



Appraisal project

Air Pollution Policies
for Assessment
of Integrated Strategies
At regional and Local scales

Grant Agreement number 303895

WP2: Review and gaps identification in Air Quality and Health Assessment methodologies at regional and local scale

TerrAria

D2.8 – Database entry finalized

Reference:	APPRAISAL/TERRARIA/WP2/D2.8
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Date:	15/12/2013
Status:	Version 1.0
Availability:	Confidential

Summary

This deliverable describes and explains the main functionalities of the APPRAISAL database, which was created to compile and manage information from online questionnaires on different assessment methodologies used by the European Member States to assess the effects of emission abatement policy options and measures on the reduction of atmospheric pollutants concentrations and on human health.

Version History

Version	Status	Date	Author(s)
1.0	Final	15/12/2013	Giuseppe Maffeis, Andrea Cherubini, Daniele Roncolato - TerrAria

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1. Introduction

In the scope of the APPRAISAL's overall review of methodologies used in different European member states to address and assess the impact of local and regional air quality plans and their health implications, a questionnaire was structured (deliverable D2.1) and a database developed. A collaborative multiple users tool (i.e. the questionnaire filling in is the results of the interaction between the editor and the reviewer) was implemented to sustain this final database: the APPRAISAL website. This deliverable describes the database and the software application, (please refer to D2.4 for a detailed description of the contents of the questionnaire) and its feeding through the users filling. This application is completely published online through a specific Web-app included in the Appraisal Website. The aim of this WebApp is to manage all the life cycle of the questionnaire:

- opening a new questionnaire
- filling in
- submitting to Appraisal Steering Committee's reviewers
- approving and feeding the questionnaires' database
- querying the questionnaires' database.

The Web application includes three parts:

- the information one
- the private one (questionnaires filling in, submitting and approving)
- the public one (queries, figures and statistics tables).

Access to the section dedicated to the questionnaire of the project can be reached from the left menu of the official website of the project (www.appraisal-fp7.eu) by clicking on the "Questionnaire" button (see Figure 1). The direct link to the section dedicated to the questionnaire is <http://servizi.appraisal-fp7.eu/appraisal/>.

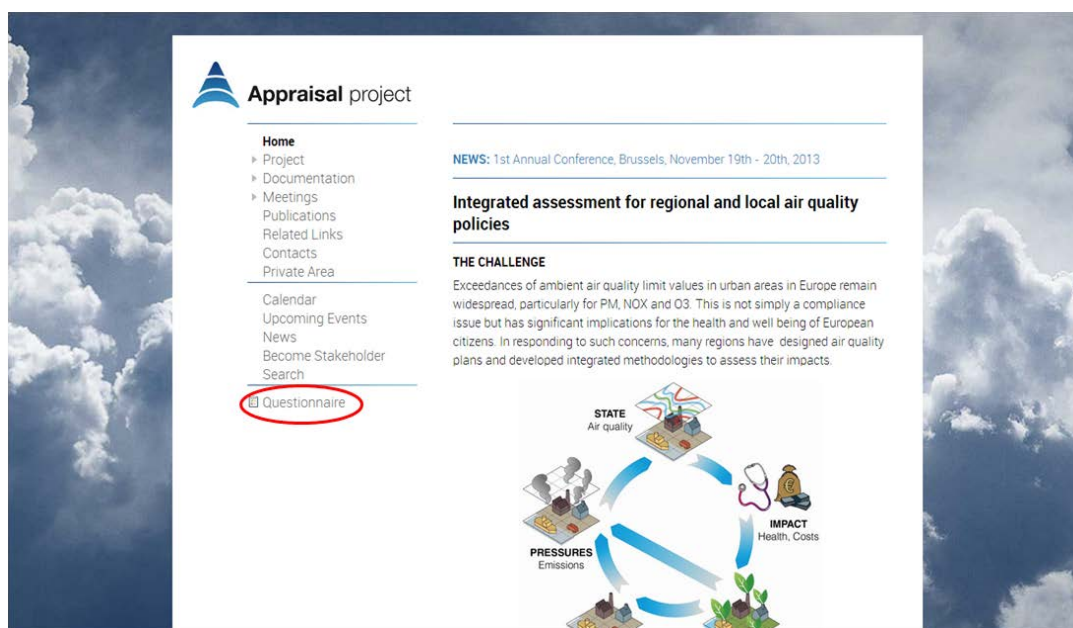


Figure 1: Home page of Appraisal project website screen.

2. Appraisal Questionnaire: (1) public part

The following paragraphs illustrate the screens of the website public section dedicated to questionnaires on Appraisal project, namely the Questionnaire Info and the Questionnaire fill in. In the public part the statistics on the “validated” questionnaires are also included with the menu voice “Queries Statistics”, see chapter 4 for details.

2.1. Questionnaire Info

This section of the Web presents the reasons that led to the creation of the project database.

