VERSION 1.0.7

User's manual

INDEX

USER INTERFACE

TOOLBAR BUTTONS

The following toolbar is a common feature for all the user environments. This toolbar allows the different necessary operations for the functioning of the software, see Fig. 2.
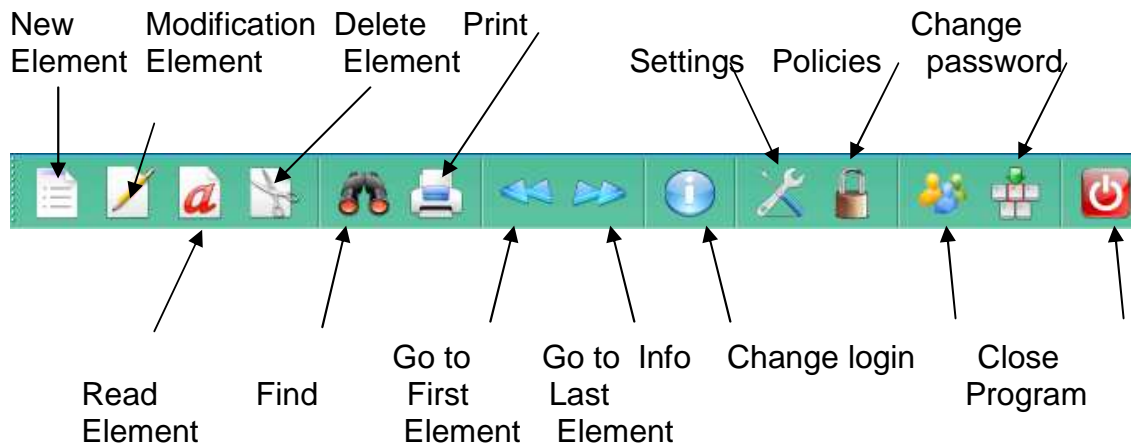

Fig.1 – Toolbar

The elements in the toolbar can be either accessible or inaccessible, depending on the access rights of the user. In the first case, the user will be able to use the associated element function, whereas in the second case, this function will not be active.
Here follows the description of the functionalities:
New Element
when active, allows to insert a new line in the table, related to the user's environment. Through a dialog that contains all the fields, the information will be added.
Modification Element
when active, allows to modify the data that is in a record, selected in the table related to the user's environment. Through a dialog, same as for "new element", the information will be modified.
Read Element
when active, allows to read the data that is in a record, selected in the table related to the user's environment. In this case the informations are locked and cannot be modified.
Delete Element
when active, allows to cancel a selected record..
Find
allows the access to a dialog in order to find a record within a selected environment. It is necessary to specify the field in which you want to carry out the search and the text to be found. In case of positive response, the cursor will be positioned on the line found.
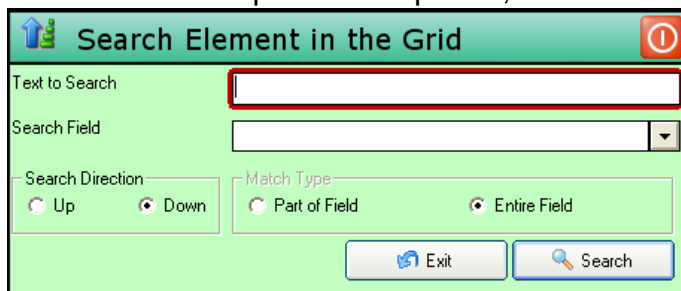

Fig. 2 – Search dialog

Print
allows to print the content of a grid in the selected environment.
Go to First Element
allows the positioning of the cursor on the first record of the grid in the user's environment.
Go to last Element
allows the positioning of the cursor on the last record of the grid in the user's environment
Settings
This button is disabled
Info
information related to FlowerTool
Policies Management
the field that will be proposed at the selection of this icon will enable the administrator to qualify each "group" of users to the use of the main functions of the program.
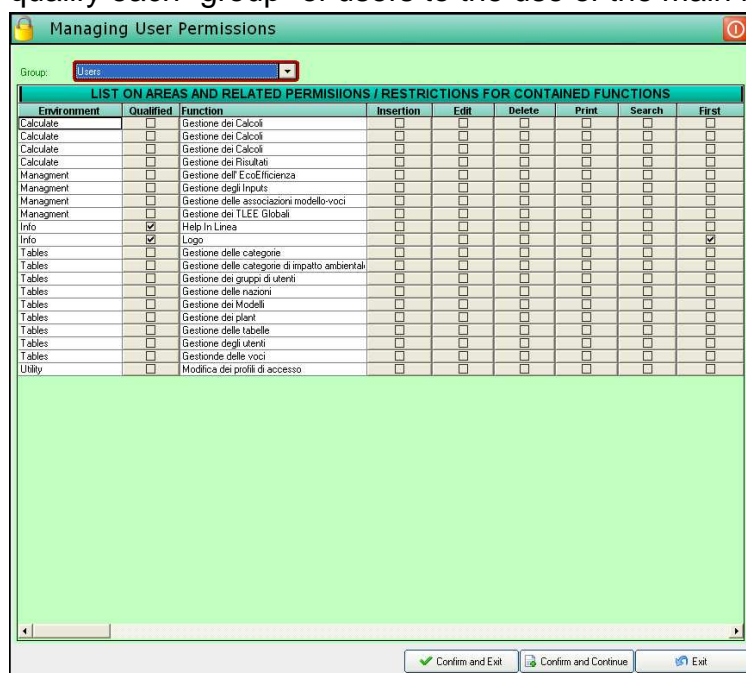
Fig. 3 – User Permissions

The first thing the administrator has to do is to select a group to whom assign the policies; then, by ticking off the boxes, he can authorize the group to carry out certain actions (such as "Add" – "Modify" – "Cancel" – "Print" – "Search"); he can decide also which of all the fields should be the first view when the user logs-in (column "First").
Change Login
allows to use the software with the profile of another user.
Description of the StatusBar
As the toolbar, also the StatusBar is present in all the environments and supplies some important informations, such as current user's environment and current user.
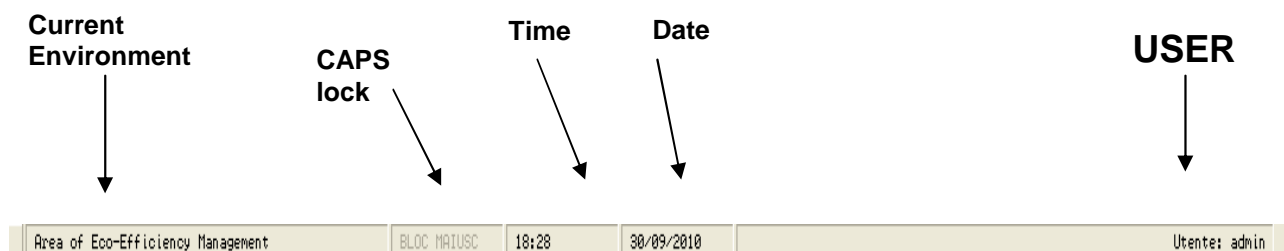
Fig. 4 – Statusbar

BASIC OPERATIONS

LOGIN

The first thing to do after starting the program, by using the icon on the desktop, is to add the following information

- Server name
    1. This is the name of the server where the database is installed. This field is not editable

- Login
    1. This is the name with which a user is identified (user-ID) within the FlowerTool; it will be the care of the managers to communicate the user-id's for the various users.
    2. After the first access, it will not be necessary anymore to digit this ID each time, unless you want to login with another ID than the last one you used.

