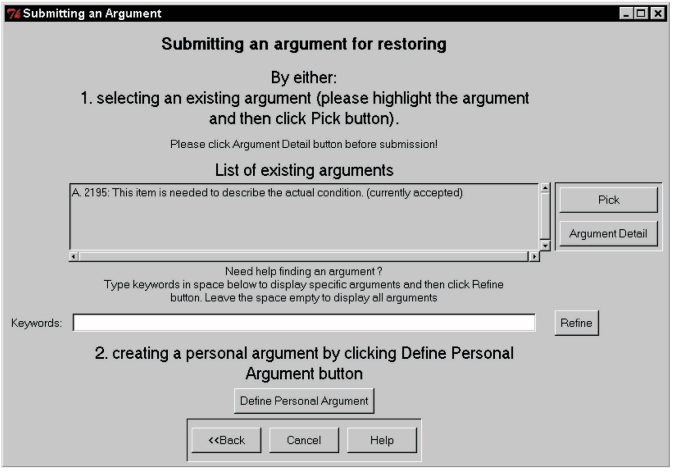
Every deleted item can be restored onto the C&I hierarchy. Let's assume that we want to restore C.1.3 "Non forestry policies do not distort forest management" (this item was deleted in case study 1). To do this highlight the item and go to the "Modify" menu and then select "Restore" and you will see Figure 39.

Figure 39. Defining argument for restoring an item



You have to submit an argument for restoring the item by either picking the argument A.2027 in the list box or defining a new argument. Let's say you want to define your personal argument, click the "Argument" button and then you will see Figure 40. To continue, click "Define Personal Argument".

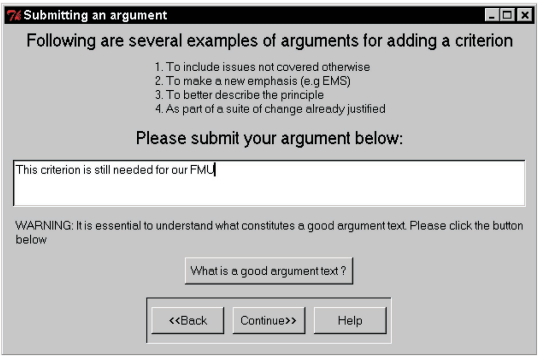
Figure 40. Submitting argument for restoring an item



Then enter your argument in the space, for instance “This criterion is still needed for our FMU” as shown in Figure 41

If you click “Continue” CIMAT will ask whether you want to submit a remark for your argument or not. Click “Continue” and then follow the subsequent steps. At the end of the process you will see that C1.3. is now back to the C&I hierarchy again.

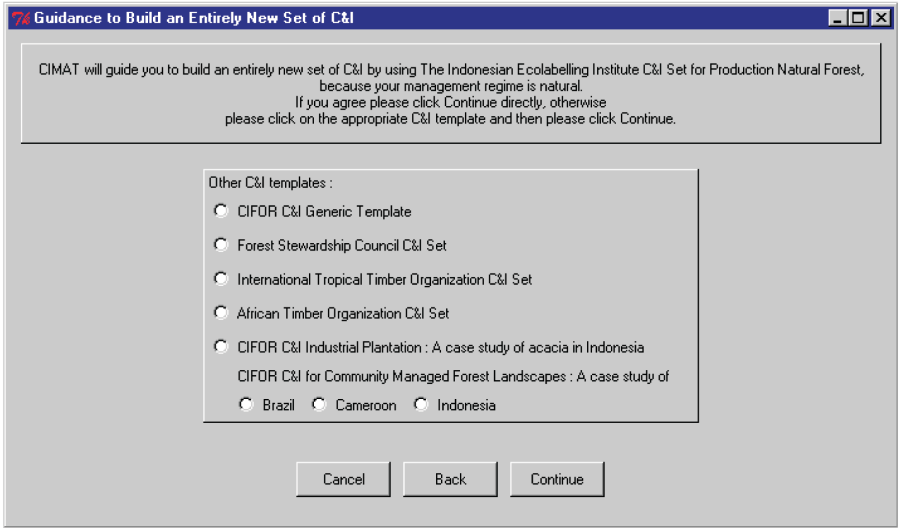
Figure 41. Submitting personal argument for restoring the item



Case study 8. Build an entirely new set of C&I

You are also allowed to develop a C&I set from an empty set. To do this, select “Build an entirely new set of C&I” from the base sets (see Figure 7). CIMAT will guide you step by step by proposing principles, criteria, indicators and verifiers. In this context CIMAT will propose P, C, I and V based on information you submit at registration stage. For example if you submit Africa as the country where you work CIMAT will propose C&I items based on ATO set. Likewise if you work for plantation C&I, etc. Let’s assume that we use the registration as indicated in Case Study 1. From that we will select “Build an entirely new set of C&I” and then You will see Figure 42.

