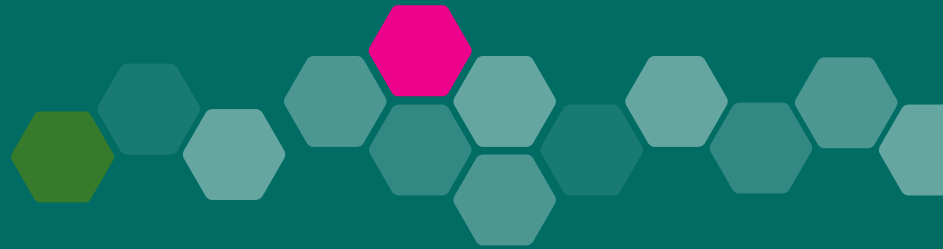


Radioactive Waste Management - Public Attitudes Survey for Scotland



AGRICULTURE, ENVIRONMENT AND MARINE

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Executive Summary

Research Context

The Scottish Government commissioned independent researchers, Diffley Partnership, to conduct a public attitudes survey for Scotland exploring attitudes towards radioactive waste management. The primary aim of this study was to design and deliver research that will help develop a deeper understanding of the views of the Scottish public on a range of radioactive waste management issues, including safety and trust in government and industry.

Approach

An online survey was used to measure public attitudes to radioactive waste management. The survey was conducted between 8th and 11th January 2024 and received 2,160 responses. The questionnaire contained both closed questions (analysed quantitatively) and open response questions (analysed qualitatively).

Key Findings

Knowledge of Radioactive Waste Management

Self-reported levels of knowledge of radioactive waste management among respondents were limited. The vast majority (89%) of respondents reported that they were either not very well informed or not at all informed about radioactive waste management in Scotland.

There was a mixed appetite for more information, with just over half of respondents (55%) indicating they would like to know more about radioactive waste management.

Respondents placed the most trust in scientists/academics to provide information on radioactive waste management over other bodies and institutions such as the nuclear industry, the Scottish Government and the media.

The majority of respondents believed that the regulators of the Scottish Nuclear Industry (82%), the Scottish Nuclear Industry itself (81%) and the Scottish Government (79%) should do more to educate the public about radioactive waste management.

Attitudes towards Radioactive Waste Management

Most respondents agreed that public education is important in the management of radioactive waste (70%).

Overall, there was clear recognition that it is vital for Scotland to have a robust strategy for radioactive waste management (84%). This was linked with concerns about the impact of radioactive waste management on the environment (72%), future generations (68%) and health (55%).

Priorities in Radioactive Waste Management

The protection of human health was the biggest priority in radioactive waste management among the respondents, followed closely by the protection of the environment and the security of radioactive waste management facilities.

Safe containment of radioactive waste (64%) and the protection of the environment (67%) were the highest perceived benefits in the creation of new facilities for managing radioactive waste.

Potential for radioactive leaks (72%) was one of the main concerns about the development of new facilities, along with the possible environmental effects (73%) and health impacts (71%).

Decision-Making in Radioactive Waste Management

Most respondents felt that they have no influence over decision making processes relating to radioactive waste management, either locally (75%) or nationally (67%).

Respondents who stated that they have no influence over decision making felt this way because they felt decisions are made without talking to people (61%), that they have no opportunity to have an influence (48%) and they don't know how to influence decision making (39%).

There was a mixed appetite for wanting to be involved in decision making with just under half of respondents (47%) wanting to be involved.

Chapter 1: Background and Methodology

Diffley Partnership was commissioned to conduct a survey of the Scottish adult (16+) population on radioactive waste management in Scotland on behalf of the Scottish Government. This report sets out the key findings from the public research.

1.1 Background

The Scottish Government commissioned this research to understand the Scottish public's attitudes towards radioactive waste management. The primary objective of the study was to gain deeper insight into the perspectives held by the Scottish public regarding various aspects of radioactive waste management.

Radioactive waste can originate from a variety of sources including research, the health sector or from nuclear sites.

Radioactive waste management includes all activities, including nuclear site decommissioning activities, which relate to the handling, pre-treatment, treatment, conditioning, storage or disposal of radioactive waste (including discharges).

Scotland has existing radioactive waste that must be managed, for example that which arose as a result of nuclear power generation. More radioactive waste will necessarily arise, for example that which will arise as nuclear sites are decommissioned and cleaned up.

Radioactive waste must be managed safely and in a way that avoids placing an undue burden on future generations.

Prior research on public attitudes to radioactive waste management is limited and largely stems from the 2008 Eurobarometer survey¹. While this survey contains some data, its usefulness is constrained by a lack of respondents from Scotland, rendering the results less meaningful. Gathering current and reliable insights from the Scottish public is crucial to ensure policymakers are well-informed.

