



Special Eurobarometer



European
Commission

Radioactive waste

Summary

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INTRODUCTION

This survey was carried out by TNS Opinion & Social interviewing 24 708 citizens in the 25 Member States of the European Union between 9 February and 20 March 2005. **The objective of this study is to analyse the opinion of European Union citizens on the subject of nuclear energy, and radioactive waste in particular.**

It should be noted that two studies have previously been carried out on this subject in the Europe of 15, in late 1998 and late 2001¹. However, the questionnaires used for these surveys have been adapted to reflect cyclical needs, with the aim of identifying the main trends.

This summary considers the **following subjects**, which are **examined** in more detail in the report:

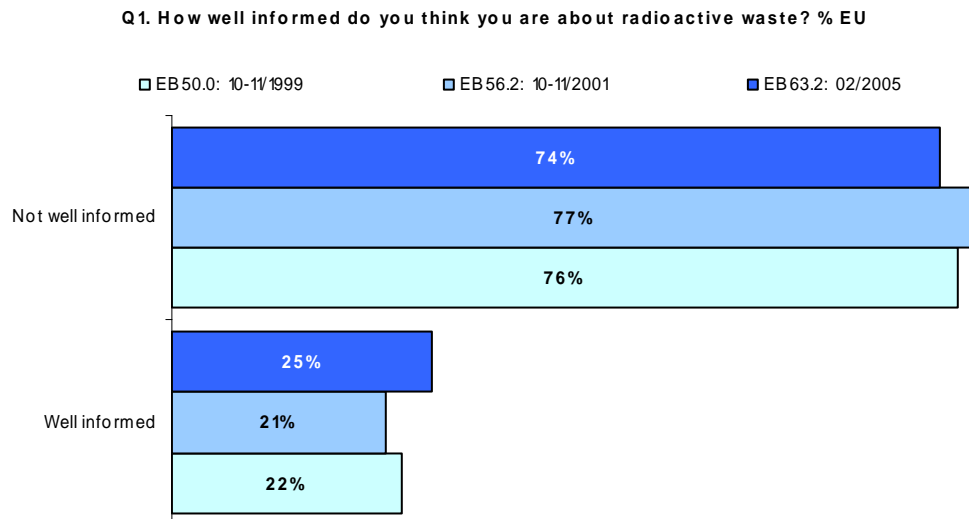
- ◆ The perception of citizens of the European Union on the subjects of radioactive waste and nuclear energy
- ◆ The risks involved in radioactive waste
- ◆ The management of radioactive waste
- ◆ The final disposal of highly radioactive waste
- ◆ The European dimension of the management of radioactive waste

1. The perception of radioactive waste and nuclear energy

1.1. The level of information about radioactive waste

*- A low level of information,
but rising slightly -*

At the beginning of 2005, **three-quarters** of citizens of the European Union felt that they were 'not well-informed' about radioactive waste (74%). In parallel, a quarter of respondents stated that they were well-informed on this subject (25%). This represents a slight rise in the number of well-informed citizens by comparison with four years ago (+4 points).



¹ EB 50.0 – EB Special 122 carried out in October-November 1998
 EB 56.2 – EB Special 165 carried out in October-November 2001
http://europa.eu.int/comm/public_opinion/archives/eb_special_en.htm

The profile of citizens of the Union stating that they are well informed on this subject corresponds to that of:

- ◆ A man,
- ◆ A person over 40 years old,
- ◆ A respondent having studied until at least the age of 20,
- ◆ A citizen politically speaking rather to the left or right than in the centre,
- ◆ An executive or business manager,
- ◆ A person living in a large town.

An additional comparison of this question with the level of support for nuclear energy in general indicates that citizens favourable to this type of energy tend to feel better informed than its opponents (35% vs. 20%).

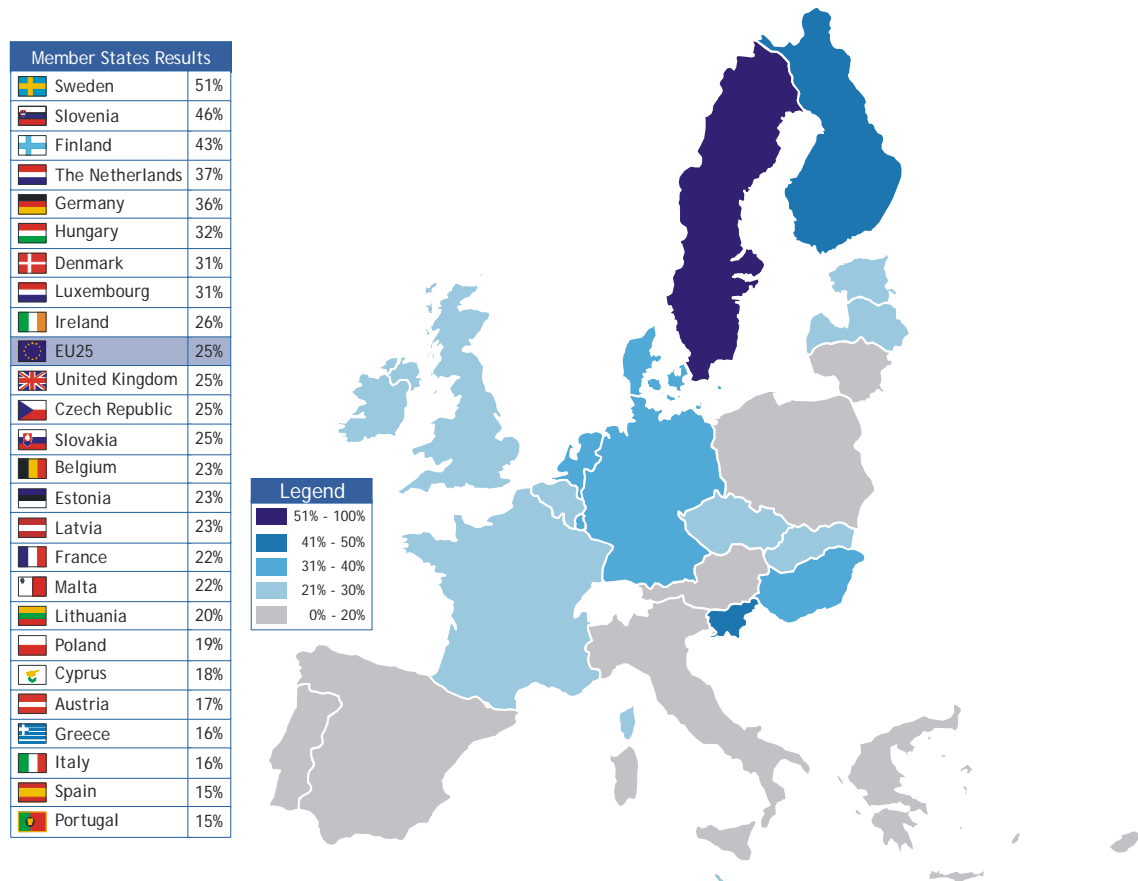
Within the European Union, citizens in **Sweden** seem best informed about radioactive waste: one respondent in two in this country felt well-informed (51%). However, everywhere else, the level of information is decidedly lower and only a minority of the people interviewed felt well-informed.