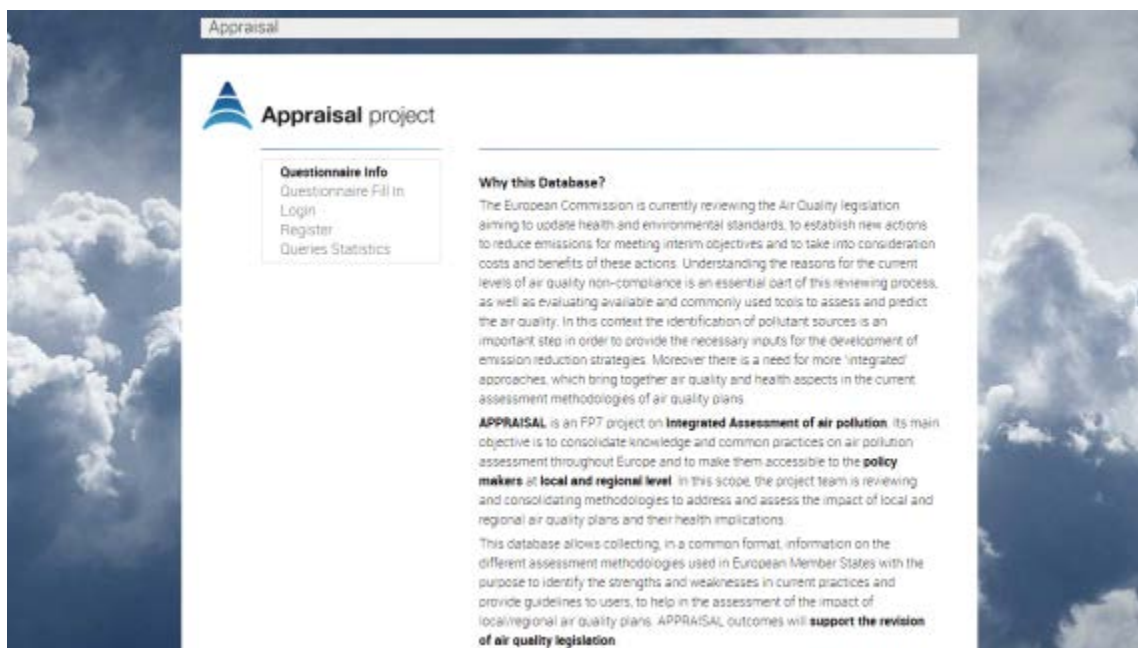


Figure 2: Questionnaire information screen.

2.2. Questionnaire fill in

This section of the Web contains useful information to fill in the questionnaire (see Figure 3).

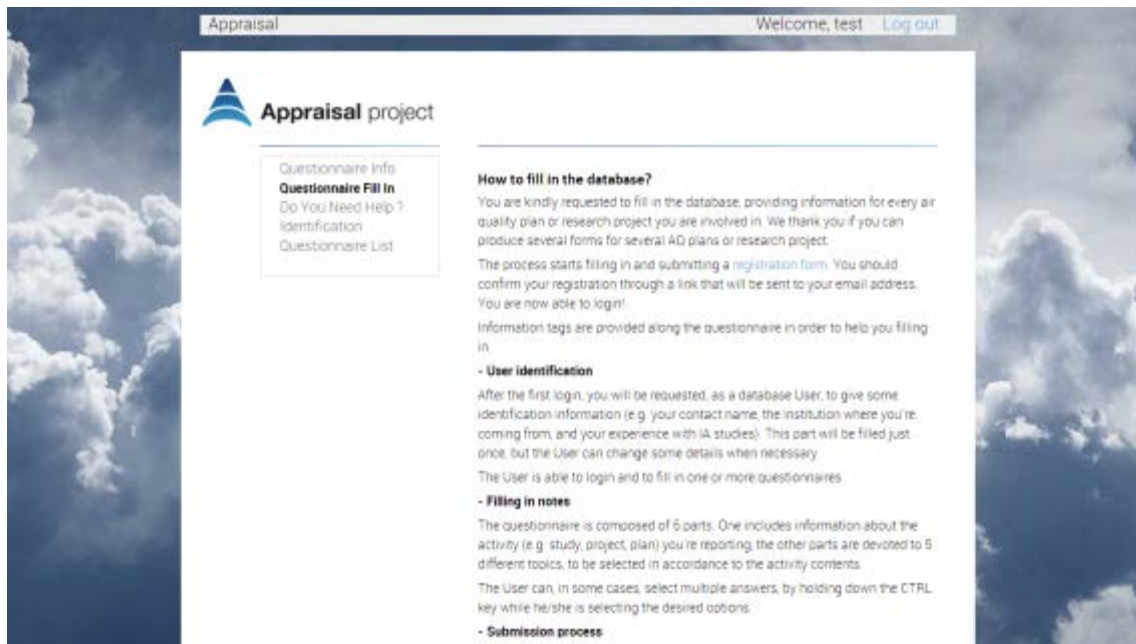


Figure 3: Questionnaire fill in screen.

The first step of the process is to register (see figure 4). In this section the users interested in filling one or more questionnaires, must enter the required data to complete the registration.

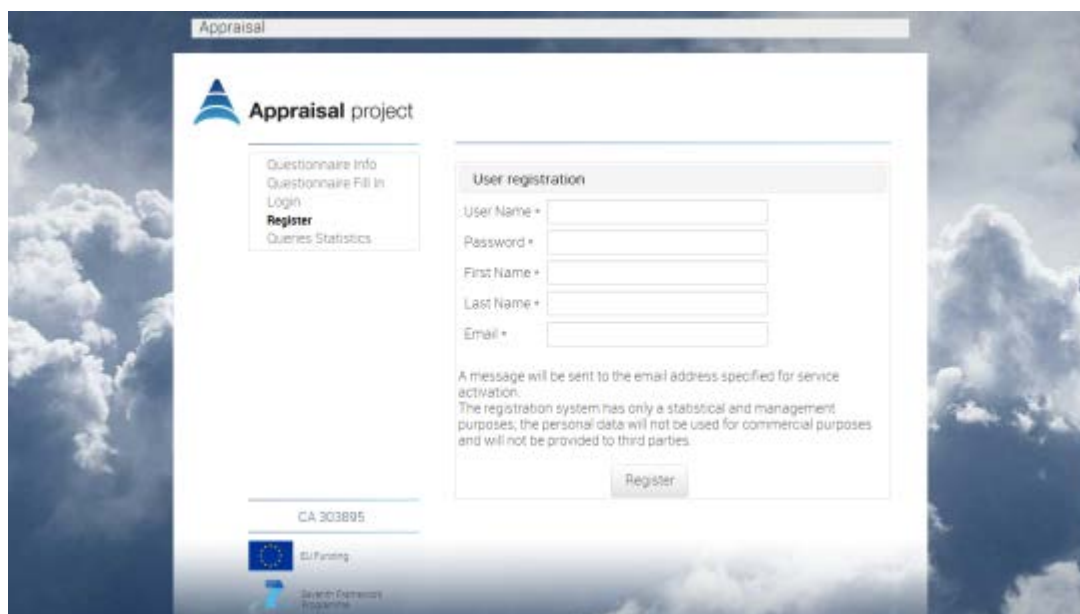


Figure 4: Register screen.

After registering as a database user it is possible to login (see figure 5) and to fill in and submit questionnaires.