- Password
    1. The FlowerTool system administrator will assign temporary passwords for each user; this password can be changed in another personal one, after the first access.
    2. If you digit a wrong password, the system will give a message (Fig. 6), and will not allow access until the password is valid.
    3. In case you do not remember your password, you should contact the FlowerTool system administrator, who will supply you with a new one.

Fig. 5 User Login

Note

The default User Name is FlowerTool with password = Tredegar (be careful to the letter in upper case). This user has right of administrator and then he can create new groups and new users. Please read the paragraph "Area of Tables" / Users

Fig. 6 Wrong Password

PASSWORD CHANGE

To change the password, you need to select the "Change Password" button from the main toolbar (see Fig. 7). The dialog box (see Fig. 8) asks for the new password in the first field, and then also for a confirmation in the second field. If these two match, the new password will be registered. If not, there will appear a message that informs you of a wrong match. Then you can retry.

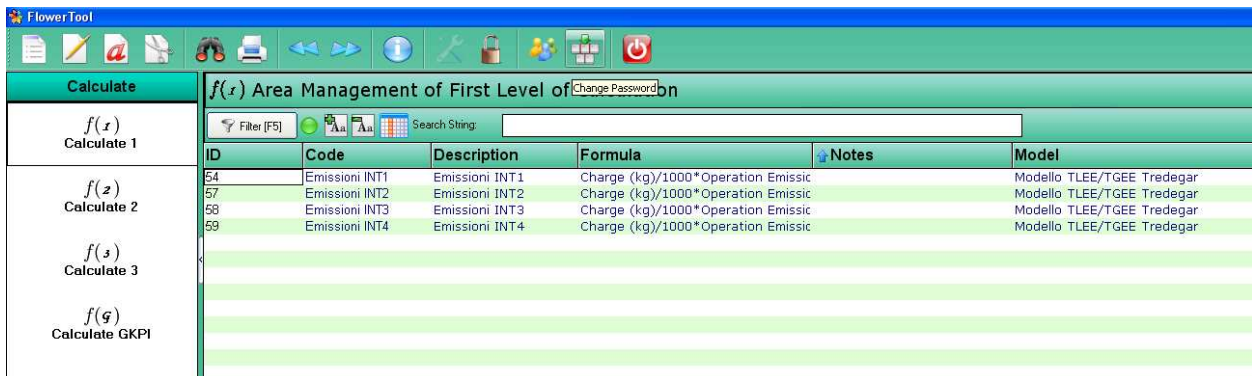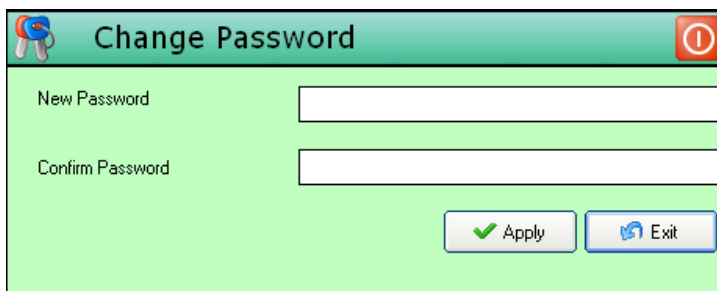Note: The passwords always need to be different from the previous ones.

Fig. 7 – Password Change Menu Option

Fig. 8 – New Password Mask

FLOWER TOOL

The Flower Tool program has been designed and implemented to provide a power tool to evaluate the eco-efficiency index of the companies.
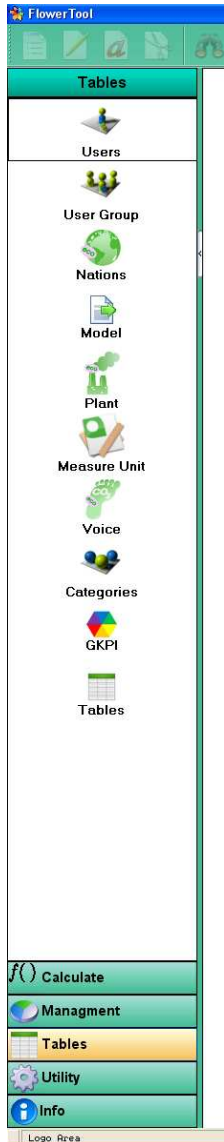
The criteria used to implement the analysis are not explained in this manual; in fact here you can find the explanation of how to use the program in order to obtain their results from the analysis.

First of all we describe the Tables Area:

TABLES AREA
Here you can manage all the informations that turn around the 'kernel' of the program and that you need to get your analysis.

USERS
This environment will propose a table containing the informations related to the various *users* that work with the software.

The users that belong to the group of administrators can add, modify and eliminate the *users*, by clicking on the related icons on the toolbar.

Each user can be equipped with a User Name and an access password and has to be associated to a group with rights to access and to use the functions, different from others. The status of each user can be either active or not: when he is active he will be present in the combo box, which you will find in the dialog of adding the users, on the contrary he will not be present if he is not active.

Fig 10 – User mask

Fig. 9 – List bar

This solution has been adopted in order to avoid that in a list you may see users who are not involved anymore with the management of the production process or who are not present anymore in the site for different reasons.

As a matter of fact, the "physical" cancelling of names is not possible if they were present in some other section. Each user has to be associated with an e-mail address, where he can be reached for any communication, by electronic mail.

USER GROUP

Fig. 11

Also in this area we will have a table that summarizes the *groups* of users created for FlowerTool. The users who belong to the group of administrators can add, modify and cancel the *groups*, using the special buttons on the toolbar. Policies can be created for each group, by using "Policies" button from the toolbar. The administrators can lin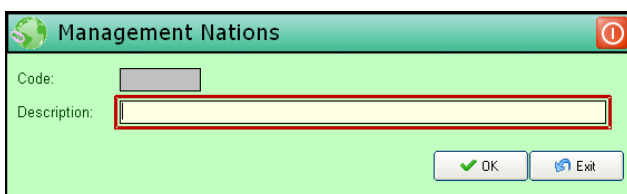k each new user to one of the created groups, so that the new user will automatically inherit the policies defined for the group.