In **Slovenia** and **Finland**, however, more than four respondents in ten felt well-informed about this subject (46% and 43% respectively).

Fewer than one citizen in five felt well-informed about radioactive waste in **Poland** (19%), **Cyprus** (18%), **Austria** (17%), **Greece** (16%), **Italy** (16%), **Spain** (15%) and **Portugal** (15%). The southern countries in the Union thus seem to suffer particularly from a lack of information in this area.

Q1 How well informed do you think you are about radioactive waste?

Answers: Well informed

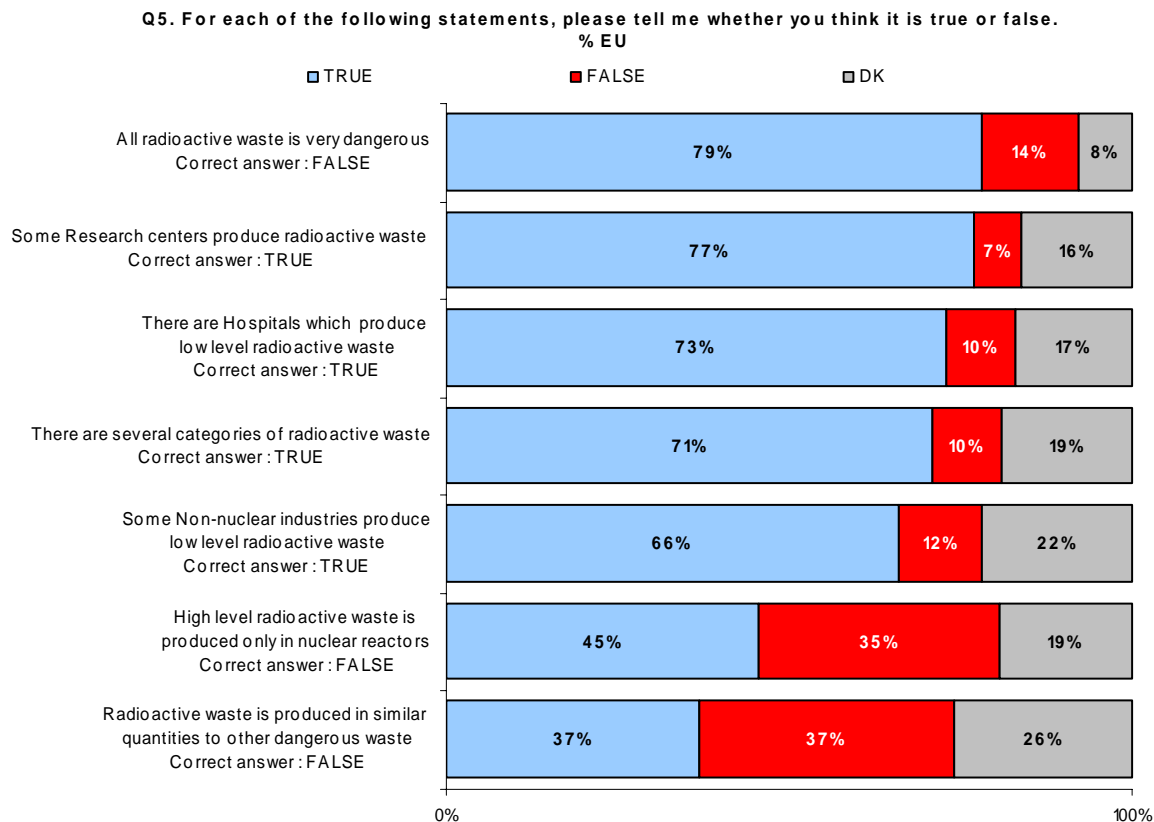


1.2. Actual knowledge about radioactive waste

- Eight respondents out of ten considered that all radioactive waste is very dangerous -

Among the seven statements tested on interviewees, we observed a very low level of knowledge about how dangerous radioactive waste is. 79% of citizens of the European Union think that all radioactive waste is very dangerous, although this statement is false. Only 14% gave the right answer.

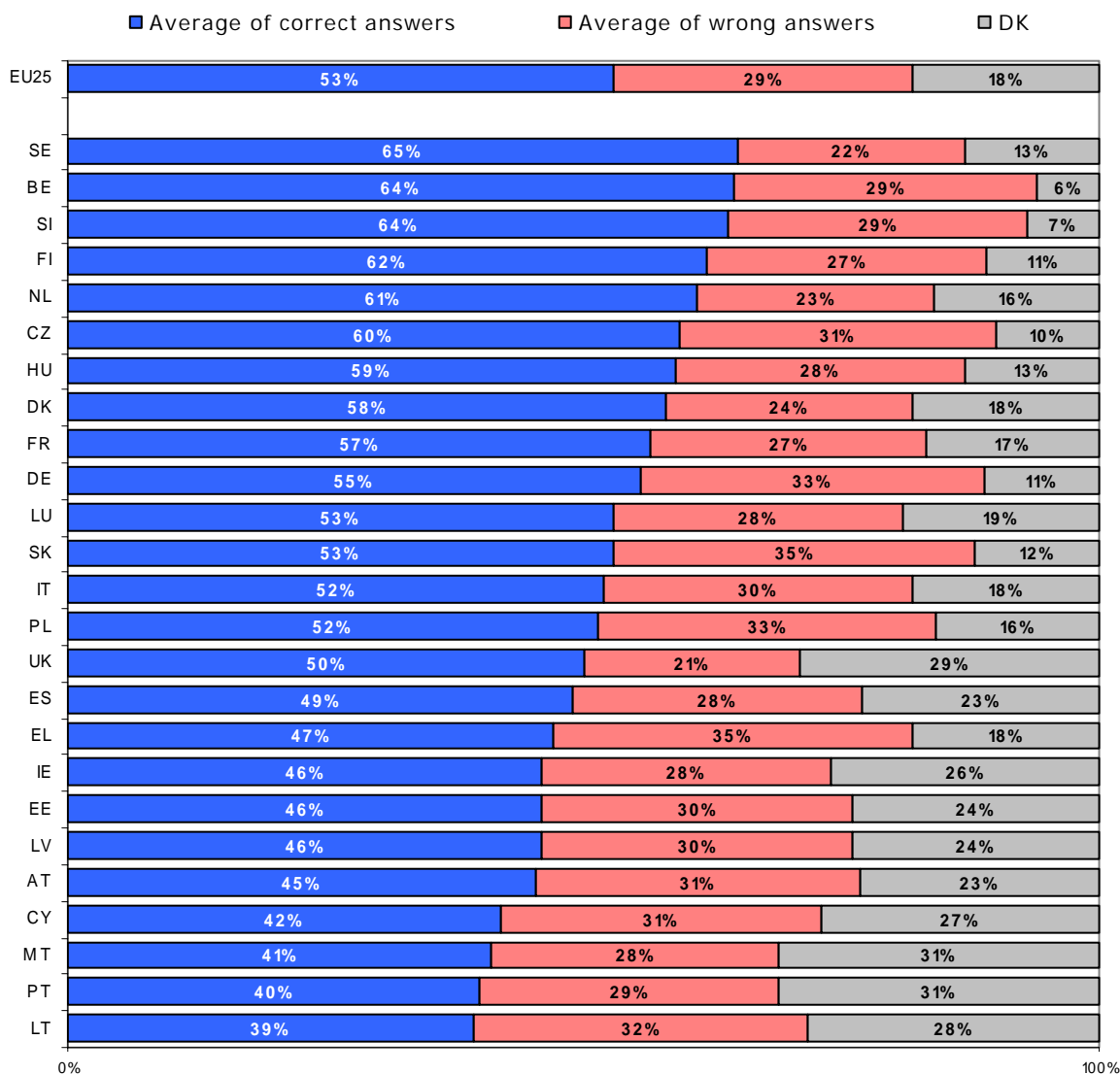
Next, more than seven out of ten citizens correctly identified the fact that certain research centres produce radioactive waste (77%) and that hospitals produce low level radioactive waste (73%). Also 71% of respondents recognised that there are several categories of radioactive waste. Furthermore two-thirds of interviewees think, rightly, that some non-nuclear industries also produce low level radioactive waste (66%). In contrast, only a minority of respondents know that highly radioactive waste is not solely produced by nuclear reactors (35%). Finally, 37% of citizens of the European Union believe that radioactive waste is produced in a similar quantity to other dangerous waste, while 37% think the opposite.