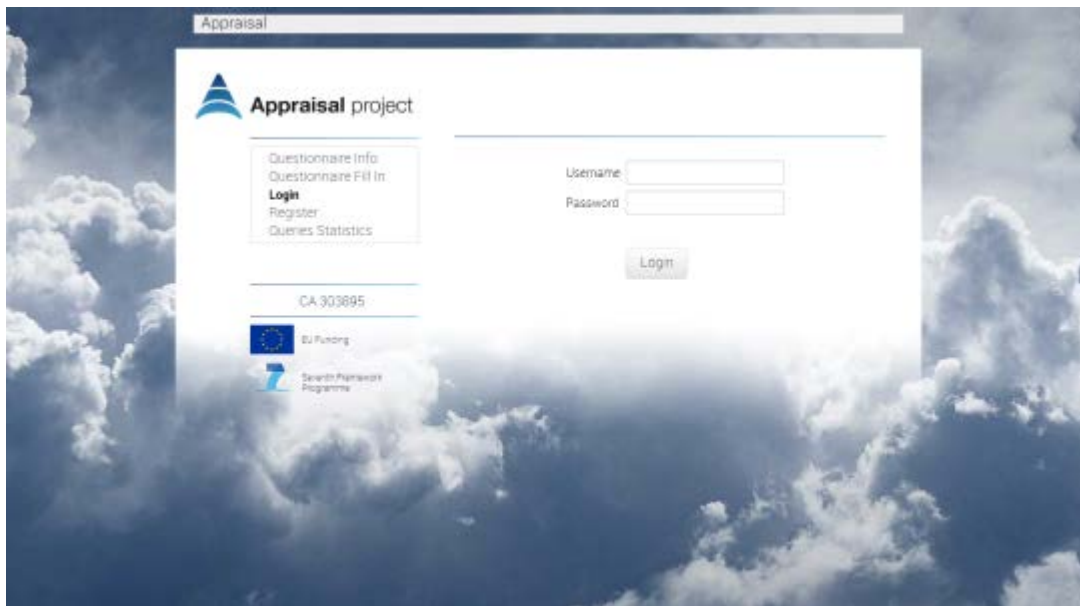


Figure 5: Login screen.

3. Appraisal Questionnaire: (2) private part

This area can be accessed only by registered users. There are two types of users: Editor User and Reviewer User.

The Editor User can:

- Fill in a new questionnaire
- Change a not yet submitted questionnaire
- Submit a completed questionnaire.

The Reviewer User can:

- View the submitted questionnaires
- Approve the submitted questionnaires
- Approve with modifications the submitted questionnaires
- Reject the submitted questionnaires.

Furthermore, using both background knowledge and the data gathered in the Database, APPRAISAL designed an IAM structure which is based on the DPSIR (Driving Forces-Pressures-Sate-Impacts-Responses) framework (deliverable D3.1). A radar chart is included in the private part of the online database to graphically provide the level of completeness of the answers in the questionnaires according to the DPSIR approach.

3.1. Editor user

Identification

In this section the user must enter the data relating to its own identification (see Figure 6).

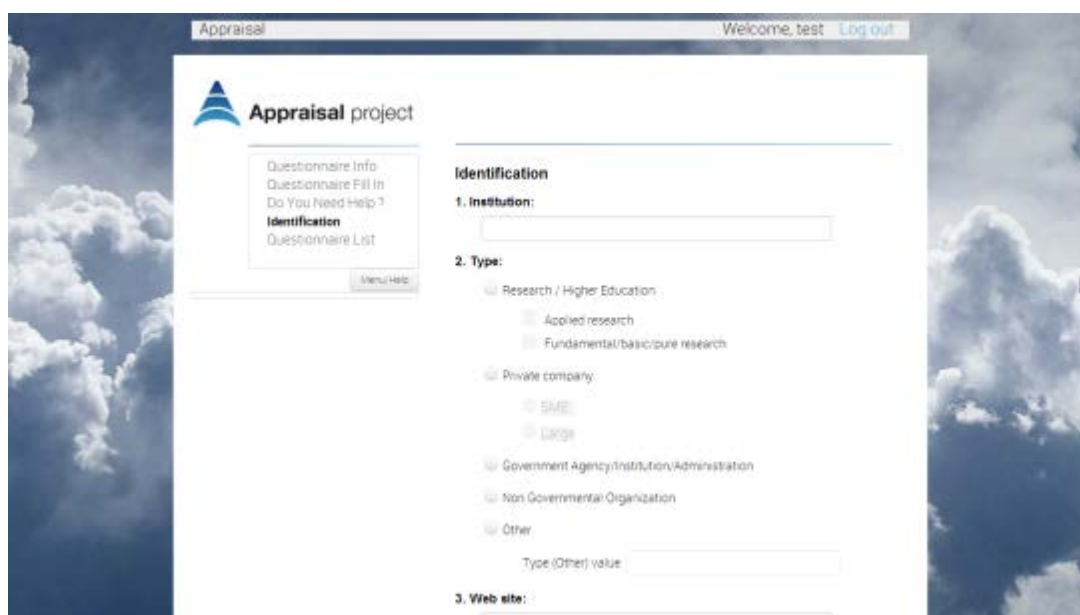


Figure 6: Identification screen.

Questionnaire List

In this section the user can view the list of questionnaires, their approval status and he/she can insert a new questionnaire (see Figure 7).