NATIONS

Fig. 12

In this table are stored all the nations involved in some supply (energy, raw material etc). These informations are useful to define the coefficients related, precisely, to the nations.

MODELS

In this table are stored the names of the data input models that we'll create afterwards. It's possible to create how many models we want and, naming them conveniently, it will be

Fig. 13

easy to compose and identify the data input models of the plants. Anyway you can find more clarifications in the Voices-Model Association paragraph. The option buttons TLEE/TGEE and TPEE allow to specify for which kind of analysis the model will be used.
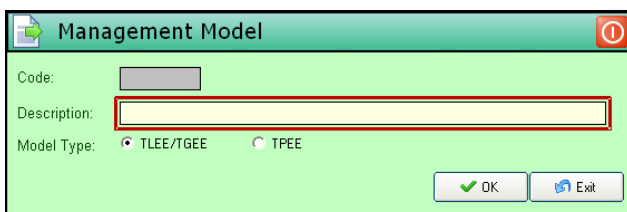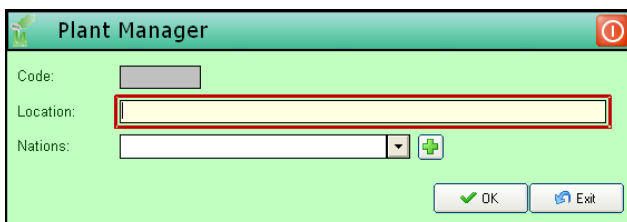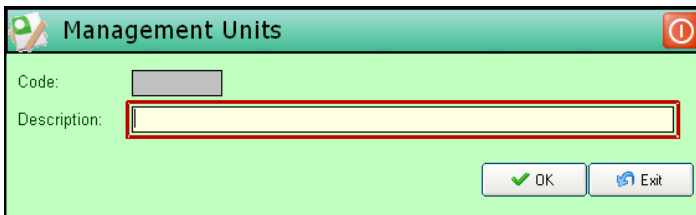
PLANTS

Fig. 14

In this table are stored all the plants for which we have to evaluate and/or compare the eco-efficiency.
Of course you have to specify also the nation for the plant. You can do it by selecting the nation from the combo box "Nations". If the needed nation doesn't exist in the list, you can add it pressing the button with cross icon to the right of the combo box
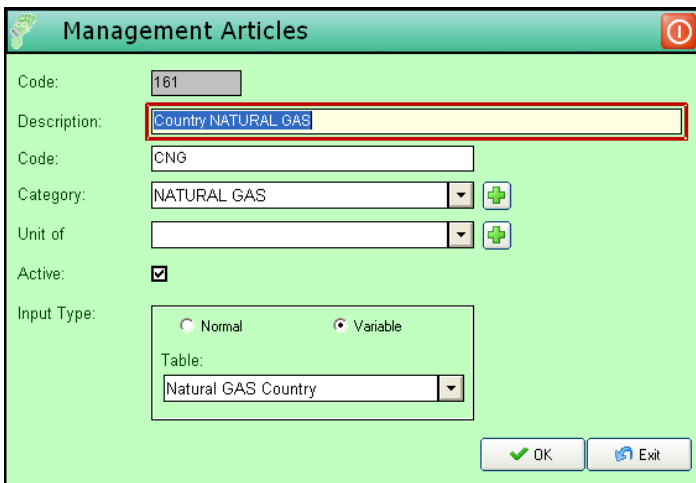
UNIT OF MEASURE

Fig. 15

In this table are stored all the units of measure used for representing the quantities

VOICES

Fig. 16

This table introduce us to one of the most important concept of the logical structure of the program. In fact the voices constitute the fulcrum on which the program goes around.

They represent the variables necessary to build the formulas that give out the intermediate results (or final results) of the analysis in consideration.

The enabled users of the plants can enter such inputs locally, by VB client program, or remotely, by WEB based module.

Fig. 17

For the voices it's possible to specify a description, a code, an unit of measure and a category. With the term category we intend one of the codified elements in related 'Categories' table, precisely. The checkbox 'Active' can be checked off or not. In the first case the voice is really used inside of still valid formulas. In the second case the voice is considered not active or, to say better, not used anymore.

Due to reasons of referential integrity, an unused voice will be highlighted in red color (see Fig. 17) if it is contained in some formulas. That inform us about the obsolescence of the voice.

The voices can be defined as input type "Normal" or "Variable".
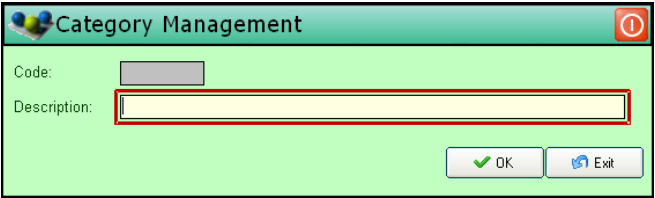
In the first case the user will have to enter a simple cell with a numeric value. In the second case the choice will be done from a combo box.

In that way the voices will 'inherit' the numeric value associated to the field of the related table, specified during the definition of the voice.

For exemple, as you can see in the Fig. 16, we defined the voice # 161, with code 'CNG', category 'Natural Gas' and type of input 'Variable'. The numeric value will be automatically

got when we are selecting one of the records from the table 'Natural Gas Country' during the input phase.

