



**LIFE16 ENV/IT/000553**

## **LIFE RESPIRE SOCIO-ECONOMIC REPORT**

Action and title	Socioeconomic report
Beneficiary responsible	all
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## 1. INTRODUCTION

The socio-economic impact of the RESPIRE project is based on the perception of the hazard and related risk for human health from indoor radon and on the evaluation of potential interest in the RESPIRE product by citizens and the project's industrial partner.

## 2. MAIN RESULTS FROM QUESTIONNAIRE, RESPIRE PUBLIC EVENTS EXPERIENCE AND BUSINESS PLAN.

The perceptions of the community about how indoor radon risk and hazard can affect and impact their lives is very important and has to be taken into account when conducting a socio-economic impact assessment. Results were useful to design dissemination activities aimed at improving awareness of radon hazard and knowledge of risk mitigation actions.

The LIFE RESPIRE project conducted a campaign to explore these aspects using a questionnaire compiled by INGV researchers. The questionnaires were distributed to a total of about 600 persons, with different modalities due to the fact that during the COVID 19 pandemic it was not possible to interact with the public. The questionnaire measures, among other aspects:

- knowledge of the hazard and hazard mitigation strategies;
- sources of received information about the hazards and preferred methods of receiving such information;
- willingness to put in act remediation measures;
- risk perception - ratings of both the likelihood and severity of the impact of the hazard as well as one's level of anxiety and feelings of personal vulnerability to the effects of radon;
- feelings of self-efficacy - feelings of control regarding one's ability to protect him/herself and his/her family from the effects of the hazard;
- perceived preparedness of, and trust in, officials - confidence in the government's level of preparedness and in the ability of government officials, scientists and the media to provide accurate information about the hazard;
- demographic questions - gender, age, the highest level of education achieved, etc.
- technical information related to the building where respondents live

Based on the results from the performed campaigns, the main observation is the very low perception of radon risk in the tested populations of the involved municipalities, and that in general this is due to a scarce information conveyed on the radon issue. Citizens recognize the crucial role of local authorities, identifying them as a trustworthy, well-prepared source of information on radon risk. This also highlights the need, as identified by the citizens, that local Authorities are the leader in radon risk mitigation strategies. The action of the RESPIRE project

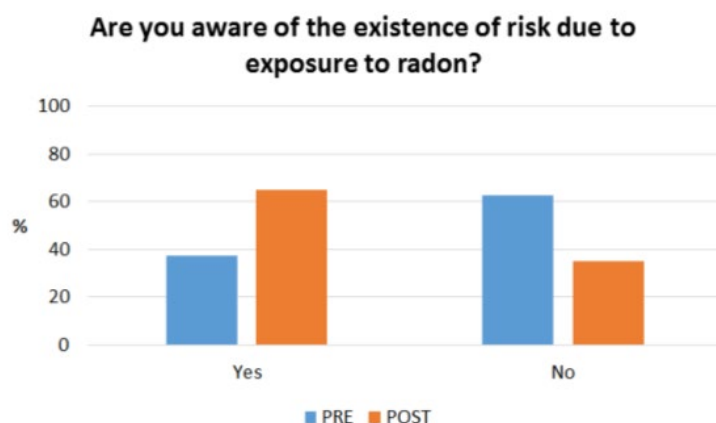
helped improve this perception through various information campaigns. These results would be further enhanced if repeated using different channels, including directly involving residents in public meetings, as the RESPIRE project has already done with the public events.

An increase in the perception of indoor radon risk were illustrated by the pre/post survey performed by the Respire team, which showed how a correct information action can lead to a better understanding about risks and remediation systems. These results show an almost doubling of positive answers about respondents' knowledge of radon hazard and risk (knowledge of natural radioactivity, prolonged radon inhalation's damages, and radon exposure as a risk and a relevant cause for cancer), which highlights the impact of information on radon risk mitigation. Below we summarize the results of the three main questions related to this aspect. In the following histogram plots, the blue bars represent the answer distribution before the information action while the orange bars represent the answers after.

Ciampino: 250 questionnaires distributed (191 pre + 59 post meetings; 246 questionnaires)

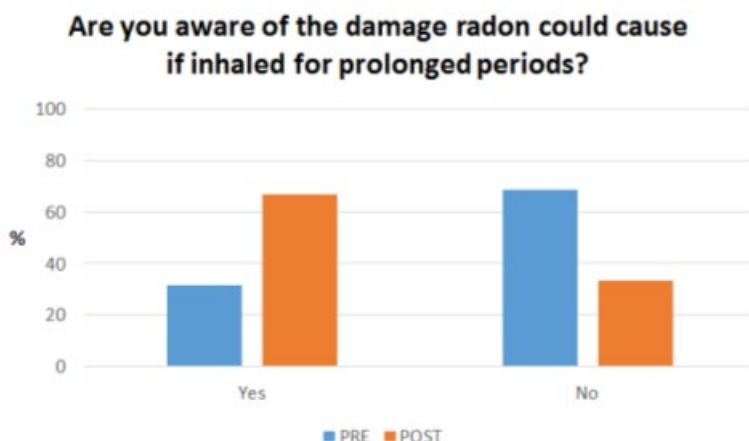
Are you aware of the existence of risk due to exposure to radon?