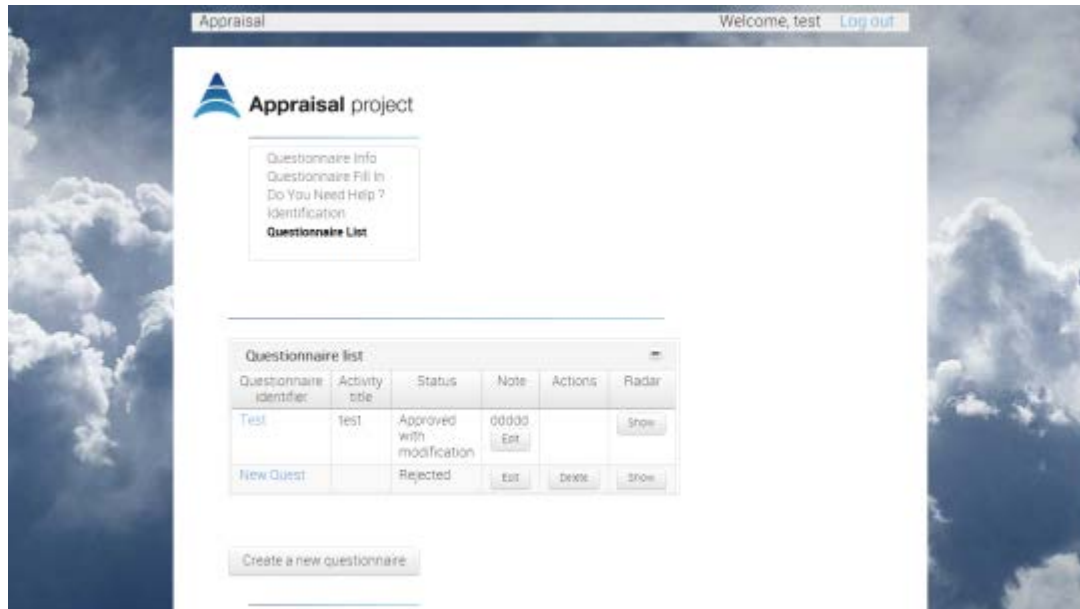


Figure 7: Editor user questionnaire list screen.

Clicking on "Submit a new questionnaire", the user is guided in the compilation of all the questionnaire sections (see Figure 8). The user can save each completed section by clicking on the "Save" button located at the bottom of each page. Once completed, the user must click on the "Submit" button to submit the questionnaire to the approval procedure (see Figure 9).

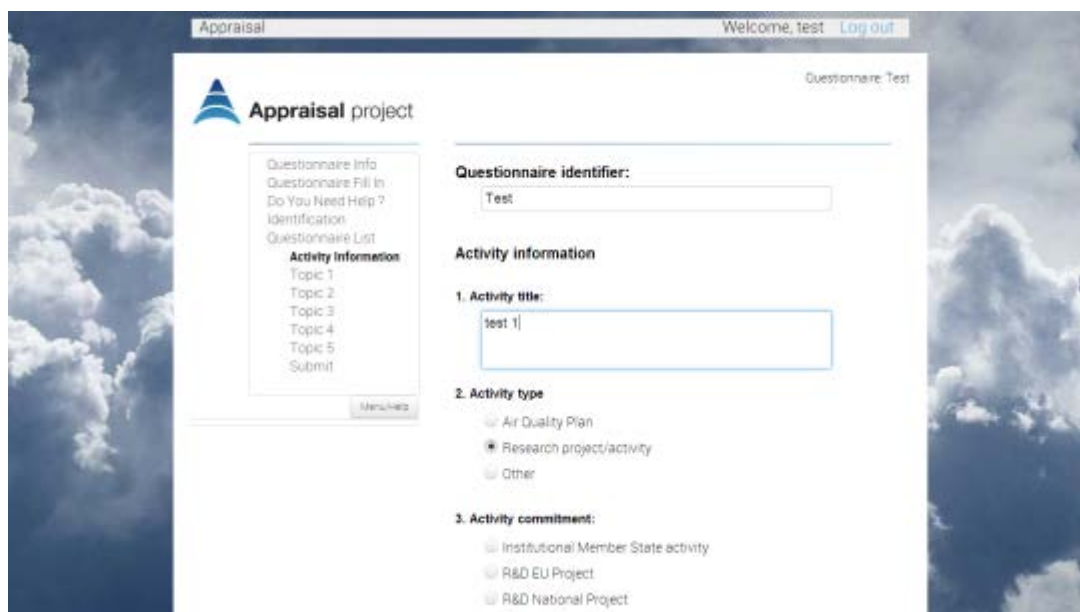


Figure 8: Questionnaire fill in screen.

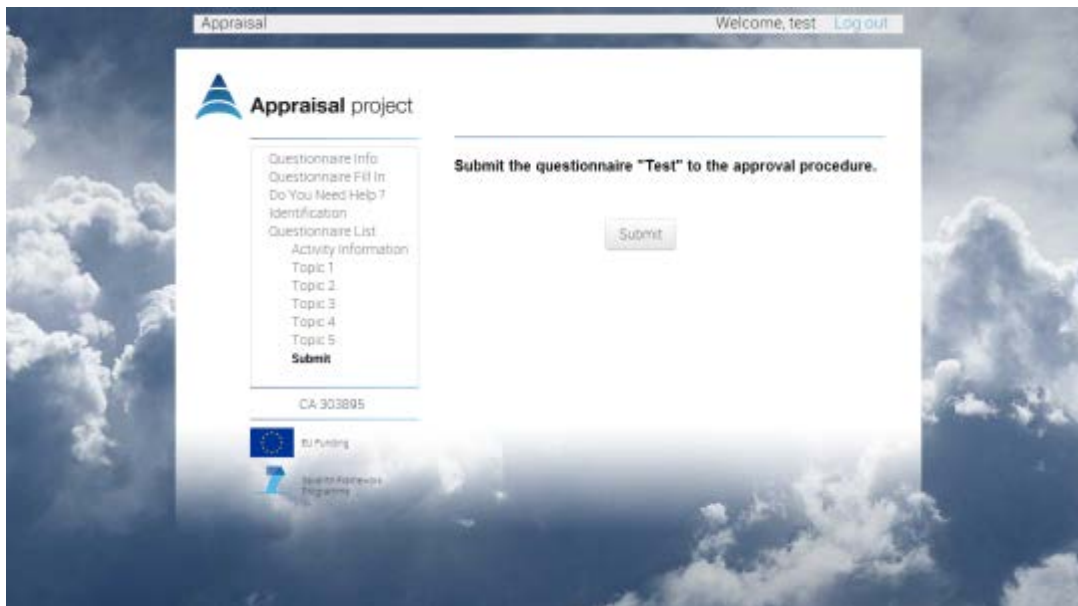


Figure 9: Questionnaire submitting screen

3.2. Reviewer user

In this section the Reviewer User can see the list of questionnaires submitted by the Editor Users (see Figure 10), view their contents (see Figure 11) and approve, approve with modifications or reject the individual questionnaires.