CATEGORIES

Fig. 18

In this table are stored all the categories that describe the input voices at which we assign the values to calculate the 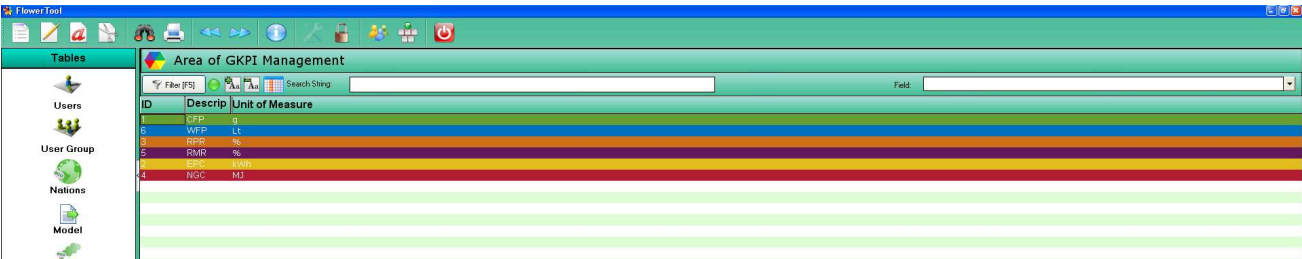formulas. A good definition of categories will help us to better define and organize both preliminary and final formulas used for calculating the GPKI index.
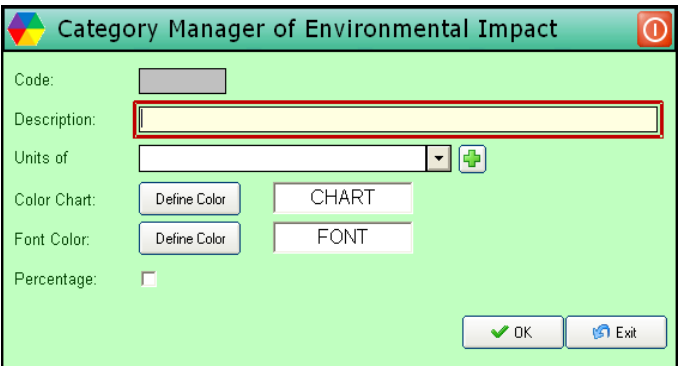
GKPI

The GKPI acronym, means Global Keys Performance Indicator. The elements in this table represent the final target of our calculation. In fact the values of these indexes will be used

Fig. 19

to draw the graph of the comparative analysis for period and/or for plant. Also if Tredegar uses only six indexes and their quantity is fix, we decided to allow a free definition of the indexes in term of quantity, description, unit of measure, background color and foreground color. Furthermore a checkbox says us, if the index must be calculated as percentage or as absolute value. In the second case, it's

Fig. 20

necessary to do a different calculation from that provided for the 'normal' GKPI .

TABLES

Also the tables represent a very important element for the logical functionality of the program. They make flexible the insertion of values selectable from lists with many items, as for example the combo box inside the module for managing inputs.

It is possible to define the type of each table, i.e. 'Simple' or 'Multiple', in addition to his name and description (that should be significative).

The first case represents the case of a vector, when there is a single value for each item of a row of the

Fig. 21

table.

The second case, instead, represents the case of a matrix, when to one row correspond more values.

The usage with voices at variable values selectable from simple tables, has been already described; now let's give a look to understand what you have to do in case of tables with multiple values:

First of all we say that the grid "Table Details" represents the rows of the matrix whereas the grid "Table Values" represents the columns. Clicking on the button with the green cross in the area "Detail Table", you can enter a new "row" for the matrix. As you can see in the Fig.22 you can enter a field name and a description for it. Clicking, instead, on the near button with red cross you can delete the selected row from the area "Detail Table".

Fig. 22

Clicking on the button with the green cross in the area "Values Table", you can enter a new value for the row. As you can see in the Fig. 23 you can enter a value, a code, a column name and, above all, a start date of validity. Clicking, instead, on the near button with red cross you can delete the selected row.

The validity date concept is very very important, because it allows to update the

Fig. 23

values for the coefficients without change the previous analysis made using the old values. Once defined that matrix, it will be possible to associate this new table to a voice declared of type "variable". Anyway more explanations will be provided when we will talk about the formula's builder.

CALCULATION AREA

Fig. 24

In this environment it's possible to manage the formulas used in the program in order to evaluate the indicators of the performance. First of all we see how the form of the builder has been organized:

CALCULATE LEVEL 1

The text boxes up to the left allow us to define a code and a description for the formula. The choice of the model is fundamental because it allows us to consider the list of the input voices associated previously to the model itself.

For example it's possible to create a model (Plastic Films) for all the plants of Tredegar that are

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producing plastic films in the world, associate to it a serie of voices of the categories of environmental impact and use them for the analysis of the plants (how we'll see better ahead).

If we want to analyze the eco-efficiency of the plants that are producing films of aluminium, we can create a new model (Aluminium Films) with different input voices and use them for the analysis of this other kind of product.

➢ The check box "View among the intermediate results" allows us to specify if we want to see the result of the formula we are building, or not.

➢ The tabs allow us to select the operands of the formula; they can be, precisely, Coefficients, Columns, Inputs and Polynomial expressions (Level 1, Level 2, Level 3). The hierarchical organization of these tabs makes always possible to see and then use the coefficients, the columns and the inputs, while the levels, instead, are usable only from higher down to the lower. In fact the level 2 can see the level 1 but it can't see the level 3 and so on.

➢ The grid "Functions" allows to select the functions we need to build our formula, from a long (but not exaustive) list.

➢ The frame "Symbolic Formula" shows the formula represented with the symbols associated to the operands.

➢ The frame "Decoded Formula" shows the same formula represented with codes and symbols necessary to the interpreter of the program to decode and evaluate them.

➢ The field "Notes" allows to enter possible notes to the formula

➢ The frame 'Operators' allows to insert in the formula the algebric operators

➢ The frame 'Numbers' allows to insert in the formula the numeric values

Now we will do some considerations about the Tabs:

1) Coefficients

In this tab there are the values of simple tables. After the selection of our table, we have the combo box "Field" where we can choose the field of the table we want to use . After the field selection, the value of the coefficient is shown in the frame and it is not editable.

Such coefficient can be finally used in the formula we are building clicking on the "Add" button. The "Reset" button in the tab

Fig. 25

"Coefficients" clears every possible selection. The button "Check", instead, tells you if the formula is correct or not. The near "Reset" button clears all the selections you have done. Finally the button "Delete" clears only the last insertion.

2) Columns

Fig. 26

In this tab there are the values of multiple tables. After the insertion of evaluation date, we must select the voice we want because the multiple tables can be used by more than one voice.

So, the search key for the interpretation algorithm, can't use only the code, but it must be the combination of voice ID and code of column. That must be choosed selecting first the table and then the item from the combo box "Column". This last selection makes the code visible in the frame. A convenient control during the insertion of the column ensures the uniqueness.

3) Input

Fig. 27

The tab of inputs is conceptually easier because it shows only the inputs associated to the selected model. To insert an input in the formula you must double click on the row in the grid "Input Values".

To insert, instead, a function in the formula, you can double click on the row in the grid "Functions" or click on "Add" button. The "Reset" button clears the previous selection.

4) Level 1
   In the tab Level 1 there are all the intermediate formulas created for it
5) Level 2
   In the tab Level 2 there are all the intermediate formulas created for it
6) Level 3
   In the tab Level 3 there are all the intermediate formulas created for it

Theoretically it would been enough only one level of calculation. In fact it is possible to build also very complex formulas with only one level, but we preferred to divide the formulas in more levels to make the reading easier and to allow intermediate calculation.
Anyway we don't have introduced any limitations nor imposed strict rules. In fact there are some indicators that can be composed only by inputs without the need to belong to intermediate formulas. So, it is possible to avoid doing all the passages up to level 3, defining them directly in one of the provided levels but, for coherence, we suggest to declare them always in the same level. This allows to apply always the same scheme and avoids to understand why sometimes we did in a certain way and some other in a different way.
For example we defined "Outputs" always at level 3.