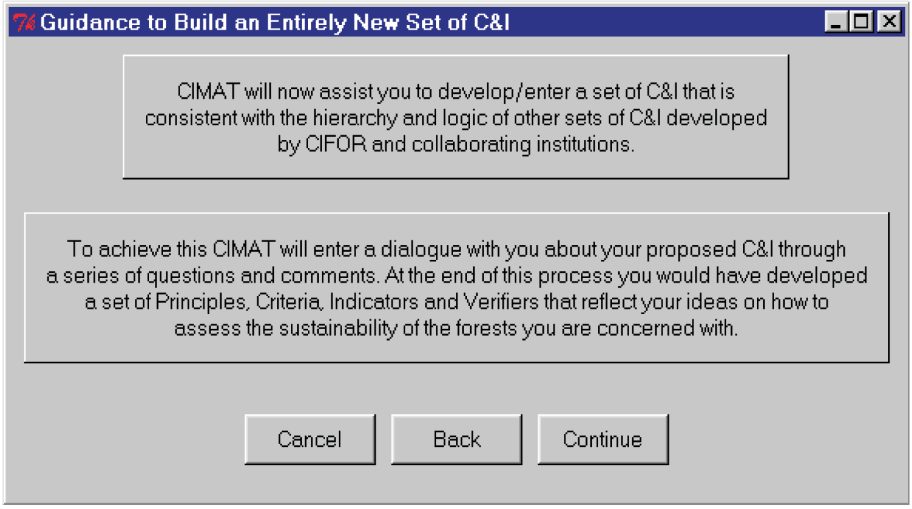
Figure 42. The first dialogue screen for developing C&I from empty set



In this case CIMAT proposes to use the CIFOR C&I Generic Template as a reference. If you agree then click "Continue", alternatively choose an appropriate template. For this exercise let's agree to what CIMAT proposes. Click "Continue".

You will get the communication (see Figure 43) and then click "Continue".

Figure 43. The second screen dialogue screen for developing C&I from empty set



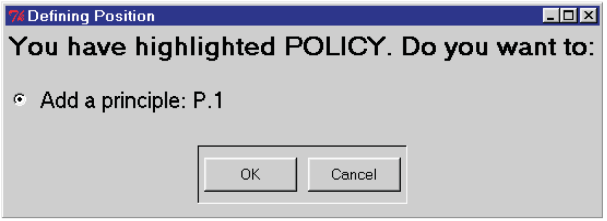
You will again receive one dialogue screen from which you click "Continue" and then you will see the last dialogue screen as shown in Figure 44.

Figure 44. The last dialogue screen before adding new item to the C&I hierarchy



Click "OK" and now you are ready to start. Click the "envelope" next to the title "Criteria and Indicators of Sustainable Forest Management" once and then you will see four aspects (i.e. Policy, Ecology, Social and Production of Goods and Services) of sustainable forest management. Now you may begin to develop principles for your C&I set. Let's start by developing a principle under "Policy" aspect. To do this highlight "Policy" and go to the "Modify" menu and select "Add New". You will see Figure 45.

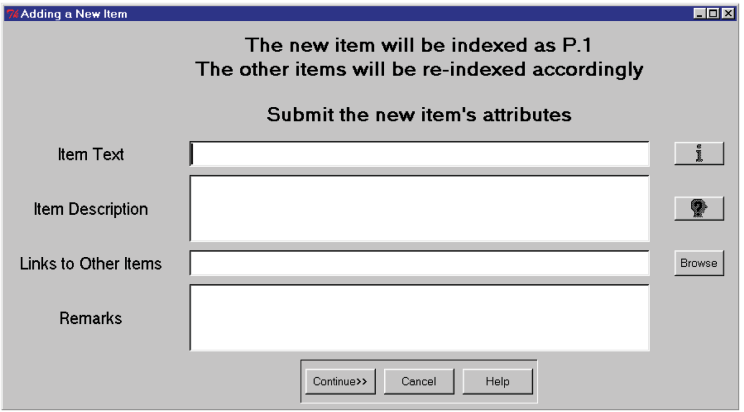
Figure 45. Confirmation screen for adding a new principle



