



DESIGN OF AN OPINION QUESTIONNAIRE ABOUT URBAN TREES: CASE STUDY OF A WELL-KNOWN STREET OF MADRID

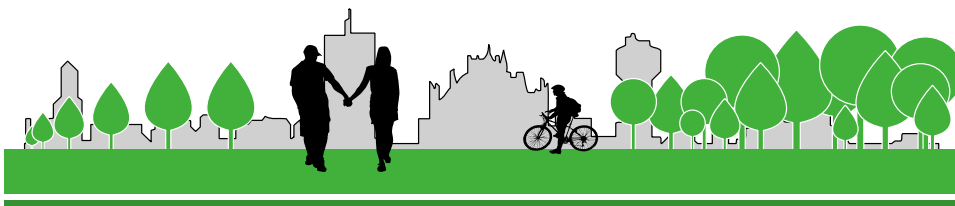
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INTRODUCTION

This study has used a detailed inventory of trees in P° de la Castellana in Madrid, between Nuevos Ministerios and Plaza de Castilla to establish the healthy and safety of leguminous trees, in particular of the species *Robinia pseudoacacia* and *Sophora japonica*. **This inventory was conducted at the request of the town hall.**

The conclusions of this inventory showed that there is a high density of this ornamental trees and in many cases they are nearing the end of their useful lives.

So, **this represents** that are found trees with

- a generalized deterioration syndrome
- an increase in sensitivity to illnesses
- a loss of aesthetic value

and even, in occasions

- trees may be a danger to people and properties (vehicles) by fallen or broken branches



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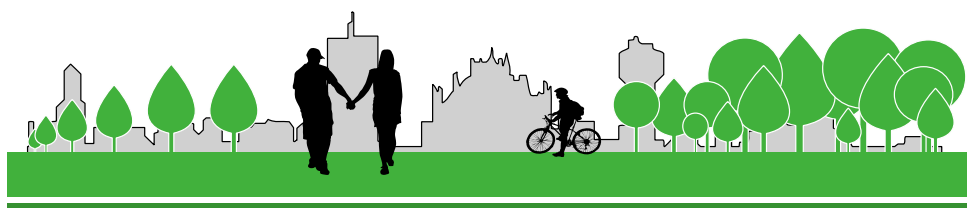
INTRODUCTION

Its management and maintenance is provided by the city Hall.

From conclusions of the inventory : It is necessary to start a renewal process and cut down some of the trees. This could improve the general aspect of the grove.

Moreover, citizens' opinions may go against any action on these trees, in particular those involve the removal of one or more of them, as it may be interpreted as an assault on the grove.

This is why it was decided to perform an opinion survey including different aspects of the presence of street trees, as well as management issues and improving of grove.



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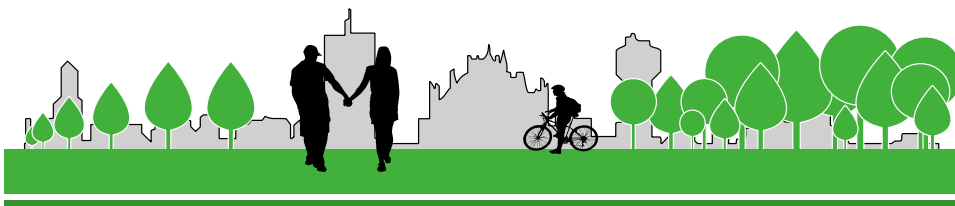
GOAL OF THIS STUDY

This communication shows the different stages and aspects of the questionnaire designed and the final questionnaire



With the results of the questionnaire will be intended :

- **To inform urban forest managers** in making decisions about the actions of maintenance of street trees which were of minimum impact in citizen's opinion.



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Questionnaire OBJECTIVES

The questionnaire was designed with the objectives:

Objective 1: Determine the user's perception of the situation and status of urban trees in the area (environmental benefits, hazardous trees, maintenance,...)