CALCULATE GKPI

Fig. 28

In the environment "Calculation" we find also the GKPI function. For it we must give a deeply explanation. The calculation of normalized GKPI is, really, the final goal of the program and, consequently, of all the settings of the formulas that we have seen until now. There are some things we have to notice: first of all it is necessary to specify the model for which we are creating these formulas. In the combo box will be present only the plants for which we still have not created the formulas for GKPI
This happens because it makes no sense to create more than one formula for the calculation of GKPI for the same model. The indicators are taken from the relative table present in "Tables" environment. We left this possibility to avoid any limitations, but Tredegar very likely doesn't will use further indicators, at least for the plastic films sector.
To insert the formula you need to click on the symbol of percentage both for unit of measure kg and for m². The environment that will be called will be the same provided for the levels discussed previously.
Unfortunately it's impossible to modify the formulas (as for those of other levels, anyway). You can only delete it and re-create it. It's also possible to insert the formulas for the production, both in m² and in t. These data will be shown in the same table of the GKPI, inside of the graph of eco-efficiency analysis.

"MANAGEMENT" AREA

MODELS – VOICES ASSOCIATION

As we saw in the previous paragraphs, it is necessary to make an association among the input models created before and the defined voices.

Fig. 29

In fact the program provides the possibility to realize eco-efficiency analysis for categories not always homogeneous. For example, Tredegar produces plastic films with a group of plants and aluminium films with another group of plants. The eco-efficiency study for these two kinds of product is based on different inputs and voices. By defining different models and voices and by creating the convenient associations among them it is possible to realize the analysis for both the plants that are producing plastic films and those that are producing aluminium films.

As we can see in the Fig. 29, to create the association, first of all we must create the model and then we must check off the interested voices. They are shown inside of the tabs representing respectively the categories defined in the related table.

When we try to modify an association in which there are some voices already used to create some formulas, the program highlights in red color such voices and it doesn't allow their modifying. Those still not used, instead, are not highlighted and they are selectable regularly.

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ANALYSIS

Fig. 30

Fig. 31

This environment allows to create an eco-efficiency analysis using the input voices and, of course, the formulas provided for selected model. This involves, precisely, the selection of the model, the setting of evaluation date, the selection of the plant that is subject to the analysis and the insertion of a description that identify the analysis itself .

The selection of the model determines the loading of all the voices related to it.

The user has to insert the numeric values in the text box fields and the selection of a value in the combo box fields.

The values returned from items selection in the combo box depend on the set evaluation date.

This happens because the values defined in the single and multiple tables have a validity period. But if there are no coefficients or values for the period under consideration, the program will ask you to insert them manually. The new inserted value, will be the current one, starting from inserting date, up to year 3000 (to indicate an undefined time). This value will become outdated when somebody will insert a new value. In fact the previous one will have, as

finish date, the starting date of the new inserted value and the new value will have the year 3000 as finish date.
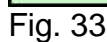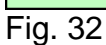
After the insertion of the necessary data, the user can see the intermediate results of those formulas checked in the related table, by clicking on the relative button. The final results (i.e. the results of the formulas defined for the calculation of the GKPI) will be shown by clicking on the button "Calculate".

In the Fig. 32, there is an example of the list of the intermediate results. If, instead, you clicked the button "Calculate" to see the final results, it will appear the window below that imposes the choice of the unit of measure.

Fig. 32

Intermediate Results List	
Description	**Result**
FPV (kg)	2.675.000,000
FPV (m2)	89.500.000,000
GJ NATURAL GAS	0,000
t CO2 eq ELECTRIC POWER	3.246,400
t CO2 eq. EMPLOYEES' IMPACT	101,233
t CO2 eq. materials	4.997,900
t CO2 eq. NATURAL GAS	0,000
t CO2 eq. PACKAGING	125,240
t CO2 REFRIGERATION	27,119
t CO2 TRANSPORT	5.947,455

Fig. 33

Afterwards, a frame will appear with the list of the final results, as you can see in the picture below.

It is also possible to enter the data remotely through the WEB module provided to the responsibles of the sites. Once the users have done this operation, you can import those data in the system by clicking on "Data Import from WEB" button.

Fig. 34

Flower Tool

Results

CFP: 5400,129
EPC: 2,991
RPR: 24,706
NGC: 0
RMR: 14,894
WFP: 14,953

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ECO-EFFICIENCY

This environment allows us to realize many comparative analysis of eco-efficiency . Here it is possible to compare analysis and group them as an eco-efficiency study. The example
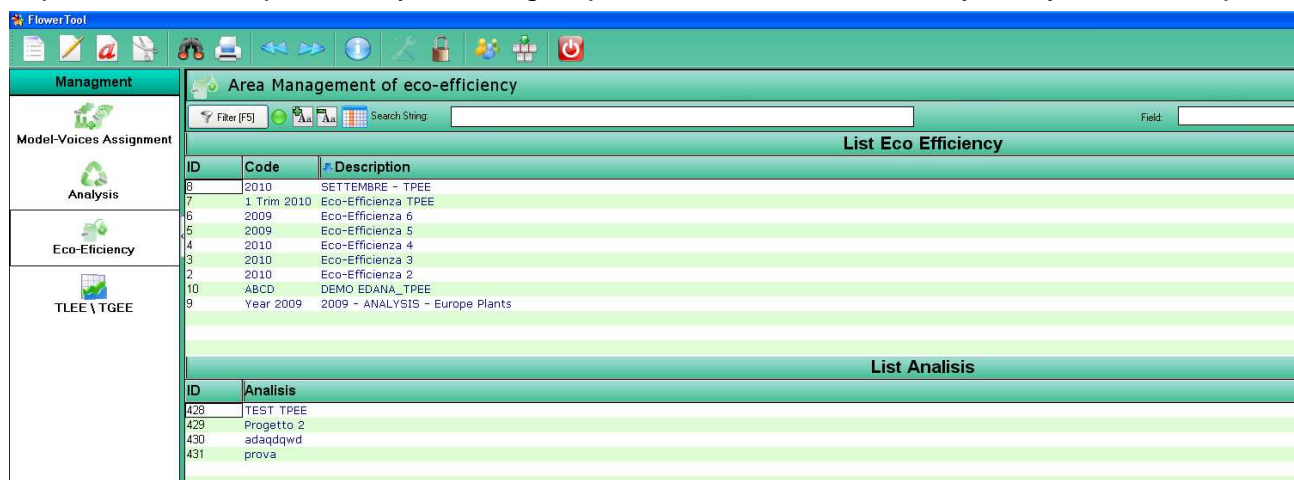

Fig. 35

in the Fig. 35 shows us the main grid (2010 – Analysis – Europe Plants) and related details.