According to the analysis of the average responses given for the seven statements in this quiz across the European Union, the average of correct answers reaches 53%, the average of incorrect answers 29% and the average percentage of 'don't knows' is 18%.

Citizens achieving a higher average of right answers are found in **Sweden** (65%), **Belgium** (64%), **Slovenia** (64%), **Finland** (62%), **the Netherlands** (61%), and the **Czech Republic** (60%). Conversely, respondents seemed on average to be less familiar with this subject in **Cyprus** (42% right answers), **Malta** (41%), Portugal (40%) and **Lithuania** (39%).

Q5. AVERAGE OF ANSWERS MENTIONED AT THE 7 ITEMS



Analysed by socio-demographic variables:

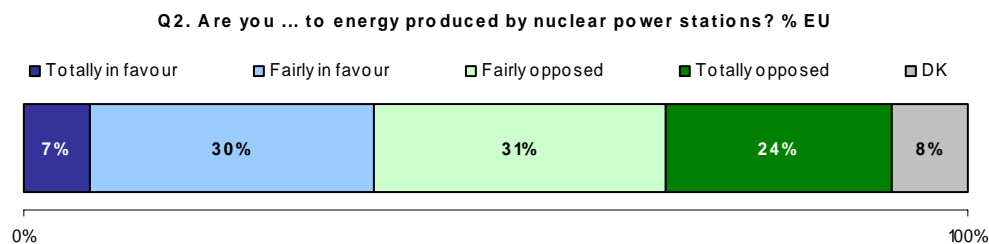
- ◆ On average, more men provide the correct answer, while more women give no response;
- ◆ Citizens aged 55 and record a lower average of right answers, but a higher average of 'don't knows';
- ◆ The higher the level of their education, the more citizens' average of right answers rises;
- ◆ The occupational category of managers seem the best informed on the subject of radioactive waste; while the average non-response rate is highest among persons staying at home full-time and the retired;
- ◆ Respondents living in an urban environment are generally more likely to give the right answer;
- ◆ Citizens who regard themselves as well informed about radioactive waste demonstrated, on average, better actual knowledge of this subject. However, the rates of wrong responses appeared similar for citizens who say they are well informed and those who believe themselves to be not well informed. The latter registered a higher average percentage of non-responses;
- ◆ Finally, citizens in favour of nuclear energy record a higher average of correct responses by comparison with opponents of this type of energy.

1.3. The level of support for nuclear energy

- A minority of interviewees in favour of nuclear energy -

Across the European Union, 7% of interviewees say that they are totally in favour of energy produced by nuclear power stations, while 30% are 'fairly' in favour of it (total 'in favour': 37%).

Among opponents, 31% of the people interviewed say they are 'fairly opposed' to energy produced by nuclear power stations while 24% state that they are 'totally opposed' (total opposed: 55%).



The socio-demographic characteristics of respondents plays a certain role in their opinion regarding nuclear energy:

- ◆ Although 46% of men expressed a favourable opinion towards this type of energy, this was true of only 29% of women (a differential of 17 points);
- ◆ More citizens who have had a shorter education tend to oppose nuclear energy;
- ◆ Citizens positioning themselves politically speaking on the right seem more likely to support nuclear energy, while supporters of the left tend to oppose it;
- ◆ More professionals or business managers support this type of energy, in contrast to people staying at home full-time;
- ◆ Citizens who are well-informed about radioactive waste appear more likely to support nuclear energy;