Click "OK" and now you are ready to submit item's attribute. In Figure 46, you need to complete the

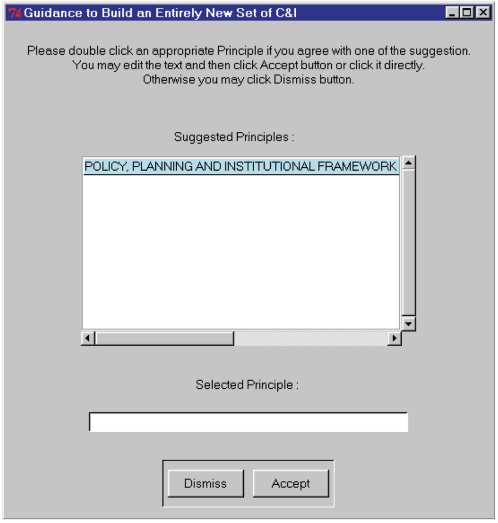
text of Principle 1, its description, links to other items, and remarks. The item text is mandatory while other attributes are optional. This process is similar to adding a new item (see Case Study 4).

Figure 46. Submitting item's attributes



To fill the item text you can do it manually by typing it in the field provided. If you want to see the suggestion from CIMAT click the "i" button next to the "Item Text". If you do the latter one you will see Figure 47.

Figure 47. Principle suggested by CIMAT



If you are in favor with the suggestion you can double click the item and then click "Continue". The item will be displayed in the item text of Figure 46. To proceed please follow the subsequent steps. When you have reached the final stage of the process you need to refresh the hierarchy to see the effect. Follow the same steps for adding more items.

Case study 9. Using hierarchy diagram

The hierarchy diagram is useful to see how items are organized in the hierarchical level of principles, criteria, indicators and verifiers. Let's assume that we want to view the hierarchical level of items under P.1. To do this highlight P.1 and go to "View hierarchical Diagram" toolbar. You will see Figure 48 and click "Yes"

Figure 48. Confirmation screen for hierarchical diagram

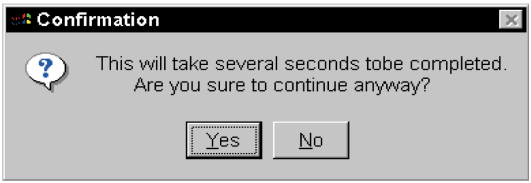
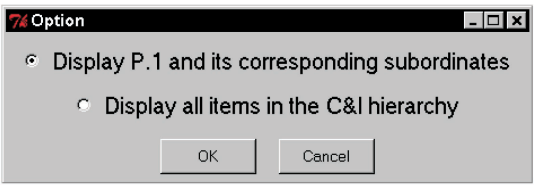


Figure 49. Choosing what to display in the hierarchy diagram



Now the Figure 49 will appear and select the first option by pointing your mouse to the radio button next to it.

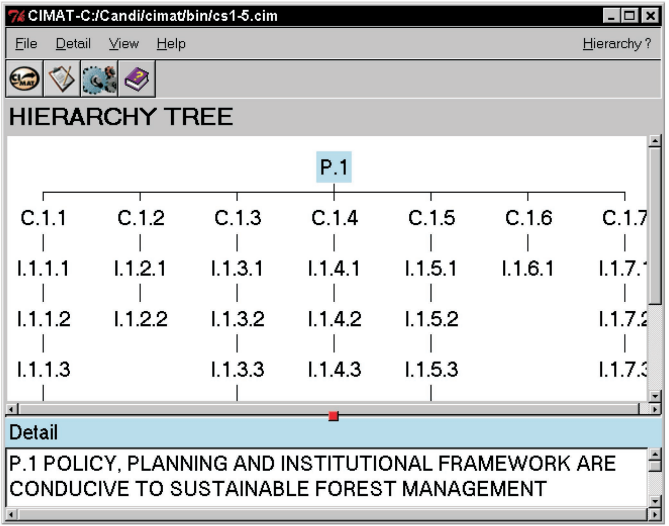
Finally, you will see the hierarchical level of all items under P.1. (see Figure 50). Please note that you can highlight any item and the item's text will be displayed in the second window down at the bottom. You can also use the "Detail" menu to get detailed information of an item (case study 10).

To go back to the normal screen go to the "Go to Modifier Mode" toolbar.