The insertion of a new study involves also the insertion of the referring year and of an appropriate description.
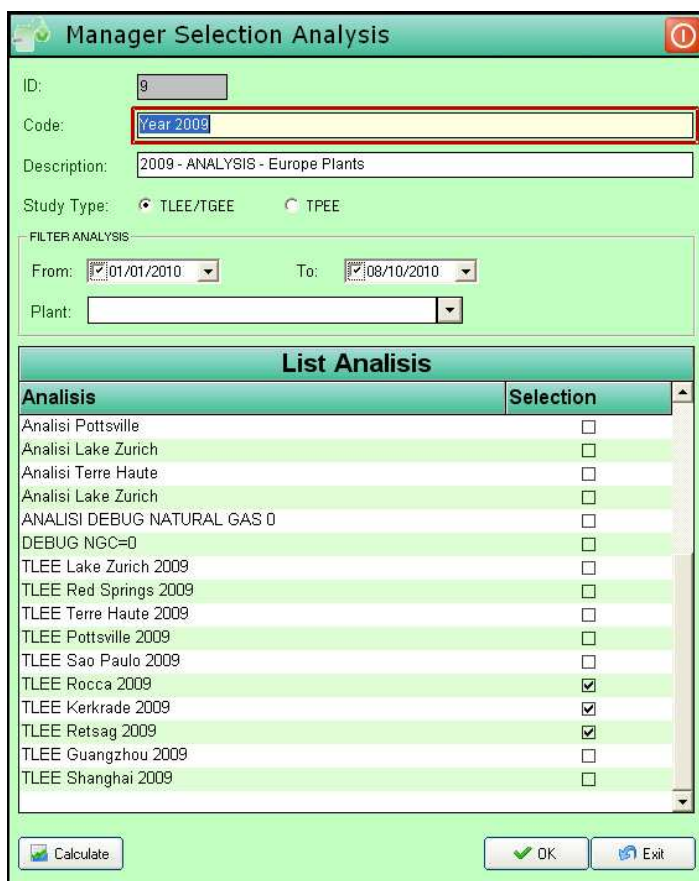

Fig. 36

The frame "Filter Analysis" has just the function to show all the analysis in the grid "Analysis List" for a given period and plant. The selection of the analysis must be done based on the type of comparison that we want to do. For this reason it's better to give a significative name to the eco-efficiency studies.

To continue the previous example, we considered a study called "2009 – Analysis Europe Plants" because we would compare the analysis of 2009 for the european plants, conveniently created inside of the analysis environment.

In this case we must tick off the check box of "TLEE Roccamontepiano", "TLEE Kerkrade 2009" and "TLEE Retsag 2009".

Be careful because if we now choose also "San Paolo" we haven't any ways to notice the mistake, but we can understand that there is something wrong only observing the final results. This feature represent an advantage of the program (in terms of flexibility) but

in the same time it is a small limitation of its rigorousness.

It is possible to open a saved study of eco-efficiency to get a graph for it.

By re-opening the study it will be possible to click on the button "Calculate". The first information we must enter is the unit of measure. After waiting for the computing time, subject to the number of the analysis we are considering and to the hardware in use, the form will appear. It will be divided in some tabs, one for each analysis. Each tab,
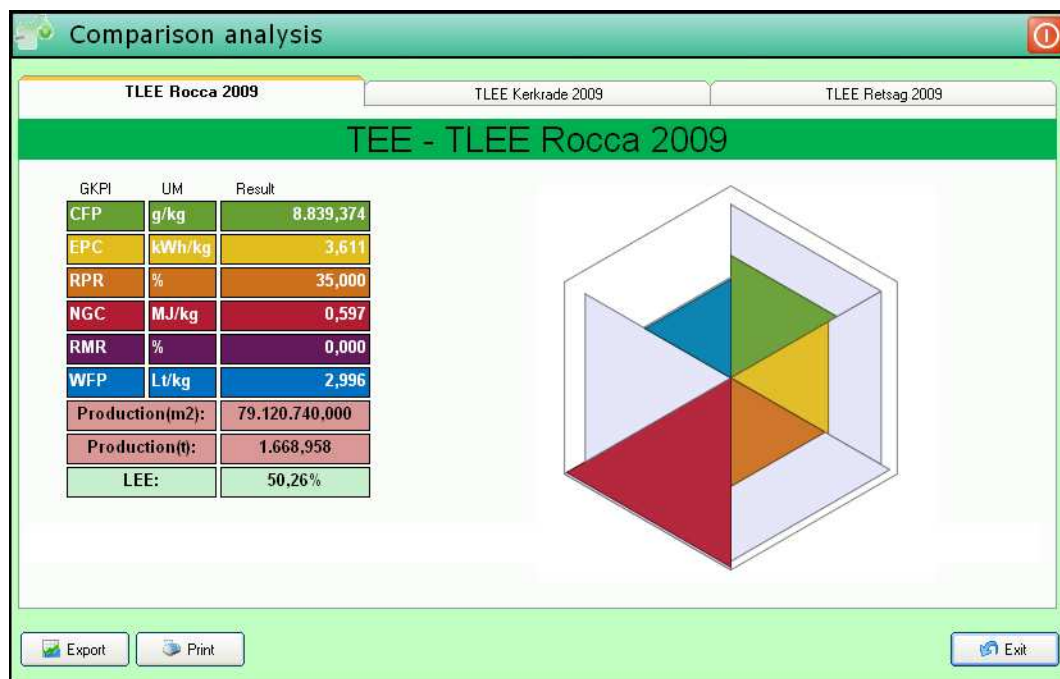