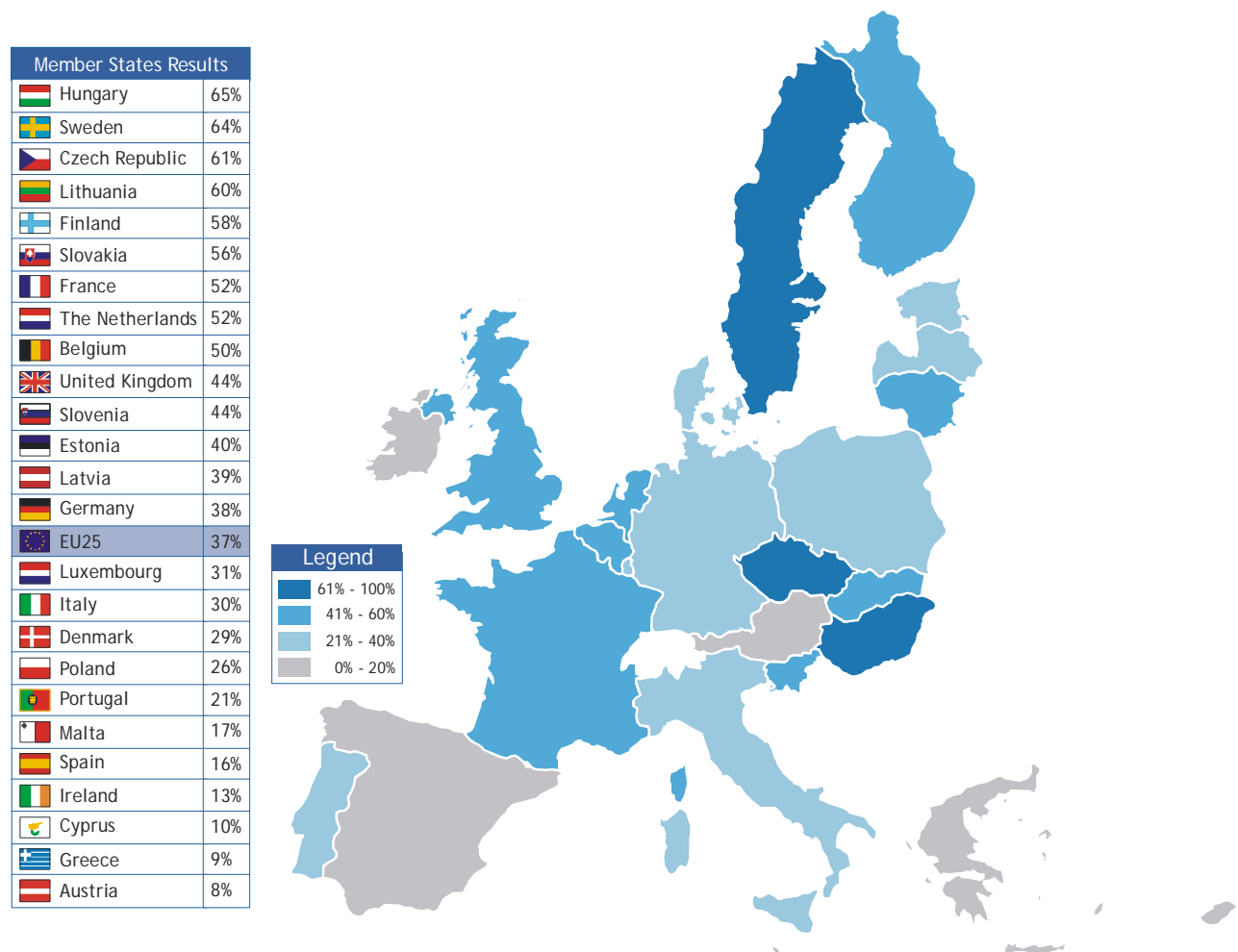
More than six out of ten citizens support this type of energy in **Hungary** (65%), **Sweden** (64%), the **Czech Republic** (61%) and **Lithuania** (60%). It should be noted that these countries follow a different nuclear policy. While Sweden proposes to abandon the nuclear route over the next forty years, the Czech Republic is undertaking the construction of two new reactors. Furthermore, a majority of respondents also said they were in favour of nuclear energy in **Finland** (58%), **Slovakia** (56%), **France** (52%), the **Netherlands** (52%) and **Belgium** (50%).

However, opponents of energy nuclear represent a very large majority of the population, primarily in **Austria** where 88% of interviewees state that they are opposed to this type of energy, but also in **Greece** (86%), **Cyprus** (81%), **Spain** (71%), **Ireland** (70%), **Poland** (66%), **Denmark** (66%), **Italy** (66%) and **Luxembourg** (65%). It should be noted that Austria has adopted a law prohibiting the operation of nuclear power stations for the production of electricity, thus renouncing the use of nuclear energy. This country has also set itself the task of creating a nuclear energy free zone in central Europe.

Finally, in **Portugal** around a quarter of interviewees were unable to give their opinion on this question (26% of 'don't know' responses).

Q2 Are you totally in favour, fairly in favour, fairly opposed or totally opposed to energy produced by nuclear power stations?

Answers: In favour



1.4. Opinions of nuclear energy

The diversification of energy sources

Across the European Union, more than six out of ten respondents agree with the statement that the use of nuclear energy enables European countries to diversify their energy sources (62%).

Dependence on oil

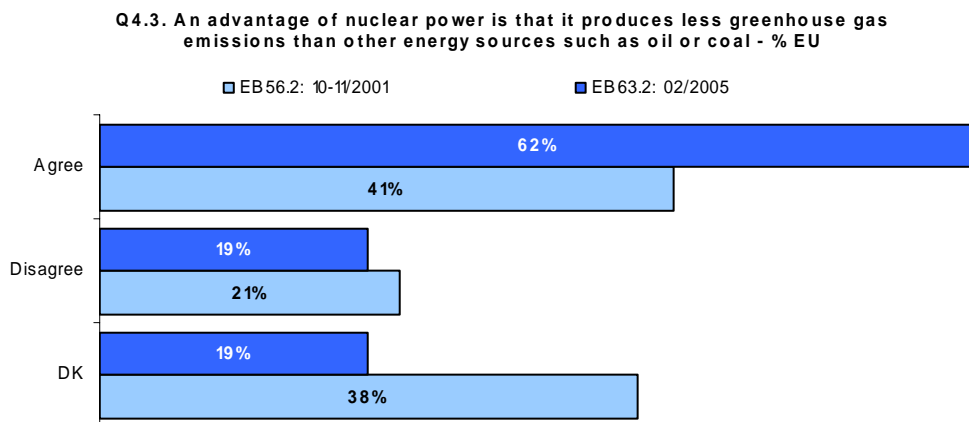
Moreover, 61% of citizens of the Union believe that we could reduce our dependence on oil if we were to use more nuclear energy, and 27% think the opposite.

The emission of greenhouse gases

In early 2005, 62% of citizens of the European Union agreed with the statement that nuclear power is advantageous in terms of producing less greenhouse gas emissions. This represents a 21 point increase by comparison with the agreement rates measured in late 2001. Furthermore the percentage of respondents who did not agree with this principle registered a slight fall (-2 points).

The considerable rise in the agreement rate thus mainly represents the fall in the percentage of interviewees who were unable to give an answer about this aspect four years ago, and who were now expressing an opinion (non-response rate down by 19 points).

It may be presumed that this increased willingness to take up a position is in part due to the precision provided in 2005 by the wording of the question, which then gave two examples of energy producing significant greenhouse gas emissions, i.e. oil and coal. On the other hand, the media coverage of the Kyoto Agreement, the international agreement aimed at reducing countries' greenhouse gas emissions, and its implementation since the start of 2005, may also have played a part.



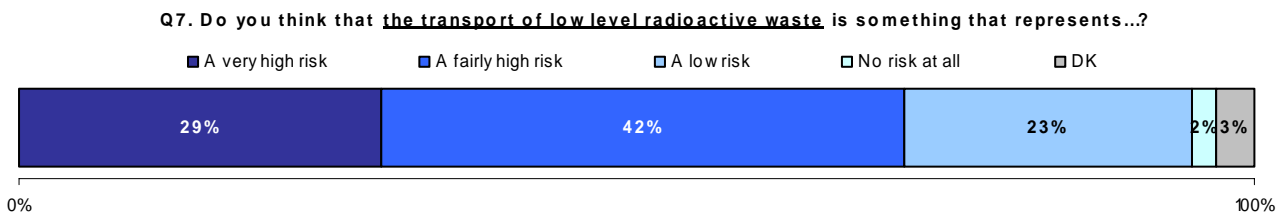
2. The perception of the risk of radioactive waste

2.1. Transport

- Seven out of ten people believe the transport of low-level radioactive waste presents a risk -

A vast majority of the people interviewed believe that transporting low-level radioactive waste carries risks (71%). Among these, 42% state that transporting this type of waste represents a high risk and 29% even state that it represents a very high risk.