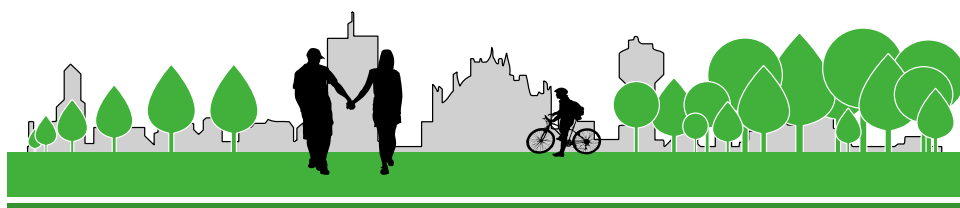


Objective 2. Determine the user's perception to actions already taken or resulting from a technical proposed.

Objective 3. Determine the user's perception over other types of actions on the green spaces: redesigning a zone, eliminating alignment although there are trees in good condition to replace them by other species more adapted, etc.

Objective 4. Select the actions of lower social impact (cutting, pruning, replacement of one species with another).

Objective 5. To know which are the opinions of the users (residents or transients) of the study area on issues of urban trees.

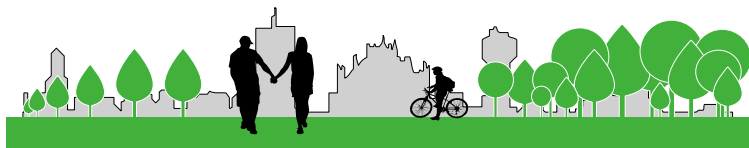
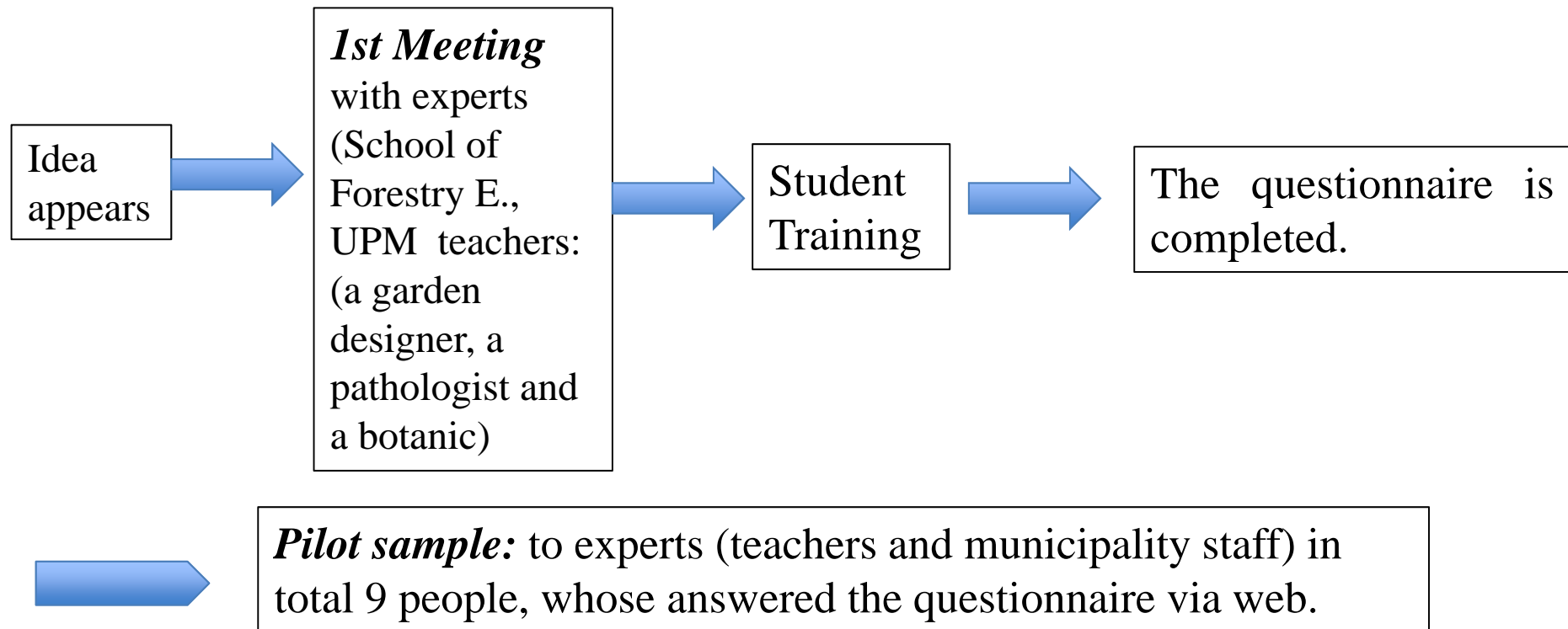


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DESIGNING THE QUESTIONNAIRE

This work has been carried out by a forest engineer student (1st author) and is part of their final project of degree.