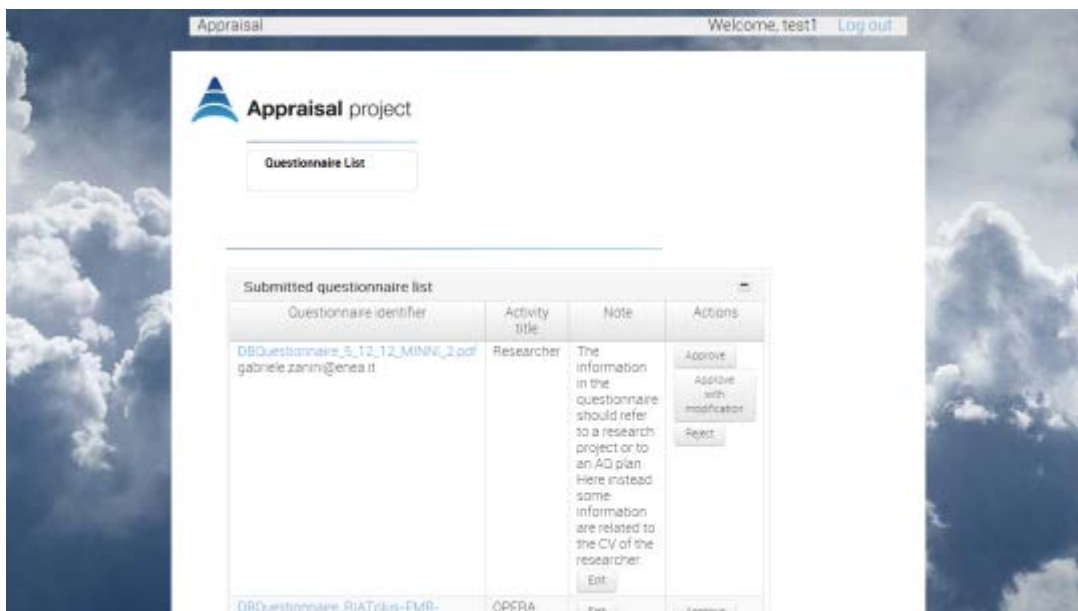


Figure 10: Reviewer user questionnaire list screen.

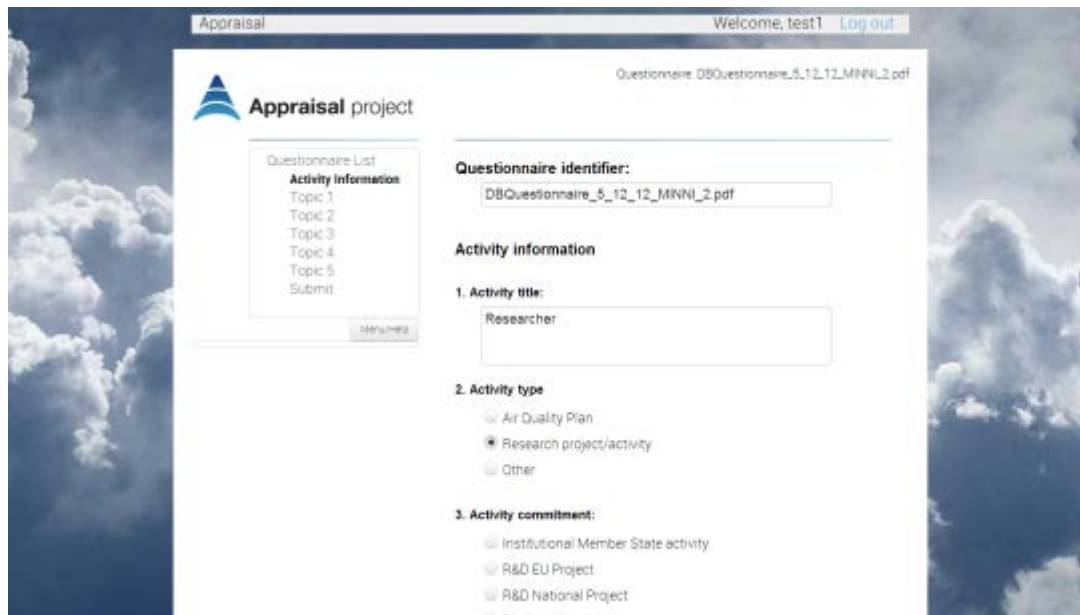


Figure 11: Questionnaire view screen.

3.3. Radar

The radar chart graphically represents the level of completeness of the answers in the selected questionnaire according to the DPSIR model. Consequently the questionnaires classification of completeness is split on five macro skills:

- Drivers (D)
- Pressures (P)
- State (S)
- Impact (I)
- Response (R).

For each of the five skills four levels of completeness have been defined:

- Level 0 - the skill is not included in the questionnaire analysed
- Level 1 - low
- Level 2 - medium
- Level 3 - high.

When it is not possible to assign a level of completeness of the answers in the questionnaire a no level is assigned.

Figure 12 shows an example of a radar chart build with data from a particular questionnaire. The assignment of the level for each skill is based on the answers given to specific questions: assignment rules for the different classes of completeness are listed in Table I (please refers to WP3 for details).