1.2 Methodology

A nationally representative online survey of over 2,000 adults (aged 16+) across Scotland was utilised to collect a breadth of data on awareness and attitudes towards radioactive waste management from members of the public.

The survey (see Appendix A) was drafted by Diffley Partnership with input from Scottish Government. The survey was administered through the ScotPulse online panel of over 46,000 adults (aged 16+) across Scotland, including those in remote, rural and island communities. Panel members sign up on a voluntary basis and are not paid to complete surveys. The panel is recruited through a range of advertising, including advertising on national television as well as on social media profiles. Participants are chosen at random to contribute.

The survey took place between 8th – 11th January 2024. A total of 2,160 completed responses were achieved. Total number of respondents for each question are presented throughout to account for instances where some participants have not

¹ [Attitudes towards radioactive waste – July 2008 – Eurobarometer Survey \(Europa.eu\)](#)

answered all questions. The survey data were weighted to the age and gender profile of the population in Scotland using mid-year population estimates. Responses were tabulated and analysed quantitatively, including significance testing for between-groups differences in opinion.

Questions which were qualitative in nature were analysed thematically and summarised, exploring the differences in opinion. In line with qualitative reporting practices, phrases such as 'many', 'several' or 'some' have been used to indicate the volume of responses in relation to the particular points or themes discussed. Here, 'many', 'most' or 'a large proportion' can be understood as the majority of respondents, 'several' or 'some' as a smaller subset of respondents, and 'a few' as a minority of respondents. Phrases like 'one respondent' are used where a respondent raised pertinent points that summarised, or contrasted, the views of others.

1.3 Presentation and interpretation of findings

This report summarises the key findings of this survey, drawing out noteworthy findings and between-groups differences.

Findings chapters provide more detail on:

- Knowledge of radioactive waste management,
- Attitudes towards radioactive waste management,
- Priorities in radioactive waste management,
- Decision making in radioactive waste management.

Each aspect is explored in turn, with the aid of data visualisations, commenting on significant differences between demographic groups. Subgroups of the population are created from known variables or questions within the questionnaire.

Subgroup analysis was also conducted through analysis of geographic variables. In particular, the derived variables of Scottish Parliamentary Area, Urban Rural 6-Fold Classification and [Scottish Index of Multiple Deprivation \(SIMD\)](#)².

1.4 Analysis and reporting

Descriptive analysis was conducted and is presented in this report. For frequency reporting, where percentages do not sum to 100%, this is due to rounding, the exclusion of 'don't know' categories, or multiple answers. Aggregate percentages (for example where 'agree' and 'strongly agree' responses are combined) are calculated from the absolute values. Therefore, aggregate percentages may differ from the sum of individual scores due to rounding of percentage totals.

Significance testing, at a 95% confidence level ($p < 0.05$) was applied. Differences are only reported when statistically significant. Reporting does not include every result of every statistical test conducted, the most relevant results are highlighted.

² The SIMD places each household in Scotland into quintiles to describe the amount of deprivation in an area. This ranges from the most deprived areas (SIMD1) to the least deprived areas (SIMD5).

1.5 Interpretation

The margin of error for the data, based on a nationally representative survey of the adult population of Scotland, is 3% at the 95% confidence level. The margin of error refers to the range of values above and below the actual survey result that we can be confident the views of the public will lie between. For example, if 50% of the sample surveyed strongly agree with a statement, a 3% margin of error means that the true value lies between 47% and 53%.

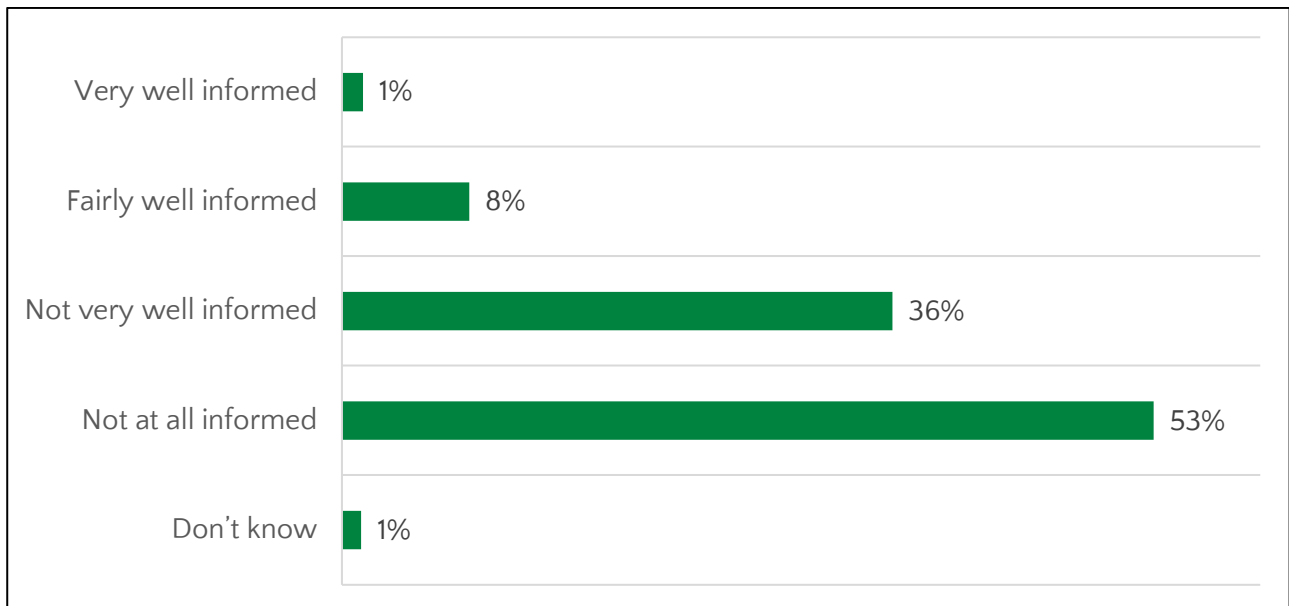
Chapter 2: Knowledge of Radioactive Waste Management