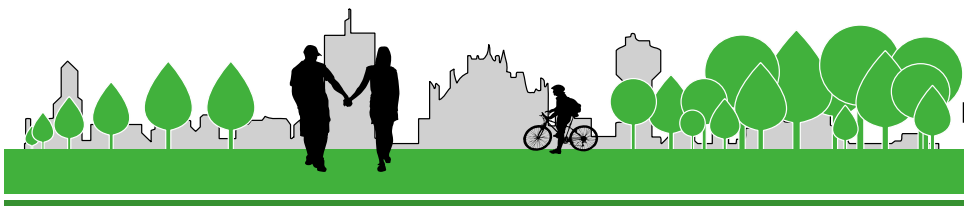
The process diagram:



DESIGNING THE QUESTIONNAIRE

Main features:

- ✓ The questions were written in a simple language, easily read or understood.
- ✓ The questions are referred in general to all species present in the Paseo.
- ✓ It has a total of 29 items.
 - 7 items of personal type (sex, age; studies level; economic level; any degree of knowledge on gardening, urban trees or environment; working profession; activity in relation with this avenue --resident, tourist, working reason, student, others--);
 - 5 (8 – 12) questions on their impression about aspects of urban trees and green spaces (one of them, item 8, with several photos of several angles of avenue) in the paseo.



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THE QUESTIONNAIRE: example, item 8



8. (Look at pictures) Your opinion on the number of trees in the Paseo de la Castellana is:

- A lot
- Enough
- Regular
- Few
- Very few



THE QUESTIONNAIRE: Main features

✓ 11 (13 – 23) questions about labours of maintenance such as pruning, cutting or substitution by another species.



18. The tree at image has been pruned, what do you think about?

- The pruning has been adequate.
- It would have been better its substitution.
- It would have been better let it as it was.

(season: winter – spring)



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THE QUESTIONNAIRE: Main features

✓ 4 (24 – 27) questions about preferences in the design of certain spaces for trees and species selection in case of cutting and substitution, for example,

27. What aspects are important when we select tree species alignment?

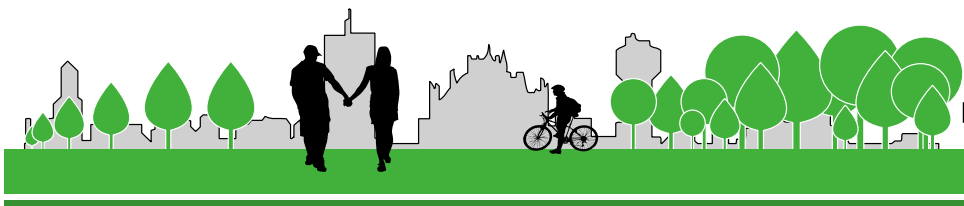
The resistance to pest and pathogens (general damages).

The space available necessary for its adequate development.

Maintenance cost.

Aesthetics.

Ability to provide shade.



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THE QUESTIONNAIRE: Main features

✓ 1 item (28) on payment of taxes.

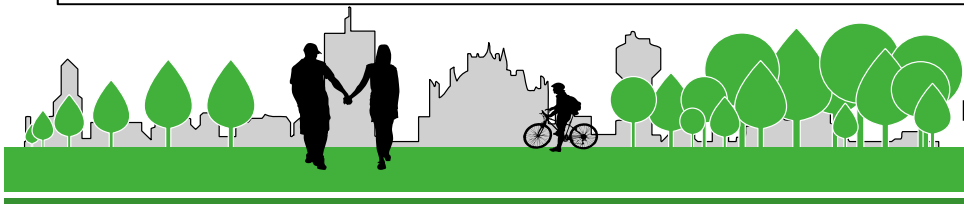
28. Would you be willing to a tax increase to improve the labours of management and maintenance of green areas in the city?