	Yes	No	% Yes	% No	N
PRE	70	117	37,4	62,6	187
POST	37	20	64,9	35,1	57



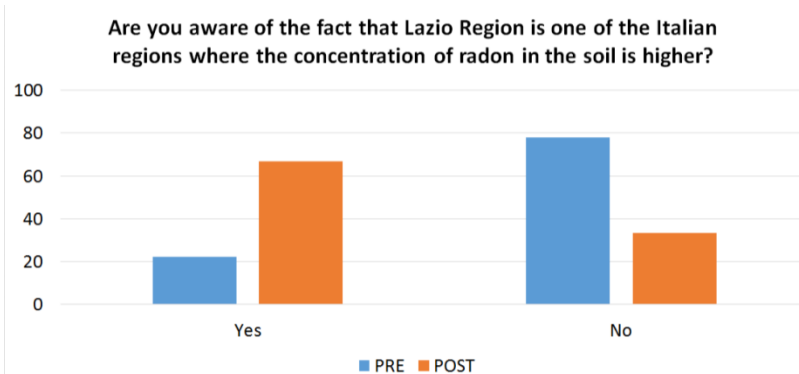
Are you aware of the damage radon could cause if inhaled for prolonged periods?

	Yes	No	% Yes	% No	N
PRE	58	127	31,4	68,6	185
POST	38	19	66,7	33,3	57



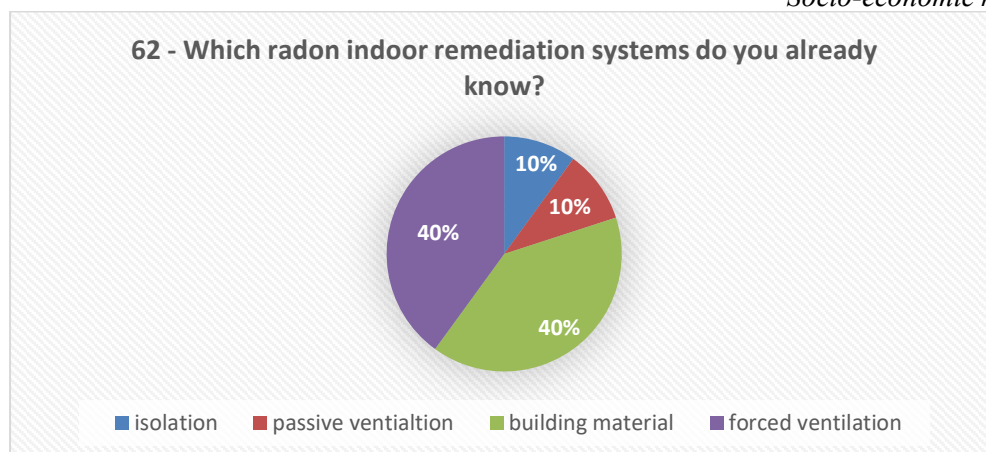
Are you aware of the fact that Lazio Region is one of the Italian regions where the concentration of radon in the soil is higher?