Case study 10. Using "Detail" menu

As described on Page 15 the "Detail" menu provides detailed information on an item. Let's try to see the history of C.1.3 Non forestry policies do not distort forest management. To do this, highlight the item and go to the "Detail" menu and select

Figure 50. View of hierarchy diagram



"Item History". In the second window down at the bottom you will get the following information (the history should be read from the bottom):

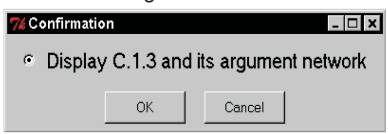
You have highlighted [C.1.3 Non forestry policies do not distort forest management]

Item History : On [Wed May 10 15:23:10 2000] this item was restored by David Granger in context of [Indonesia, East Kalimantan, tropical, natural, concession commercial] with the following argument: [A. 2206: This criterion is still needed for our FMU]

On [Tue May 09 17:04:39 2000] this item was deleted by David Granger in context of [Indonesia, Asia, tropical, plantation, concession commercial] with the following argument: [A. 5001: Non forestry policies are something outside the reach of our FMU and we can not use this as a criterion to assess our FMU.]

CIFOR C&I Generic Template (December 1998) with argument A. 2027: Non forestry policies do not distort forest management [is associated with] POLICY, PLANNING AND INSTITUTIONAL FRAMEWORK ARE CONDUCIVE TO SUSTAINABLE FOREST MANAGEMENT

Figure 51. Confirmation screen for argument network



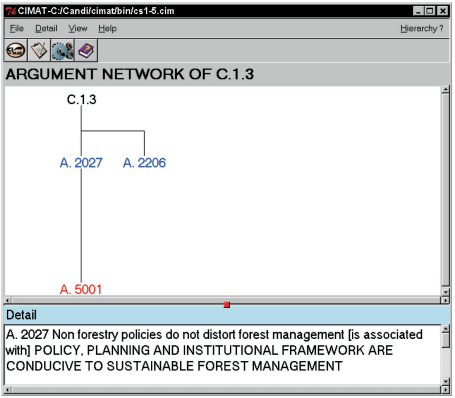
Now, let's continue to see the "Argument Network". Argument network shows how arguments are being used to justify or to counter other arguments within the system. You will be able to see what argument is used by what item and for what purpose (e.g. to delete, to restore, etc.). Let's see the argument network of C.1.3 Non forestry policies do not distort forest management. To do this, highlight the item and go to the "Detail" menu and then select "Argument Network" and then Figure 51 will appear.

To continue click "OK" and then you will see Figure 52.

If you click on the index C.1.3 the item's text and the item's history will be displayed in the second screen down the bottom.

Blue colored arguments (e.g. A.2027 and A.2206) are arguments that justify the existence of the item. The red colored argument (e.g. A5001) is an argument that counters the argument that links to it (A.2027). You should read the diagram from the left to the right.

Figure 52. View of argument network of C.1.3



In the above example this is the way to read it.

- ❑ C.1.3 is justified by argument A.2027.
- ❑ Then argument A.2027 is countered by argument A.5001 that deletes C.1.3.
- ❑ Later, C.1.3 is rejustified by argument A.2206 and the item is restored.

To see the text of those arguments, click on the index once and the text will be displayed on the second screen down at the bottom.

Case study 11. Using "Options" menu

The option menu can be used for several purposes as you can see in the sub menus. First let's talk about "Font". You can use "Font" to adjust the size of characters on the screen (e.g. small, normal and large). To adjust the font select one of the three fonts, and you will see the effect directly on the screen.

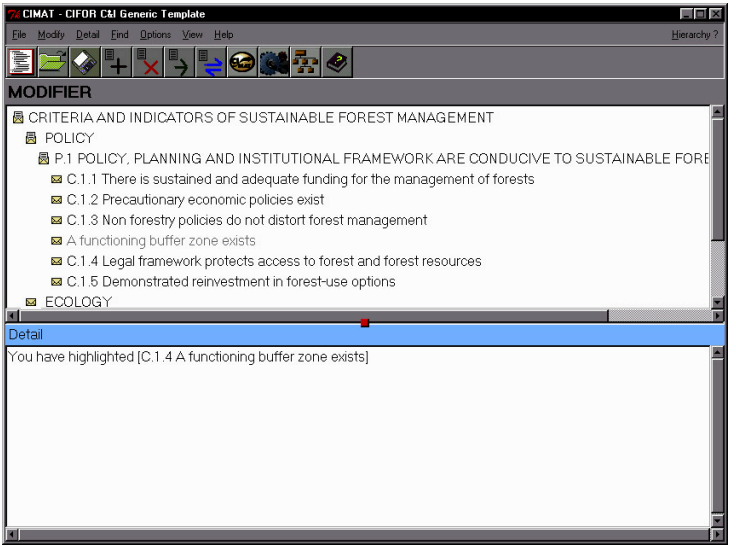
"View Deleted Items" is used to make all deleted items available (deleted items are gray-shaded) in the C&I hierarchy. If you do not want to have deleted items shown in the hierarchy go to "View Deleted Items" and click on it until the (4) sign disappears. This also applies to "View Number of Modifications" and "View Weight and Score of Items". In all cases you need to refresh the hierarchy to see the effects.