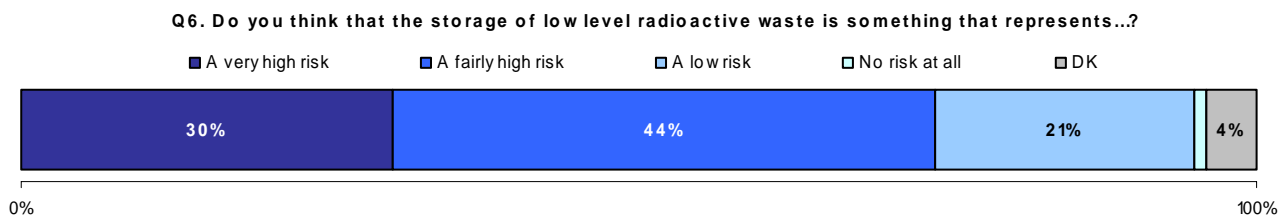
Furthermore, while nearly a quarter of respondents see a low risk in this type of transport (23%), only 2% of respondents believe that the transport of low-level radioactive waste represents no risk at all.



2.2. Storage

- Three-quarters of citizens of the Union consider that the storage of low-level radioactive waste presents a risk -

The citizens of the European Union perceive the risks associated with the storage of low-level radioactive waste in a similar way to those associated with its transport. Thus, a majority of respondents believe that this storage represents a high risk (44%) and 30% a very high risk. One citizen in five perceives a low risk in the storage of this type of waste (21%).



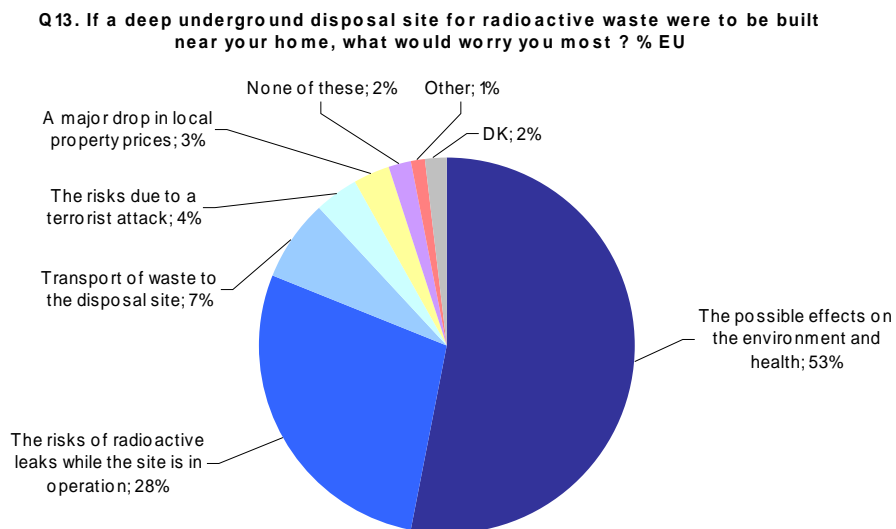
2.3. Fears regarding the construction of a disposal site

- The effects of radioactive waste on the environment and health represent the main concern for Europeans -

Across the European Union, the main fear expressed regarding the hypothetical construction of an underground disposal site for radioactive waste near their home is about the possible impact on the environment and health, a concern mentioned by 53% of citizens of the European Union.

Next, 28% of respondents feared the risks of radioactive leaks when the site is in operation.

The other responses came a long way behind. 7% of interviewees are worried about the transport of waste to the disposal site, 4% feared a possible terrorist attack and finally 3% were worried about a major drop in local property prices.



2.4. Involvement of citizens in constructing such a site

- Six out of ten respondents would want to give their opinion -

Across the European Union, a majority of citizens would want to be consulted and play a part in taking the decision in the hypothetical construction of an underground disposal site for radioactive waste near their home (59%). This result reveals the willingness of citizens to take part in the decision-making process in this domain. Furthermore, 22% of respondents would wish local non-governmental organisations to take part in the consultation and decision-making process in this area. Finally, 13% of people interviewed would leave it to the responsible authorities to decide on this matter.

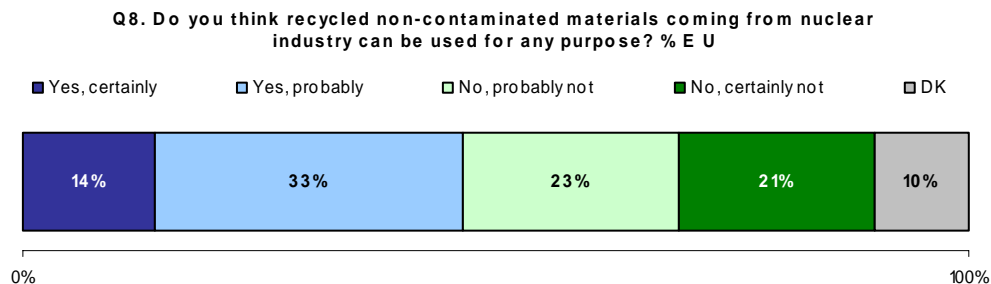
3. The management of radioactive waste

As in other industrial activities, the nuclear industry may wish to recycle uncontaminated materials (construction materials, scrap metals, etc.), rather than disposing of them as waste.

3.1. The general opinion of recycling uncontaminated materials

- Opinions are divided on the use of recycled materials coming from the nuclear industry -

Citizens of the European Union express varied opinions on this subject. However, a slight majority of citizens consider that this type of material can be used for any purpose (47%). In parallel, 43% of respondents think the opposite and 10% are unable to answer.



A more detailed analysis of responses to this question shows us that, among citizens supporting recycling, 14% answer 'yes, certainly' and 33% 'yes, probably'. Furthermore, an equivalent percentage of opponents express their objection in a more or less certain fashion (23% of 'no, probably not' responses and 21% 'no, certainly not' responses).

3.2. Use of recycled material

- Use of recycled materials mainly acceptable for the construction of roads

The principal use of these materials would be the manufacture of rails for railways, the answer mentioned by 43% of citizens of the European Union. Next, 37% of respondents spontaneously stated that they would never accept the use of such materials. This high response rate indicates that there is rather strong opposition from the public on this subject.

However almost three in ten respondents would accept the use of these materials for the construction of roads in their neighbourhood (28%) and a quarter would accept it in the manufacture of cars (20%).