Fig. 36

precisely, contains a table with all the values of the GKPI, the production data, the percentage of LEE and a peculiar graph with the form of stylized exagonal flower
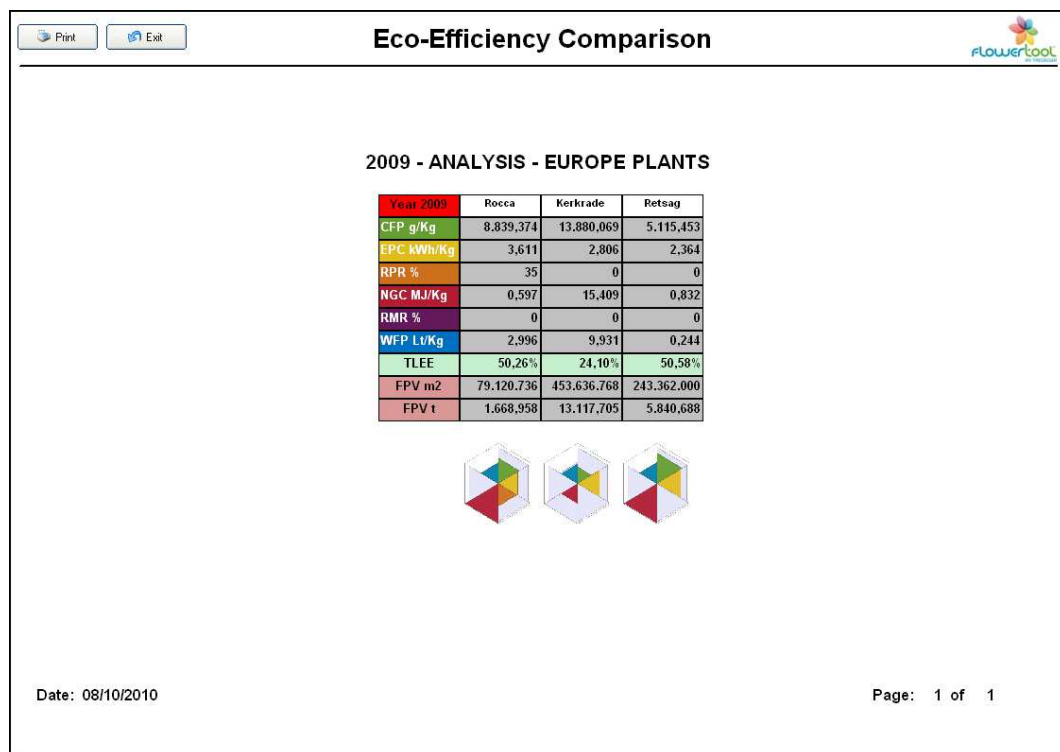

Fig. 37

representing the basic analysis of the study.

Clicking on the button "Export" we get a comparative graph as in the Fig. 37. In its columns are represented the numeric values of tables present in each tab, respectively, and the thumbnail of the related graph.

It's possible to print this graph by clicking on "Print" button.

TLEE-TGEE

This environment allows us to compare the eco-efficiency analysis we have done, in order to obtain two kinds of different graphs, TLEE and TGEE.

The TLEE compares the eco-efficiency studies in a selected period.

If you need you can print the page by clicking "Print" button.
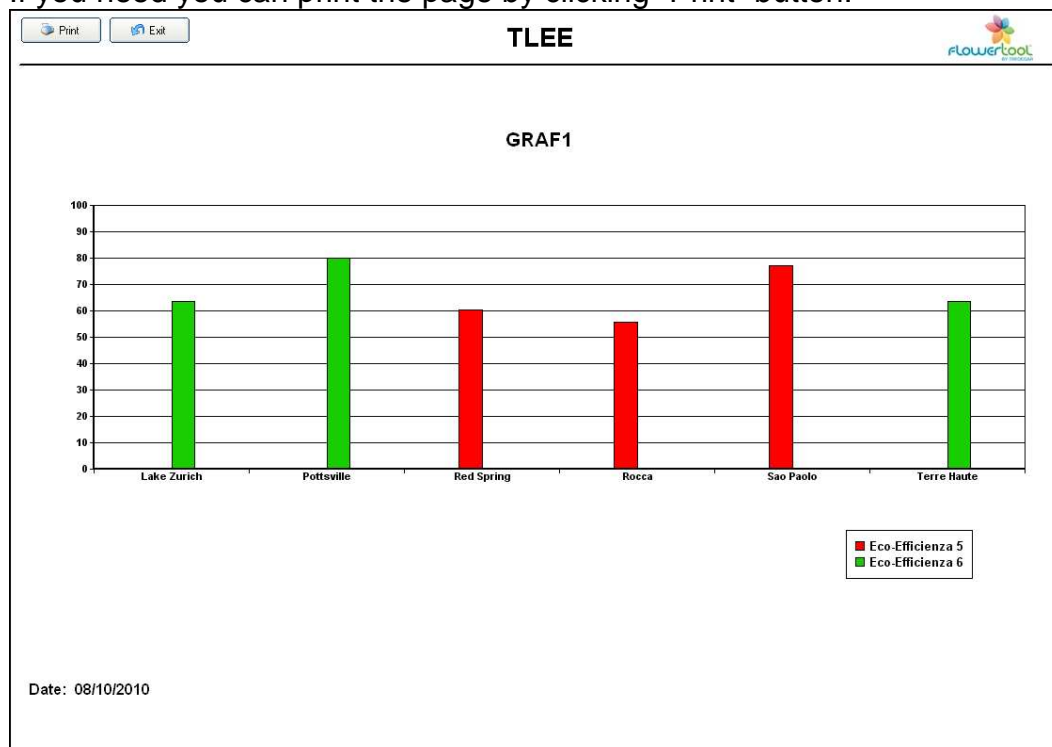