- Yes;
- Yes but if I am informed;
- No;
- No because I don't have information about;
- Indifferent.

✓ 1 item (29) about priority actions of conservation urban green spaces.

29. What actions would you give priority to conservation urban groves? (You may select several)?

- ___ Police surveillance.
- ___ Passive protection (fences, etc.).
- ___ Environmental education.
- ___ Others (specify).....



Final QUESTIONNAIRE with items and proposed Objectives:

	OBJETIVO 2.1	OBJETIVO 2.2	OBJETIVO 2.3	OBJETIVO 2.4	OBJETIVO 2.5
P8 - Considera que el número de árboles que hay en el Paseo de la Castellana es:	X				
P9 - Considera que la existencia de árboles y de espacios verdes como los del Paseo de la Castellana son beneficios para la vida en la	X				X
P10 - ¿Qué actividades proporcionan los árboles en el entorno urbano?	X				
P11 - Considera que el estado del arbolado del Paseo de la Castellana es	X			X	X
P12 - Cree que el arbolado de la zona presenta problemas en alguno de los siguientes aspectos?(funcionales,estéticos,seguridad...)	X	X		X	X
P13 - Los técnicos proponen labores de poda en el arbolado urbano ¿Cree necesario podar los árboles del Paseo y en general los de las zonas urbanas?		X		X	X
P14 - Si ha contestado afirmativamente a la respuesta anterior ¿Por qué es necesario podar?		X		X	X
P15 - ¿Cómo ha sido realizada la poda del Paseo?		X			X
P16 - Motive la anterior respuesta		X			X
P17 - Cree usted que las siguientes frases describen la situación de bastantes árboles del Paseo?		X	X	X	X
P18 - Respecto a las podas: al árbol de la foto fue necesario podarlo, ¿Ud. que piensa que hubiera sido mejor? (Ver foto)		X		X	X
P19 - Motivos de la anterior respuesta		X		X	X
P20 - En su opinión el siguiente árbol presenta un estado: (Ver foto)	X	X		X	X
P21 - Un técnico indica que el árbol necesita tratamiento ¿Qué tratamiento le aplicaría usted a dicho árbol?		X		X	X
P22 - Si la furgoneta blanca de la foto fuera de su propiedad, usted haría lo siguiente:		X		X	X
P23 - ¿Qué le parece el siguiente árbol?(Ver foto)	X	X		X	X
P24 - La siguiente foto muestra una alineación en la que se marcan con círculo naranja los árboles que deben ser sustituidos, de amarillo los que deben ser vigilados, y de verde los que pueden permanecer. Usted haría lo siguiente:		X		X	X
P25 - En un conjunto de árboles dañados del Paseo de la Castellana, hay un árbol antiestético y enfermo, pero que actualmente no presenta un peligro inmediato. Tiene gastos de mantenimiento anuales, aún sabiendo que habrá que eliminarlo, su presencia perjudica el desarrollo de otros ejemplares sanos. Cuál de las siguientes actuaciones elegiría :		X	X	X	X
P26 - ¿Qué especies le gustaría que se plantasen en el Paseo en el caso de sustituir a un árbol o en un alcorque vacío?		X			X
P27 - ¿Qué aspectos le parecen importantes a la hora de seleccionar la especie de los árboles de alineación?		X		X	X
P28 - ¿Estaría dispuesto a una subida de impuestos para la mejora en el desarrollo de las zonas verdes?				X	X
P29 - ¿Qué acciones podría considerar prioritarias para mejorar el mantenimiento de las arboledas urbanas?		X		X	X

It was checked that each question pick up one or more of the objectives set for the questionnaire

Type of Survey and Sample:

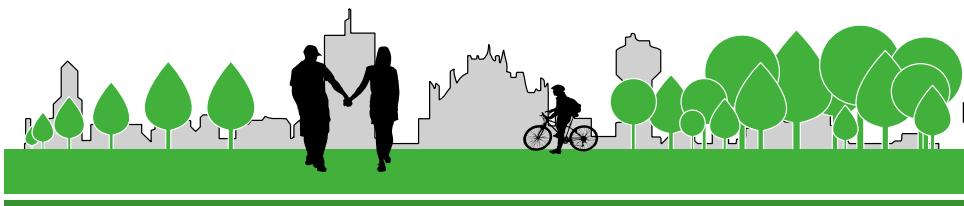
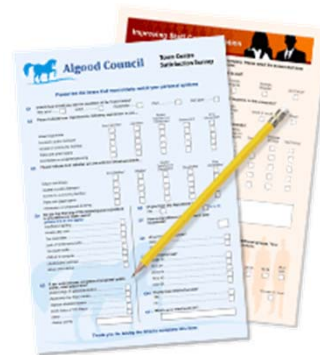
Personal interview



Web survey,
 $n = 9$ expert
people



The paper-based survey will conduct with employees of companies located or near the study area and also at street level in the study area.

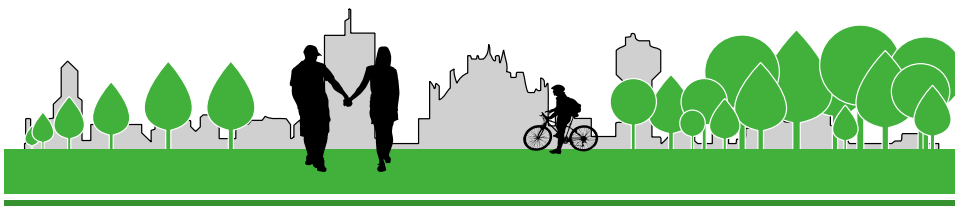
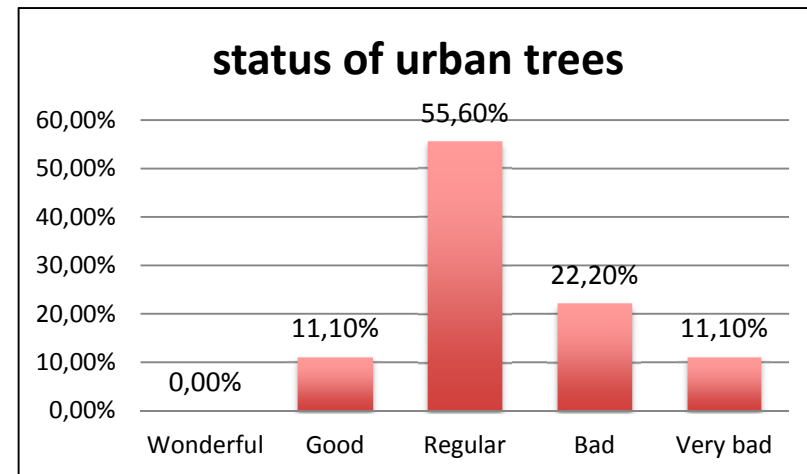
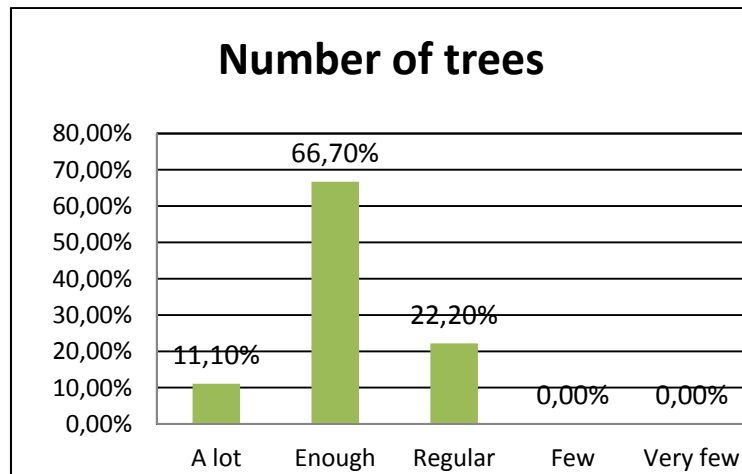