Case study 12. Using "View" menu

The "View" menu is used to adjust the two windows: C&I window (first window on the top that consist of C&I items and the Detail window down at the bottom). You have five options (see sub menus) to adjust your windows according to your preference simply by selecting one of the options.

Let's do an example. For instance you want to adjust the windows to 1:1. To do this, go to "View" menu and select "1:1". The windows should display as shown in Figure 53.

Figure 53. Adjusting the windows to 1:1

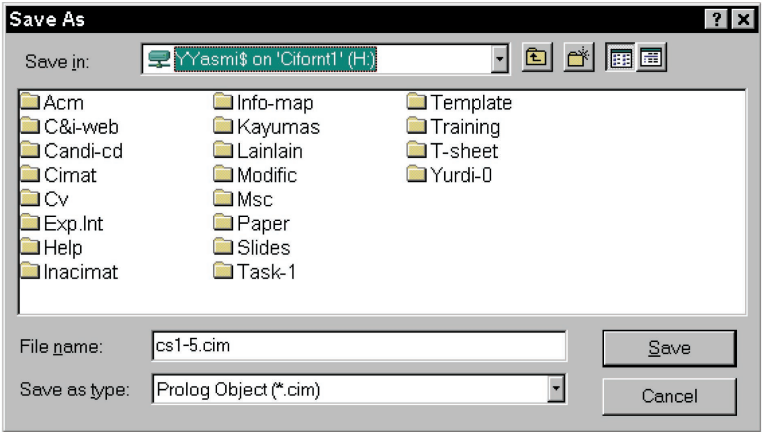


Case study 13. Using "File" menu

There are several tasks that can be performed using the "File" menu, listed as sub menus (e.g. saving your works, comparing two C&I sets, getting summary of the C&I set, etc.).

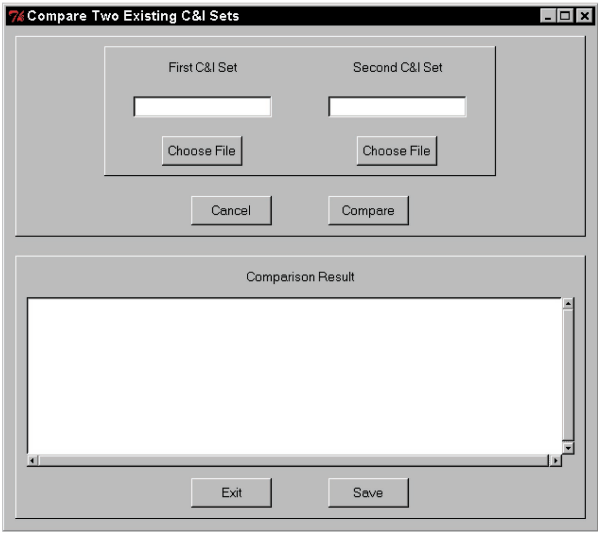
Let's see the first sub menu "Save C&I Set". The sub menu is used to save your modification and assessment into a file with extension *.cim, the same with "Save As" and then "CIMAT file (.cim)". All files with this extension can be opened by CIMAT. Let's save the C&I set that we have modified through case study 1 to case study 12. Label the C&I set as "cs 1-5" (you can give other names). To do this go to the "File" menu and select "Save C&I Set" then you will see Figure 54. Type the file name on the space and click "Save".

Figure 54. Saving the work into a file with extension .cim



To compare two C&I sets go to the "File" menu and select "Compare two Existing C&I Sets". Existing C&I sets refer to those sets that have been saved using the extension *.cim either in your floppy disk or hard disk. You will be asked which sets you want to compare (see Figure 55).