When it is a case of using these materials in an environment close to the interviewees, they were significantly less likely to accept their use, either as foundation material for their house or pathways leading to it (13%) or, in particular, for the production of metal foils used for the packaging of their own food (7%).

3.3. Actual knowledge regarding management

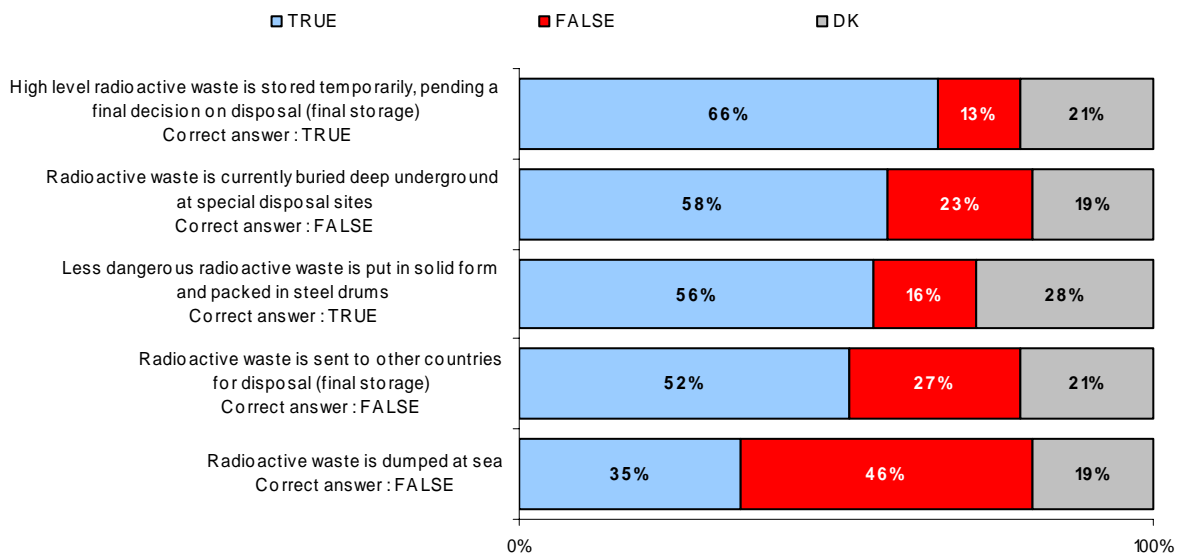
- Mixed knowledge of the management of radioactive waste -

Two-thirds of citizens of the European Union seem to know that high-level radioactive waste is stored temporarily (66% correct responses). Furthermore, the majority of interviewees know that less dangerous radioactive waste is put in solid form and packed in steel drums (56% correct responses).

However, a majority of the population gives the wrong answer in stating that radioactive waste is either buried deep underground at special disposal sites (58% incorrect answers against 23% correct) or is sent to other countries for disposal (final storage) (52% incorrect answers against 27% correct).

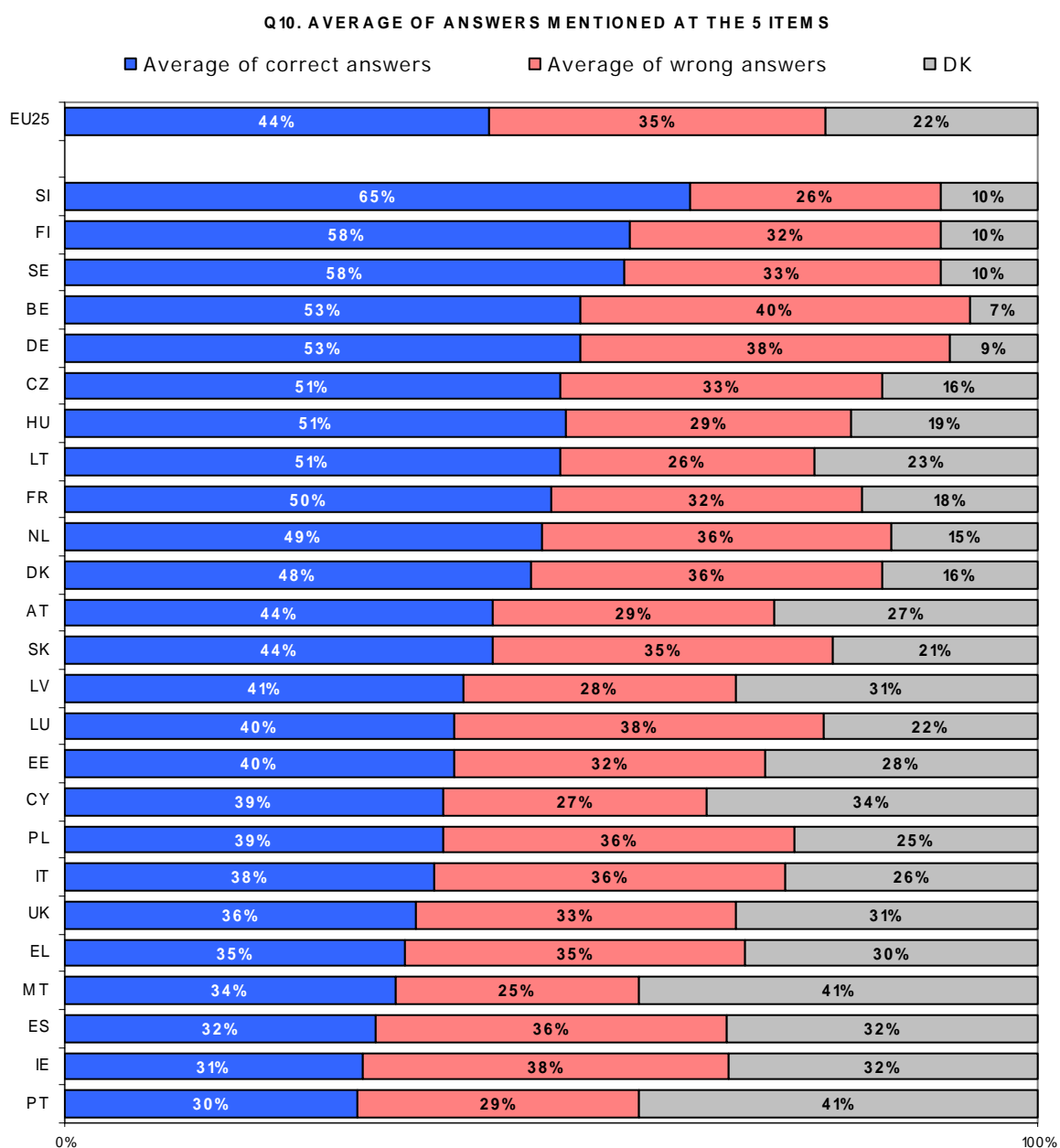
Finally, fewer than one respondent in two thinks, rightly, that radioactive waste is not dumped at sea (46% correct answers) but more than a third believe the opposite (35% incorrect answers).