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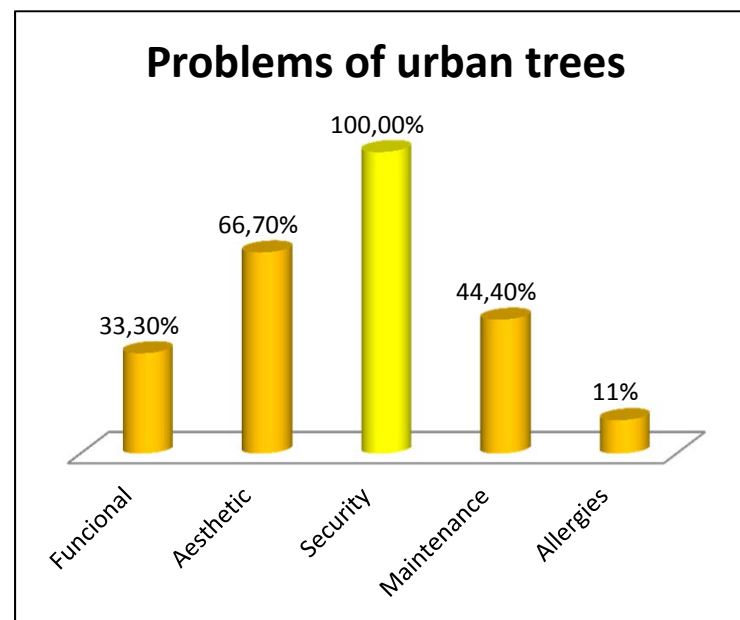
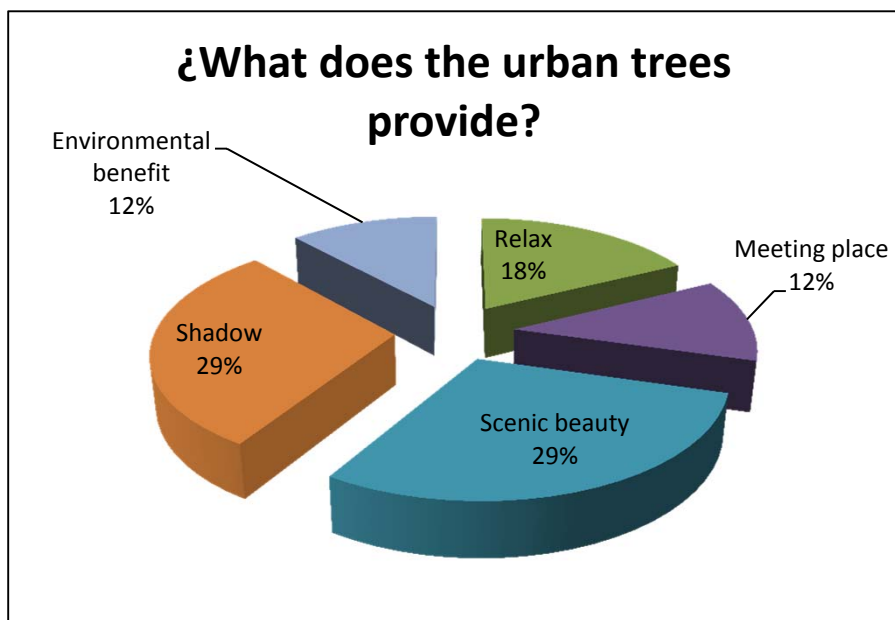
RESULTS from pilot sample (expert people)

- People who have a better knowledge of the topic think **the number of trees is high enough** but they are more **negative with the state of the trees**.

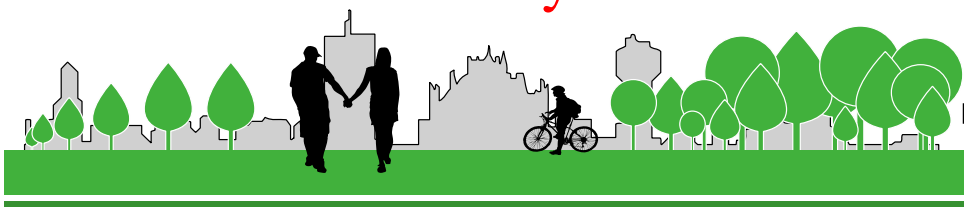


RESULTS from pilot sample (expert people)

The majority believe that trees in the study zone provide **scenic beauty and shadow** (29 %).