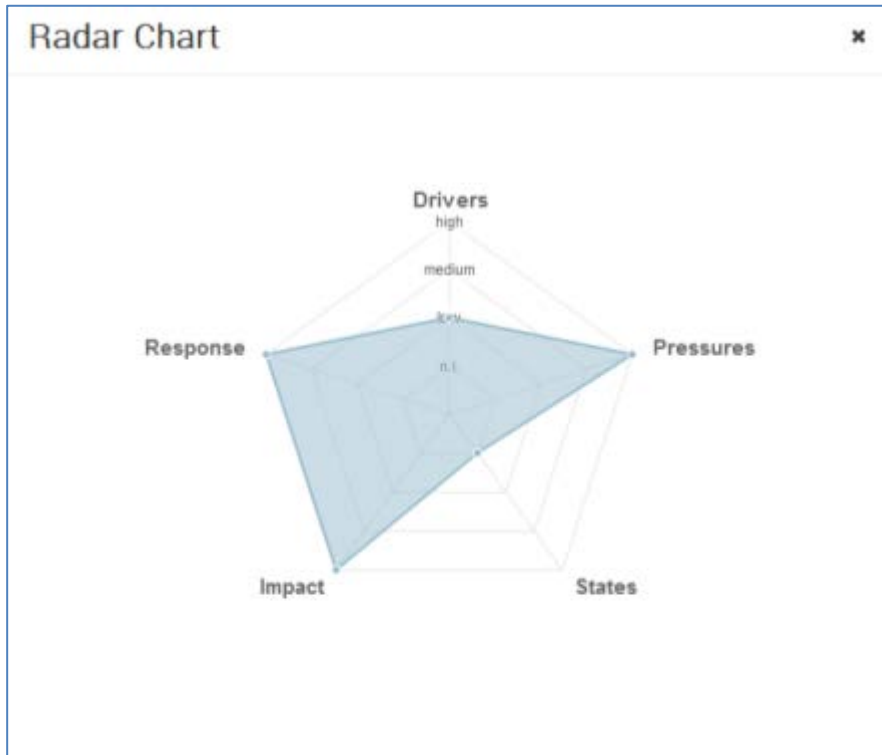


Figure 12: Example of a radar chart.

Table 1: Assignment rules for the DPSIR model completeness.

DPSIR	LEVEL	LEVEL DESCRIPTION (IN WP3)	QUESTIONNAIRE RELATED QUESTION (IN WP2)
D	LIV0	not implemented	Topic1, Question 2.1 oand 2.2 and 2.3 and 2.4 (no answer)
	LIV1	top-down approach, using coarse spatial and temporal allocation schemes	Topic1, Question 2.1 or 2.2 (any answer). No answer at 2.3 and 2.4
	LIV2	bottom-up approach with generic (i.e. national/aggregated) assumptions	Topic1, Question 2.3 (any answer). No answer at 2.4.
	LIV3	bottom-up approach with specific (i.e. local/detailed) assumptions	Topic1, Question 2.4 (any answer)
P	LIV0	not implemented	Topic1, Question 3 (no answer) and Topic2, Question 7.1 (no answer, for all models)
	LIV1	emissions estimated for rough sectors on a coarse grid (spatialization), using top-down methodology	Topic2, Question 7.2 ('top-down'). If at least one model with different answer, go to LIV2 or LIV3
	LIV2	combination of bottom-up and top-down methodology	Topic2, Question7.2 ('bottom-up' or 'combined') If more than 1 model, look at least for one answer like this.
	LIV3	emissions calculated with the finest space and time resolution available (fine grid), with the bottom-up method with the SNAP finest levels.	Topic2, Question 7.2 ('bottom-up' or 'combined') Topic2, Question 7.3bis ('local data' or 'traffic count...'). If more than 1 model, look at least for one answer like this.
S	LIV0	not implemented	Topic2, Question 4 ('none'). and Topic2, Question 9 (no answer)
	LIV1	measurements are used	Topic2, Question 4 ('none'). and Topic2, Question 9 (any answer)
	LIV2	one model is used or more models are used with the same grid	Topic2, Question 4 ('1 model') or Topic2, Question 4 (> 1 model with the same modelling grid)
	LIV3	a downscaling models chains is used	Topic2, Question 4 ('more than one model, with different modelling grid')
I	LIV0	not implemented	Topic3, Question 1 (no answer)
	LIV1	coarse description of exposure provided either by measurement or modelling of AQ (e.g. average mean annual exposure for a city), simple population description.	Topic3, Question 1 (any answer). and Topic3, Question 6.4 ("intake fraction" or "air quality... (interpolated) monitored data")
	LIV2	similar to level 1, but with spatial detail in the STATE description.	Topic3, Question 1 (any answer) and Topic3, Question 6.4 ("Air quality modeled data")
	LIV3	a detailed temporal and spatial resolution for exposure and	Topic3, Question 1 (any answer)and

		population data	Topic3, Question 6.4 ("Individual exposure data") or Topic2, Question 2 (other answers LIV1, LIV2, LIV3)
R	LIV0	no scenario analysis nor optimization	Topic2, Question 2 (no answer)
	LIV1	expert judgment and scenario analysis.	Topic2, Question 2 ('scenario analysis')
	LIV2	source apportionment and scenario analysis.	Topic2, Question 2 ('scenario analysis') and Topic4, Question 1 (any answer)
	LIV3	Optimization	Topic2, Question 2 ('cost-benefit' or 'cost-effect.' or 'MultiObj')

3.4. Help and Logout

By clicking on the "Menu / Help" button located in the left Menu, the user can view the help relating to the section is viewing. Figure 13 and Figure 14 illustrate the "Help" menu.

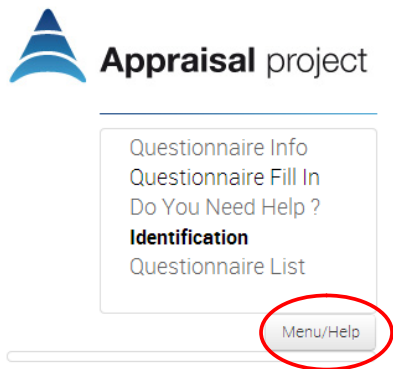


Figure 13: Help/Menu button screen.