Q10. For each of the following statements about how radioactive waste is currently dealt with in (OUR COUNTRY), please tell me whether you think it is true or false. % EU



The analysis of the average of the responses given to the five statements in this quiz on the management of radioactive waste indicates the following:

- ◆ The rate of correct responses across the European Union is 44%, the rate of incorrect responses 35% and the 'don't know' rate 22%. There is thus a certain degree of ignorance about this topic within the Union;
- ◆ The citizens who are on average best informed about the procedures for the management of radioactive waste are the **Slovenes** (65%), the **Finns** (58%), the **Swedes** (58%), the **Belgians** (53%) and the **Germans** (53%). It should be noted, however, that Belgium is the country that registered the highest average rate of wrong answers - 40% - but a very low non-response rate;
- ◆ Among those citizens knowing least about the management of radioactive waste, we find the **Portuguese** (30% correct responses on average), the **Irish** (31%) and the **Spanish** (32%);
- ◆ Finally, a higher than average non-response rate is recorded in **Malta** (41%) and **Portugal** (41%).



3.4. Sources of information

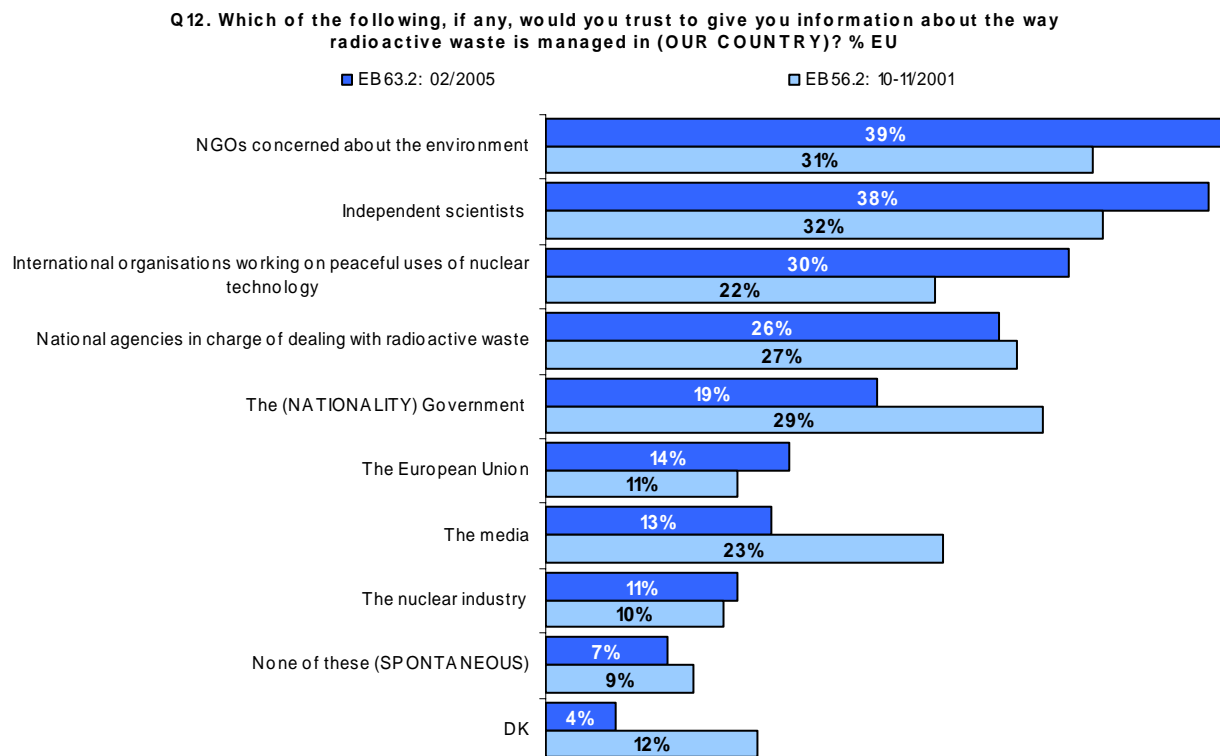
- NGOs and independent scientists remain the two preferred sources of information -

Around one in four interviewees state that they trust either NGOs active in environmental protection (39%) or independent scientists (38%) to inform them about the management of radioactive waste in their country. These already represented the two main information sources in 2001, although to a lesser extent. NGOs working for environmental protection are up by 8 points, and independent scientists by 6 points.

International organisations working on peaceful uses of nuclear technology represent the third response given in 2005 (30%, +8 points). These organisations thus overtake national agencies in charge of dealing with radioactive waste and the national government by comparison with 2001, answers given in 2005 are respectively 26% (-1 point) and 19% (-10 points) of respondents.

14% of interviewees would trust the European Union to inform them about the way in which radioactive waste is managed in their country (+3 points), 13% the media (-10 points) and 11% the nuclear industry (+1 point).

In 2005, therefore, we can see a degree of loss of confidence in both national governments and the media as regards information about the management of radioactive waste, mainly to the benefit of non-governmental and international organisations.



4. Public opinion of underground disposal

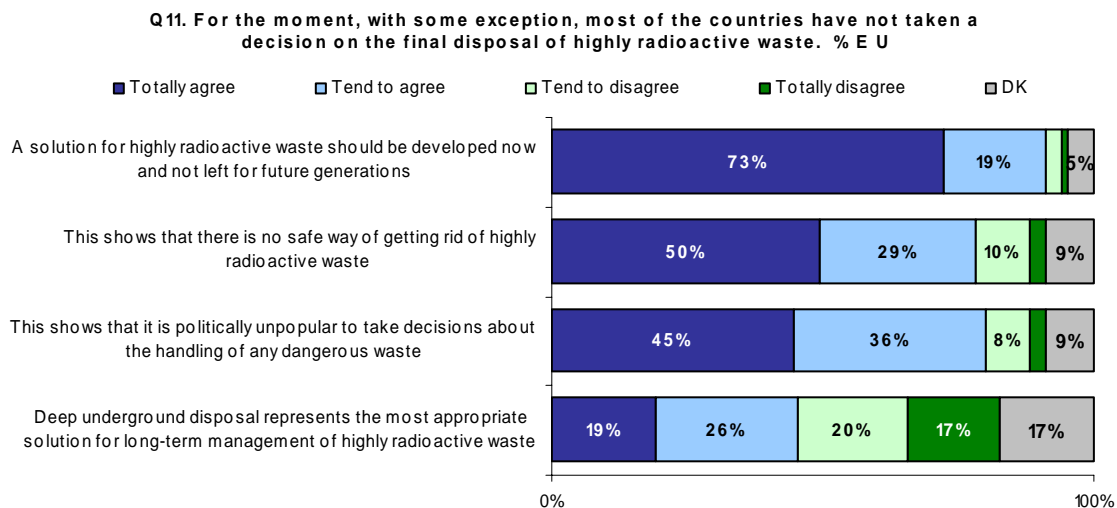
The question of final disposal of high-level radioactive waste is currently under discussion in many countries. With some exceptions, most of the countries have not taken a decision on this subject.