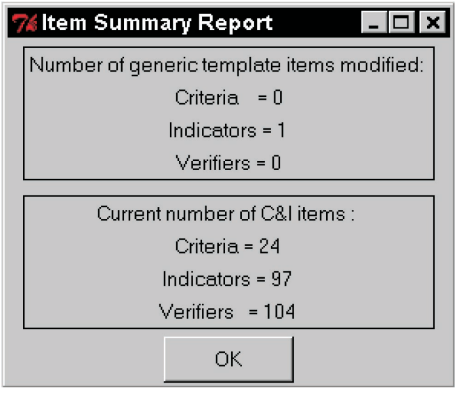
Figure 55. Choosing two .cim files to compare



Click “Choose File” and then select the first file. Then click the second “Choose File” on the right hand side and select the second file to be compared to the first one. Both files must have extension .cim. To continue click “Compare” and the results will be displayed. If you want to save the results of comparison click “Save” otherwise click “Exit”.

To get a brief summary report of items, go to the “File” menu and select “Item Summary”. The report will be displayed as shown in Figure 56.

Figure 56. Brief summary report of modification



Assessing C&I Set

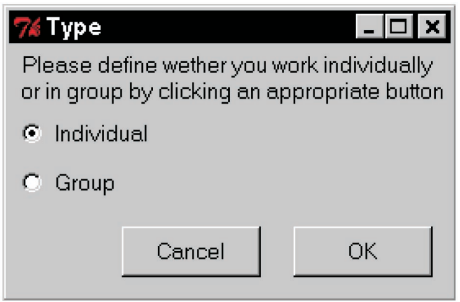
Case study 14. Weighting an item

First you have to go to the Applier mode. If you are in the Modifier mode you should shift to the modifier mode by clicking on the toolbar “Go to Applier Mode”. If you are in the main menu select “Apply existing C&I set”. Define which C&I set you want to assess. To do this, go to the “File” menu and then select “Apply Existing C&I”. To continue, define which C&I set you want to assess. For instance you want to assess the set that you have

saved in case study 12. In this case you must select "Other C&I set" and then find the file "cs 1-5.cim" and click "Open".

Let's weigh all criteria under P.1 using Pairwise Comparisons (P&C) method. To do this, highlight P.1 POLICY, PLANNING AND INSTITUTIONAL FRAMEWORK ARE CONDUCIVE TO SUSTAINABLE FOREST MANAGEMENT. Go to the "Apply" menu and select "Weighting" you will see Figure 57. Assume that you want to do this on your own, so click the individual.

Figure 57. Defining mode of weighting



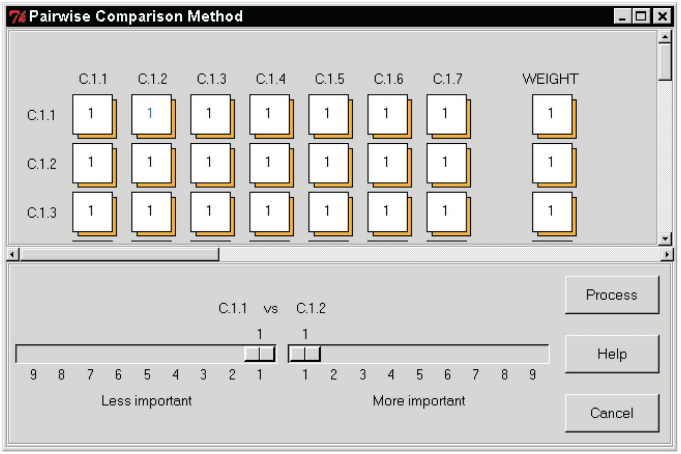
To continue click "OK" and select "Pairwise Comparison" and click "Next". You will see Figure 58.

Now you will compare a relative importance of each criterion over another. Please note that 1 = equal, 3 = moderate, 5 = strong, 7 = very strong and 9 = extreme.

Let's take some examples:

1. The relative importance of C.1.1 vs C.1.2. Assume C.1.1 is very strongly more important than C.1.2

Figure 58. View screen of pairwise comparisons technique



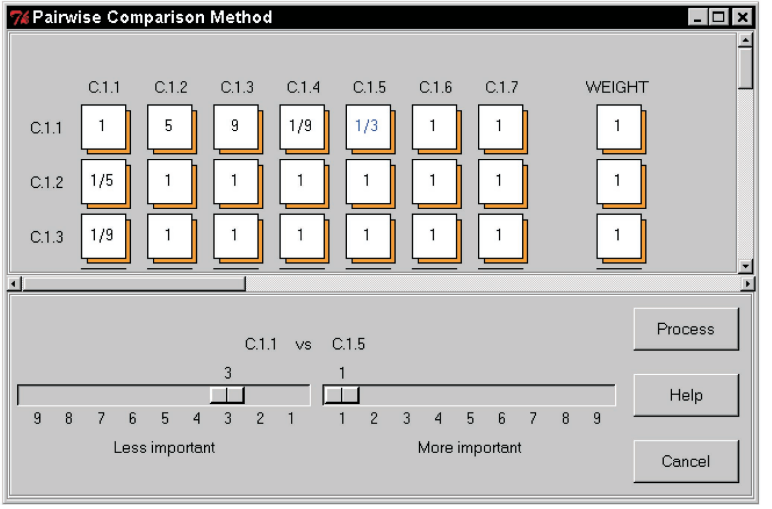
2. The relative importance of C.1.1 vs C.1.3. Assume C.1.1 is extremely more important than C.1.
3. The relative importance of C.1.1 vs C.1.4. Assume C.1.1 is very strongly less important than C.1.
4. The relative importance of C.1.1 vs C.1.4. Assume C.1.1 is very moderately less important than C.1.

To do the above comparison respectively:

1. Point your mouse to the first row, second column and click once. You will notice the following indexes down at the bottom screen C.1.1 vs C.1.2. (Pointing your mouse on the indexes will display the item's text). Point your mouse to the cursor on the right hand side "More important" and move it until it reaches 5.
2. Point your mouse to the first row, third column and click once. You will notice the following indexes down at the bottom screen C.1.1 vs C.1.3. (Pointing your mouse on the indexes will display the item's text). Point your mouse to the cursor on the right hand side "More important" and move it until it reaches 9.
3. Point your mouse to the first row, fourth column and click once. You will notice the following indexes down at the bottom screen C.1.1 vs C.1.4. (Pointing your mouse on the indexes will display the item's text). Point your mouse to the cursor on the left hand side "Less important" and move it until it reaches 9.
4. Point your mouse to the first row, fifth column and click once. You will notice the following indexes down at the bottom screen C.1.1 vs C.1.2. (Pointing your mouse on the indexes will display the item's text). Point your mouse to the cursor on the left hand side "More important" and move it until it reaches 3.

The results of the above action should look like Figure 59

Figure 59. Example of the pairwise comparison technique



Now you can finish all comparisons by yourself. If you have done so, click “Process” and you will get the relative weights of each criterion. Then click “Save”. To see the effect, refresh all criteria under P.1. by clicking on the envelope next to it twice.

You can practice with the other two methods of weighting: ranking and rating. Technically the way to do it is very similar to pairwise comparison. Please consult "Help" in each window for assistance.

Case study 15. Scoring an item

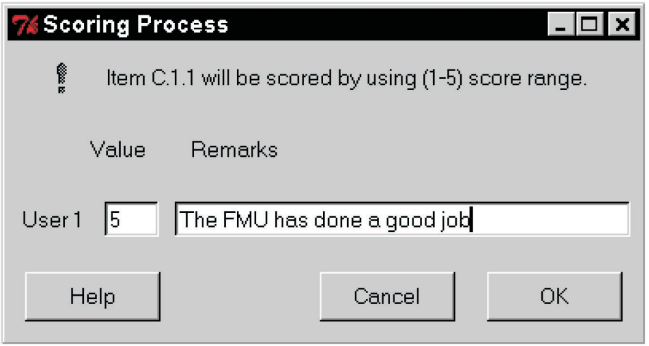
Let's practice with scoring now. Assume that you will score all criteria under P.1 POLICY, PLANNING AND INSTITUTIONAL FRAMEWORK ARE CONDUCIVE TO SUSTAINABLE FOREST MANAGEMENT. You will do this by yourself and the score range you will use is 1-5. Remember that the score is given based on the actual performance of those criteria on the field where 1 has very badly met the criterion and 5 has fully met the criterion.

Now, assume the following scores will be given to each criterion respectively:

1. C.1.1 will be scored 5
2. C.1.2 will be scored 2
3. C.1.3 will be scored 3
4. C.1.4 will be scored 4
5. C.1.5 will be scored 3
6. C.1.6 will be scored 2
7. C.1.7 will be scored 3

Let's start with the first criterion. To do this, highlight C.1.1 and go to "Apply" and select "Scoring". Then select "Individual" and click "OK". Now, define the score range you will use, in this case select 1-5 and then click "OK". Enter the score and remarks. For C.1.1 the score is 5 and the remark is, for example, "The FMU has done a good job". You should see Figure 60.

Figure 60. Scoring C.1.1 using 1-5 range



Click "OK" and then follow the next steps. If you have finished with C.1.1 you may proceed to the rest of those criteria and enter the scores and remarks accordingly. To see the effect you have to refresh the C&I by clicking twice on P.1.