Fig. 38

The TGEE, instead, represents the normalized calculation of the GKPI indicators of all the eco-efficiency analysis. It is composed by two pages: the first shows a table containing numeric values and a thumbnail of the flower-graph, while the seconds shows a bar graph. Each bar represents one column of the table in the first page. If you need you can print the page by clicking "Print" button. Click, instead, arrows buttons to navigate.
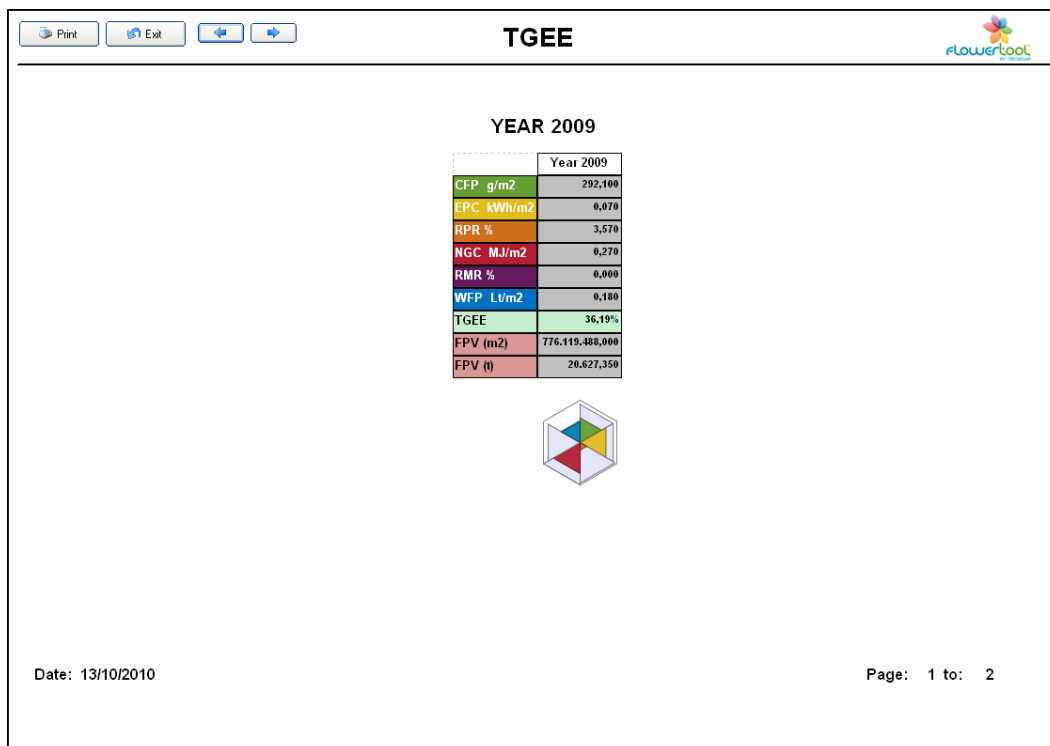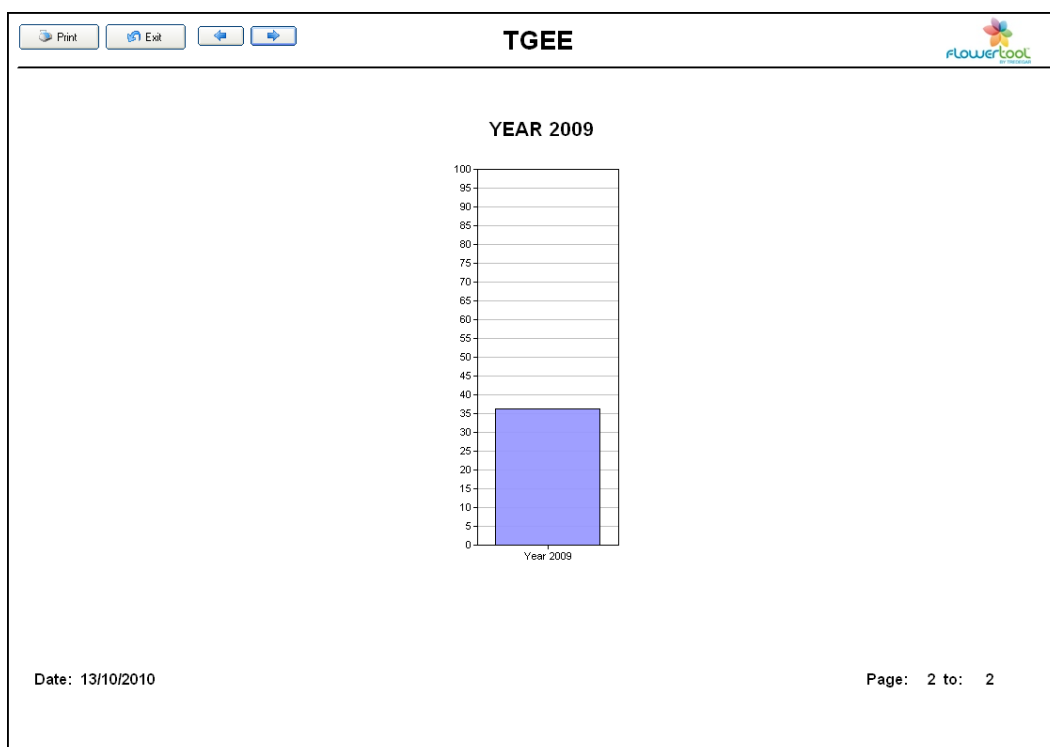
Fig. 39

Fig. 40

TPEE

The TPEE is the evaluation of the difference among the eco-efficiency studies, related to a specific project. The user can focus on a study and compare it with the others, in order to calculate the deviation (see "Delta TPEE" in Fig. 41). The page is composed by four main elements:

- a table with the numeric values of the GKPI indicators for each project
- the thumbnail of the flower-chart for each project
- a bar-chart with a bar for each eco-efficiency value of the project
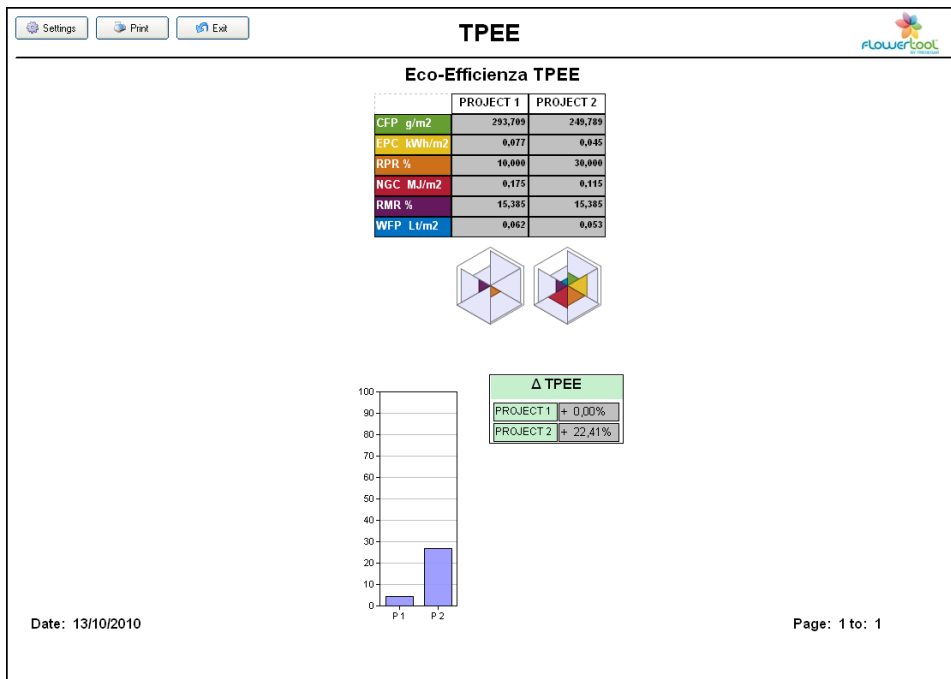- a table with the TPEE deviation ("Delta TPEE")

Fig. 41

If you need you can print the page by clicking "Print" button. The "Settings" button, instead, allows you to enter manually the "Weight Factors", i.e. the importance of the GKPI indicators within the flower-chart. Furthermore you can specify if the study is "PEIA NATURAL" or not.

Fig. 42