- It is necessary to act now -

Almost all the interviewees agree with the statement "A solution for highly radioactive waste should be developed now and not left for future generations" (92% agree, of whom 73% 'totally agree').

However, eight out of ten citizens of the Union consider that the fact that no decision on the final disposal of highly radioactive waste has been taken shows that it is politically unpopular to take decisions about the handling of any dangerous waste (81%, of whom 45% 'totally agree'). Furthermore, this is taken as evidence that there is no safe way of getting rid of highly radioactive waste (79%, of whom 50% 'totally agree').

Finally, respondents were more divided on the question of underground disposal sites. While a relative majority agree that these sites represent the most appropriate solution for the long-term management of high-level radioactive waste (45%, of whom 19% 'totally agree'), 38% think the opposite, stating that they do not agree with this solution (of whom 17% 'totally disagree'). It should be noted that 17% of interviewees were unable to give an opinion on this subject.



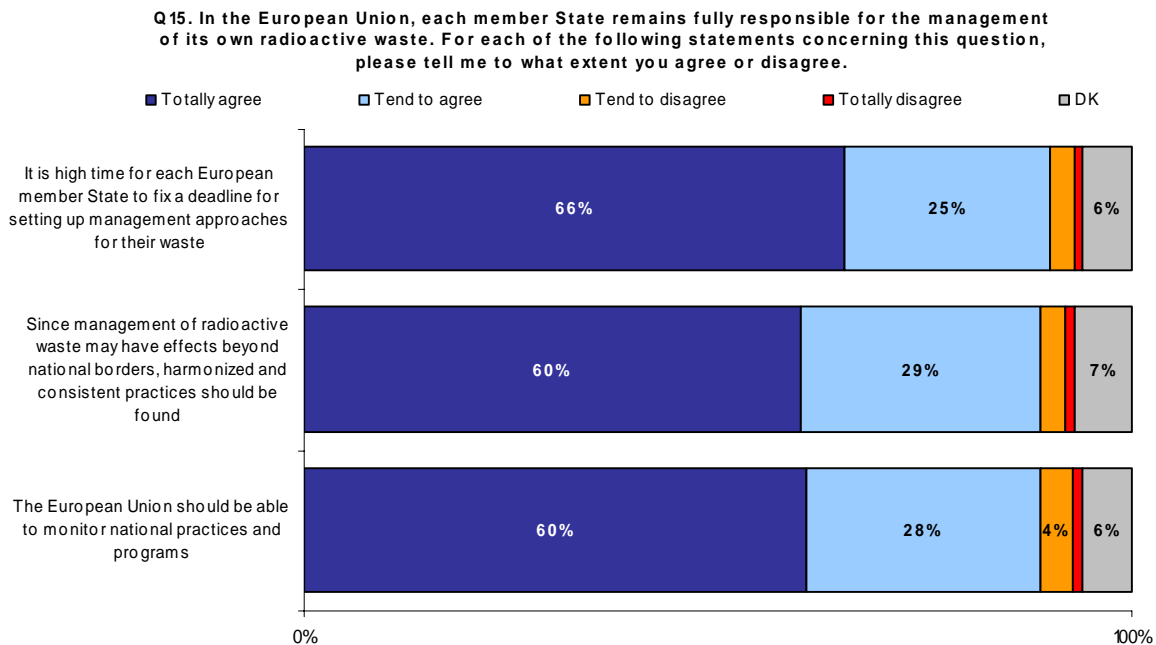
5. The European dimension of the management of radioactive waste

- Citizens call for a common agenda and strategies supervised by the European Union -

A very broad consensus was observed throughout the European Union regarding:

- ◆ The need for each Member State to fix a deadline for setting up management approaches for their waste – 91% 'agree', of whom 66% 'totally agree';
- ◆ The need for harmonized and consistent practices because radioactive waste has an international impact – 89% 'agree', of whom 60% 'totally agree';
- ◆ The demand for the European Union to monitor national practices and programmes – 89% 'agree', of which 60% 'totally agree'.

Citizens' opinions regarding these three principles are in line with the intentions of the European Union in this domain. The recent proposed Directive on the management of radioactive waste provides for the adoption of national programmes for the disposal of radioactive waste and sets a timetable for resolving the problem of landfill. It also says that each Member State must submit regular reports to the European Commission regarding the management of this waste.²



² Proposal of directive (Euratom) of Council on the management of spent nuclear fuel and radioactive waste [COM(2004) 526 final]

CONCLUSION

Only a quarter of citizens of the European Union feel that they are well informed about radioactive waste (25%). Although this proportion has risen slightly - by 4 points - by comparison with 2001, **the level of information regarding radioactive waste remains very low**. For information **about the management of radioactive waste**, citizens of the European Union would have more confidence in independent or non-institutional information sources.

Furthermore, **for a vast majority of citizens of the European Union, radioactive waste represents a risk**. 74% of respondents consider the disposal of low-level radioactive waste to be very risky and 71% perceive the same high level of risk for the transport of this type of waste. Furthermore, although 47% of people interviewed say that they are in favour of the **use of recycled uncontaminated materials coming from the nuclear industry**, 43% are opposed. The main application accepted by the citizens of the European Union for these materials would be the production of rails for railways. However, more than a third of those interviewed spontaneously stated that they would never accept the use of such material (37%).

It is important to note that **citizens who consider themselves well-informed** about radioactive waste see fewer risks in the transport and disposal of this type of waste. Furthermore, well-informed citizens would be more ready to accept the use of recycled uncontaminated materials coming from the nuclear industry.

In the hypothetical event that an underground disposal site for radioactive waste were to be built near their home, **the possible impact on the environment and health was the principle fear** expressed by respondents (53%) followed by the risk of radioactive leak when the site is in operation (28%). Furthermore, if such a site had to be built, **six out of ten respondents would wish to be consulted directly** and to take part in the decision-making process and one in four respondents would wish for local NGOs to take part in the debate.

As regards the management of radioactive waste, citizens are almost unanimous as to **the need for there to be no further delay in setting up a national strategy** for high-level radioactive waste. While 45% of respondents consider that **deep underground disposal sites represent the most appropriate solution** for long-term management of highly radioactive waste, 38% disagree. The divergence of opinion in this respect shows that, although experts believe that these sites represent the best solution, this information does not yet seem to have reached the public.

Finally, almost all citizens of the European Union recognise the importance of Member States establishing not only a timetable but also **harmonised strategies supervised by the European Union in order to set up management policies for their radioactive waste**. Respondents' opinions are thus in line with the **intentions of the European Union**, which is calling for the adoption of national programmes for the disposal of radioactive waste and for each Member State to submit regular reports to the European Commission regarding the management of this waste.