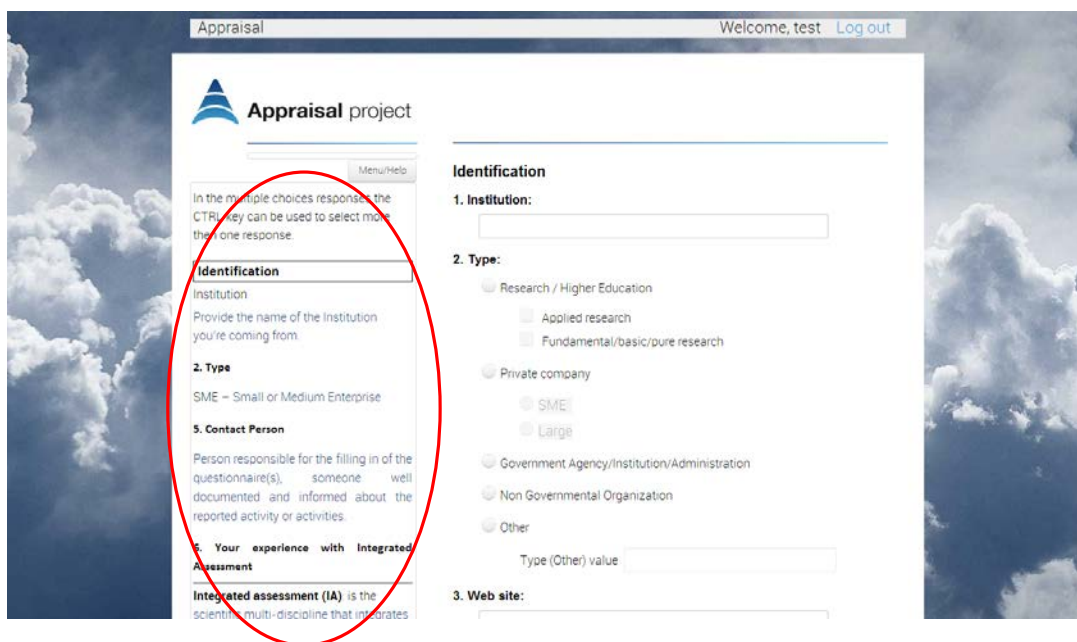


Figure 14: Help screen.

By clicking on the "Log out" button, on the right side of the website top bar (see Figure 15), the user can disconnect itself from the private area dedicated to the Appraisal project questionnaires.

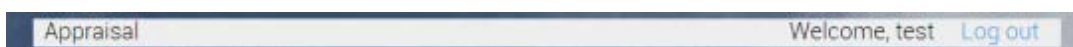


Figure 15: Log out screen.

4. Appraisal Questionnaire statistics

Once the questionnaire is approved by one of the Reviewers (see previous chapter), its data moves to the final questionnaire database to which is dynamically queried by the statics tool. This query statistics are publically available. Through the statistics (menu voice: Queries statistics) it is possible to analyse the answers given to every question, both open-ended and closed questions (see Figure 16).

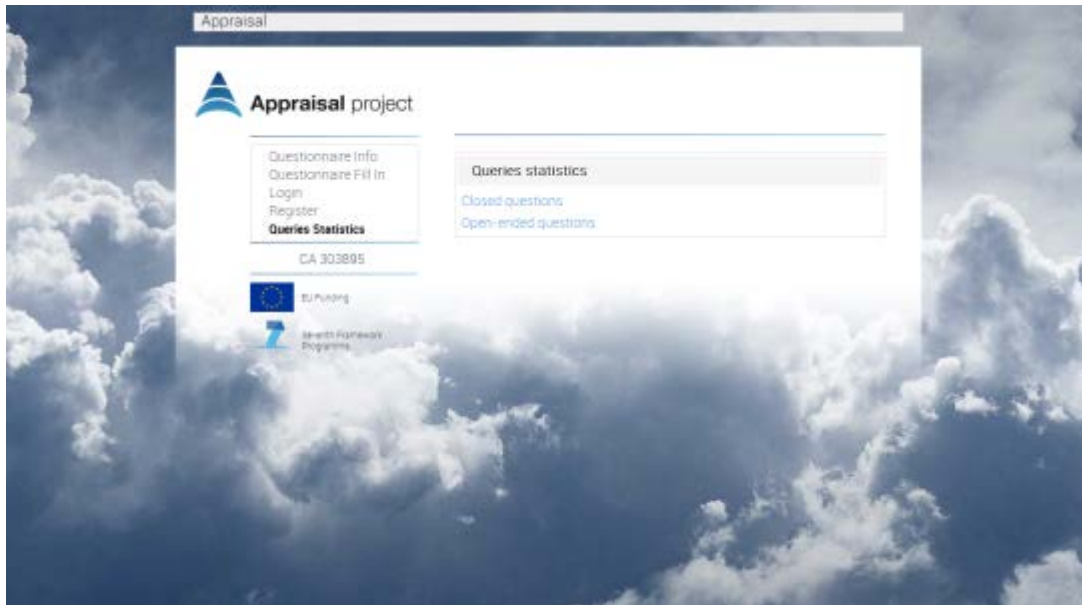


Figure 16: Queries statistics screen.

Moreover once a question has been selected it is possible to apply a filter (a condition to select the data) and therefore to analyse the different pattern of the responses to this specific question in relation to different conditions. Thus, at the end four different query types are possible:

- Closed questions (i.e. with closed answers)
 - Without filter
 - With filter
- Open-ended questions (i.e. with free answers)
 - Without filter
 - With filter

Figure 17, Figure 18 and Figure 19 provide different examples of the query statistics outcomes.