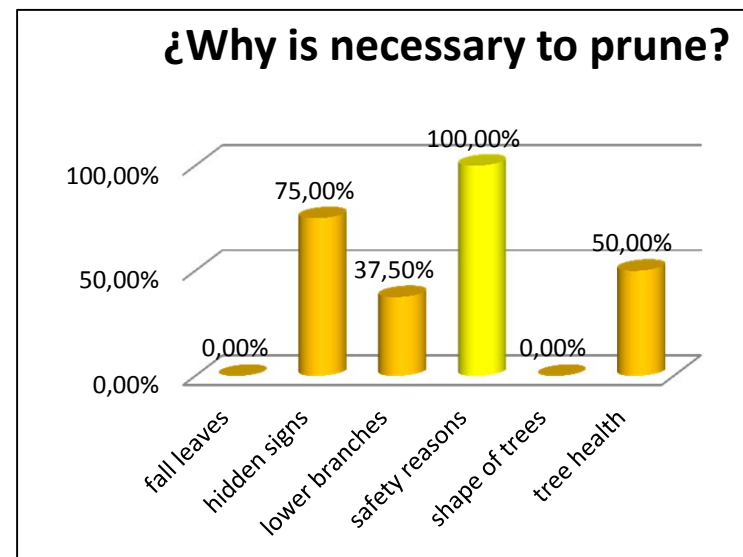


about if the urban trees in the area presents problems in any of several aspects (functionals,) -*multiple response* , *select until 3-*, **all of them are very concerned about security problems.**



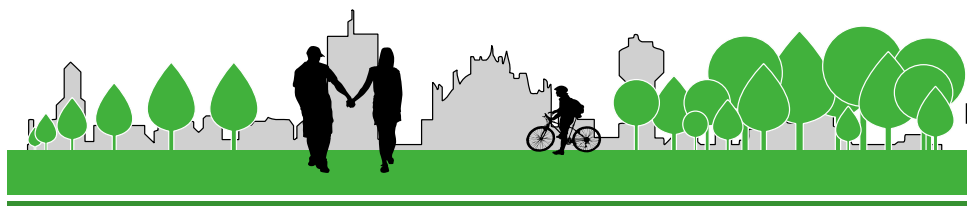
RESULTS from pilot sample (expert people)

In question 14, of multiple responses with option to select several alternatives (until 3), all of them choose that **pruning** is done for “**safety reasons**”, besides by “**hide traffic signals**” and “**tree health**”.



Moreover, they agree more to cut and replace trees:

When is an alignment they think that is better “**Cut and replace hazardous trees and that require vigilance because only cause maintenance costs**”



CONCLUSIONS

With respect to the responses of experts of this **sample pilot**:

- People who have a better knowledge of the topic think the number of trees is high enough but they are more negative with the state of the trees.
- They also believe that the trees provide scenic beauty and shadow and are very concerned about security problems and agree more to cut and replace.

With respect the **questionnaire**

- ❖ In general, it is recommended transform answers to Likert scale to facilitate its statistical analysis.
- ❖ Avoid questions with multiple answers and multiple choice options, for example:
 - ❖ simplify answers: eliminating no essential options
 - ❖ separating each possible answer in an only question with numerical options of preference (Likert scale).
 - ❖ Eliminate some items that, perhaps do not provide interesting information.



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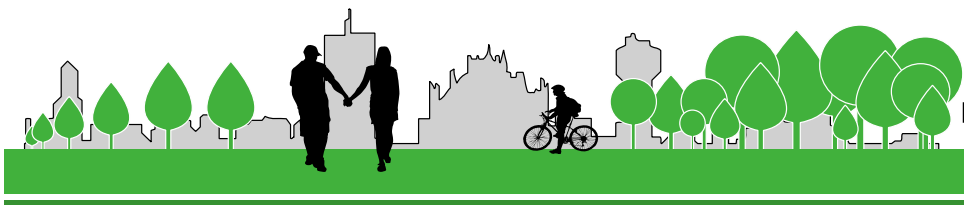
Thank you for your attention

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