You may also need to practice using a score range of 0 -100.

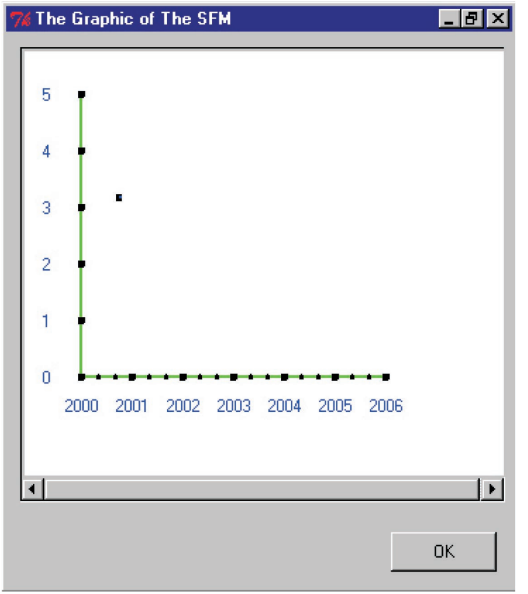
NOTE: The score of an item is calculated based on the weights and scores of its sub ordinates

Case study 16. Getting SFM Score and SFM Score Graphic

After Scoring and weighting all C&I items you can obtain the SFM score automatically. The score appears at top-right corner of the main screen. If you want to see it as a graphic you can click the "Score Graphic" under SFM menu as shown in Figure 61.

If you do assessment several times using the same C&I set (the same file) at different times you can obtain a graphic as shown in Figure 18.

Figure 61. SFM score graphic obtained after completing the assessment process



7. INTERACTIVE TUTORIAL

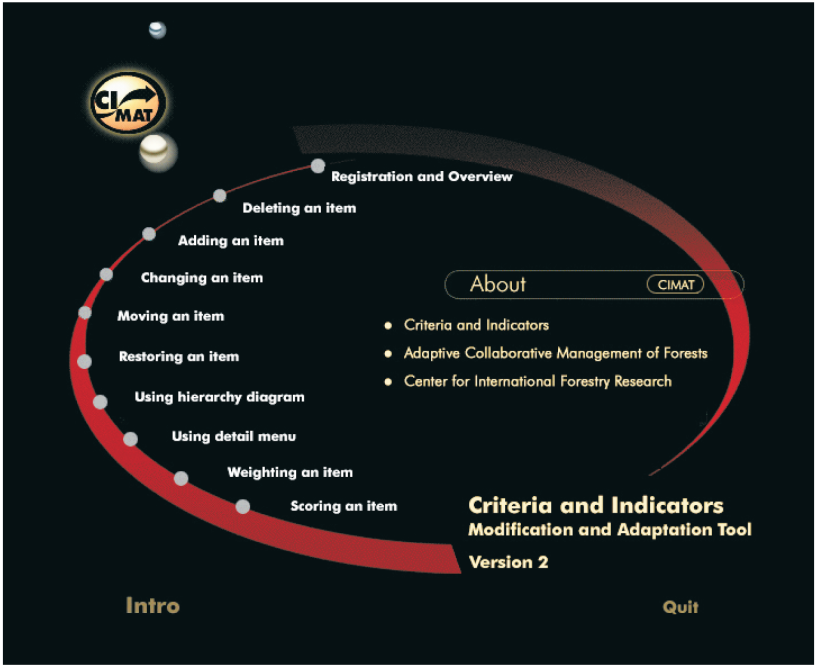
The C&I CD-ROM also provides CIMAT 2 interactive tutorial (see Figure 62). It is developed to help users learn CIMAT interactively and step by step followed by some case studies. It contains some basic examples on how to perform particular task in CIMAT.

You can explore it by clicking CIMAT 2 tutorial (see Figure 2)

- ❑ under Program Menu› CIMAT 2› Criteria and Indicators CD (if you do not install it into your local disk, you have to put your C&I CD at the proper CD drive).
- ❑ under Program Menu› CIMAT 2› (if you install it into your local disk).

NOTE : The tutorial equipped with voices.
Audio device will be required.

Figure 62. The main screen of CIMAT 2 interactive tutorial



8. CREDITS

This C&I CD-ROM is a product of Local People, Devolution and Adaptive Collaborative Management of Forests Programme (ACM), Center for International Forestry Research (CIFOR). This product is the result of efforts by a development team at CIFOR with the direct or indirect support of external collaborators involved in the project.

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