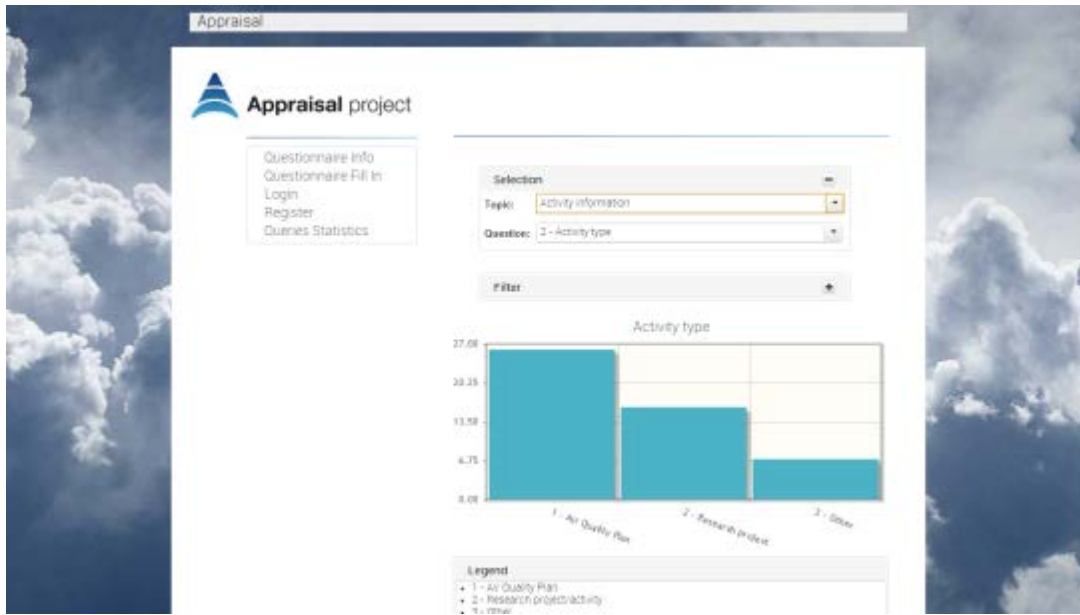


Figure 17: Queries statistics graphics screen (Closed questions).

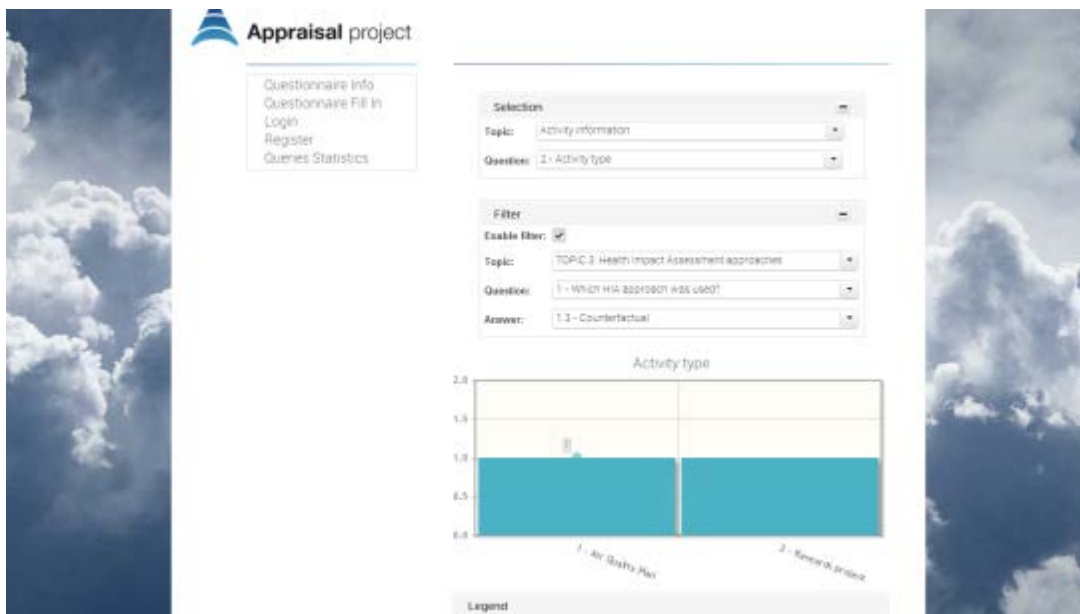


Figure 18: Queries statistics graphics screen (Closed questions) with filter.

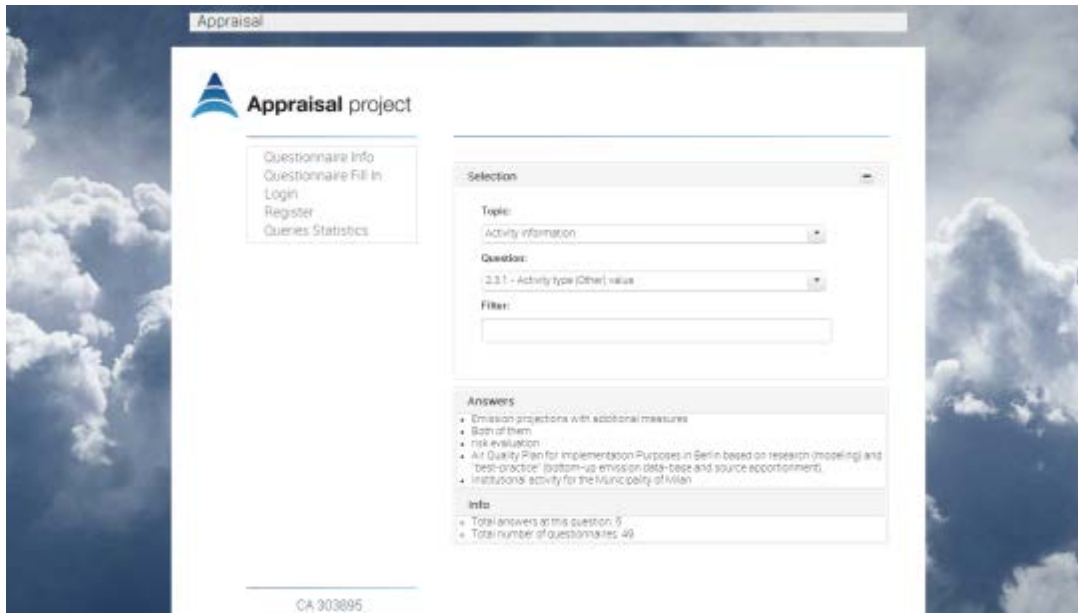


Figure 19: Queries statistics screen (Open-ended questions).

5. First conclusions

A collaborative multiple users tool to fill in the questionnaires and this way to load Appraisal database through the interaction between the editor and the reviewer has been implemented in the Appraisal project. This database aims collecting, in a common format, information on the different assessment methodologies for the air quality used in European Member States to identify the strengths and weaknesses in current practices and provide guidelines to users, to help in the assessment of the impact of local/regional air quality plans. A specific radar chart has been designed to graphically represent the level of completeness of the answers in the selected questionnaire according to the DPSIR model.

The online Web application will be maintained and supported during all the project lifetime helping to increase the questionnaires numbers and consequently the representativeness of the results.