	Yes	No	% Yes	% No	N
PRE	41	144	22,2	77,8	185
POST	36	18	66,7	33,3	54

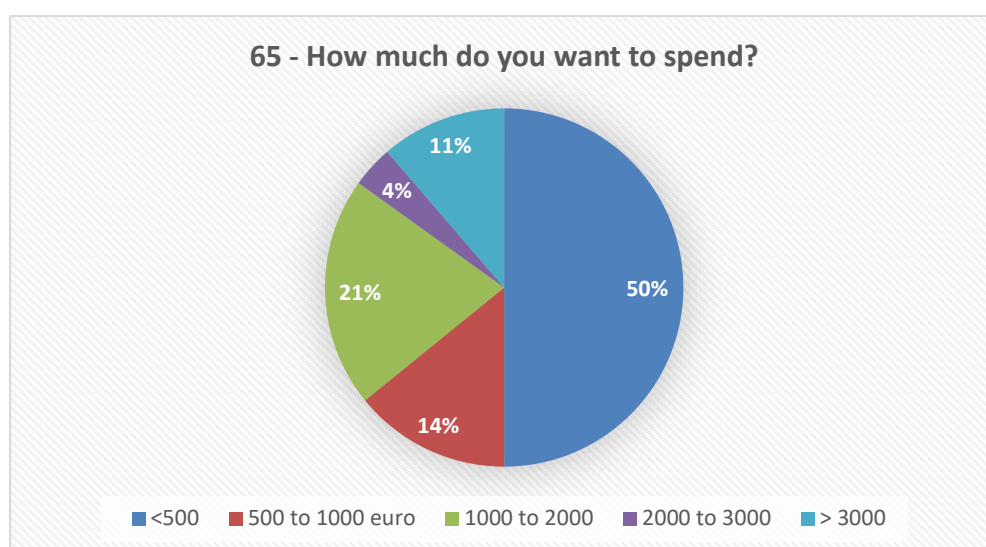


Ten questions were added in the questionnaire to explore the potential market for the R3S. The sample in this case was composed of 186 persons between 20 and 90 years old.

Considering the results from these questions, it is clear that a very small number of people were informed about potential remediation systems (about 3%). Among the remediation systems proposed (underground isolation, passive ventilation, specific building material and forced ventilation), the few people that are familiar with remediation systems indicated that forced ventilation is the best known, as is possible to see from the survey results in the graph below.

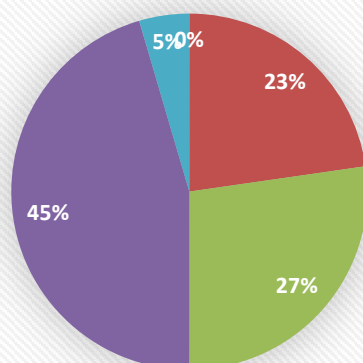


In general, people showed interest both in monitoring and remediation systems of radon but mainly if the costs remain limited (lower than 500 euro).



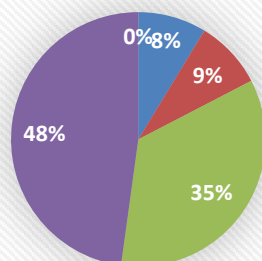
Although costs remain one of the main critical aspects, people in general showed interest for the R3S, and highlighted that adaptability and affordability are the main important aspects that increase interest. It was also asked, if the RESPIRE remediation system were already available today, how likely would they recommend it to other people, and most answered very likely.

**67 - If R3S were available do you choose it for your house?**



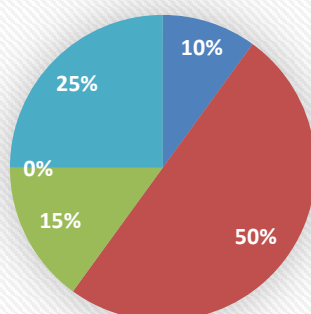
■ not likely at all ■ unlikely ■ moderately likely ■ likely ■ very likely

**69 - If R3S were available, do you suggest it to other people?**



■ not likely at all ■ unlikely ■ moderately likely ■ likely ■ very likely

**70 - What do you like of the R3S?**



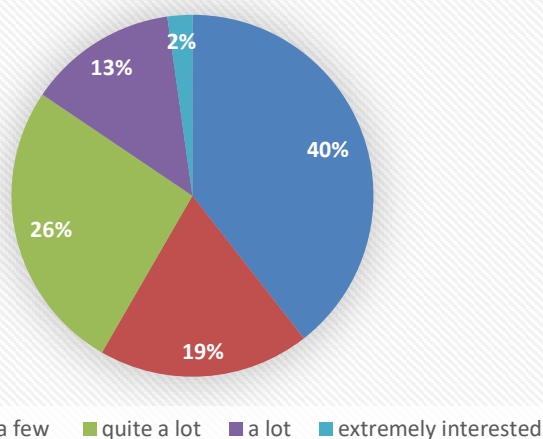
■ cheap ■ adaptability ■ low energy consumption ■ esthetic ■ affidability

Even for these kinds of questions, the RESPIRE team observed a general increment of interest during dissemination events, as also illustrated by the high number of people that participated to the long-term monitoring phase in all the three involved municipalities (about 400 households people). Regarding the potential to adopt a radon remediation system in their own houses, citizens expressed the willingness to implement remediation measures, but strictly connected to

the financial cost of these risk mitigation actions. In fact, questionnaire data analysis shows that most people would give high importance to the costs.

The research also showed that most people are quite interested about the results of the remediation system proposed by the LIFE RESPIRE project to maintain indoor radon levels below those established by the 2013/59 Euratom Directive. For many people the cost is important in choosing the type of remediation to be adopted, and it was also important to reduce installation costs and reduce energy consumption. It is important to note that many people were curious or very curious to know more about the RESPIRE remediation system.

**72 - generally are you interested to the result of R3S ?**



**72 - how much are important the cost?**