This section explores the public’s current level of knowledge of radioactive waste management, the appetite for new information and perceptions about radioactive waste management.

2.1 Levels of knowledge

Many respondents (89%) did not think they are well informed about radioactive waste management in Scotland: more than half (53%) of respondents thought they were not at all informed while 36% felt not very well informed. Only one in ten (10%) felt well-informed about radioactive waste management in Scotland (8% felt ‘fairly well informed’ and 1% felt ‘very well informed’) (Figure 2.1).

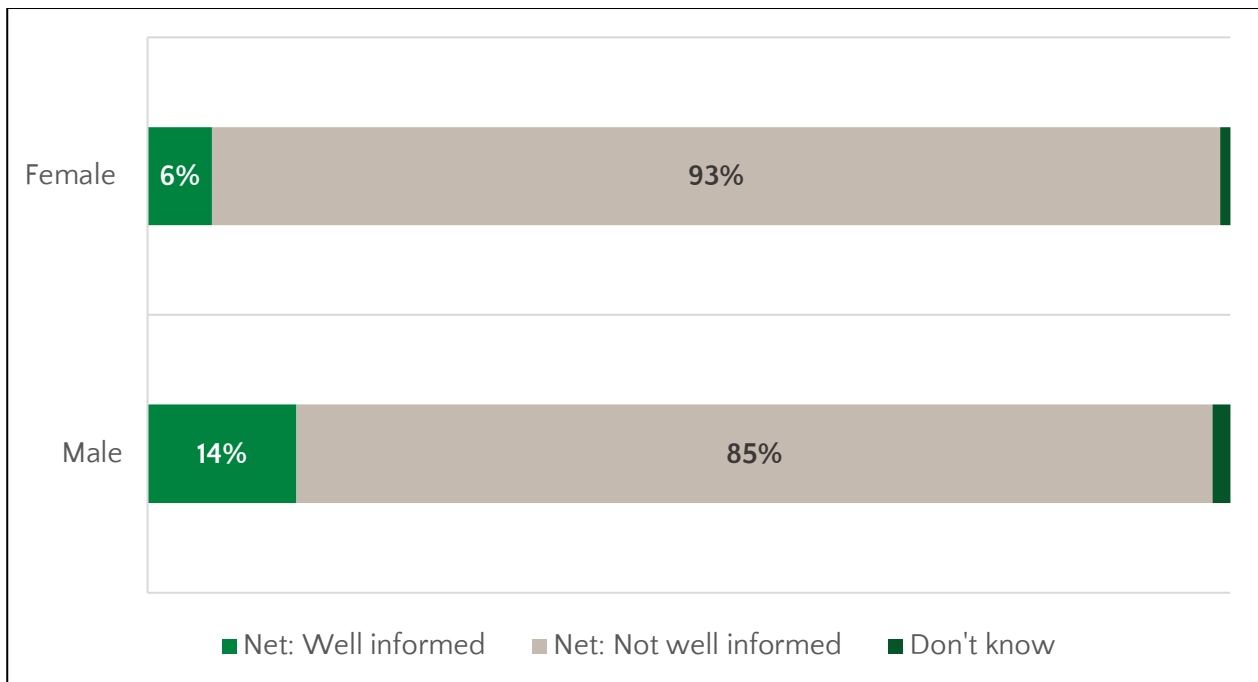
Figure 2.1: How well informed do you think you are about radioactive waste management in Scotland?



Base: All (2,158)

Self-reported levels of knowledge differ by gender (Figure 2.2). A higher proportion of male respondents than female respondents reported that they felt well-informed on matters relating to radioactive waste management, however this remains a small proportion of either gender (14% vs 6%).

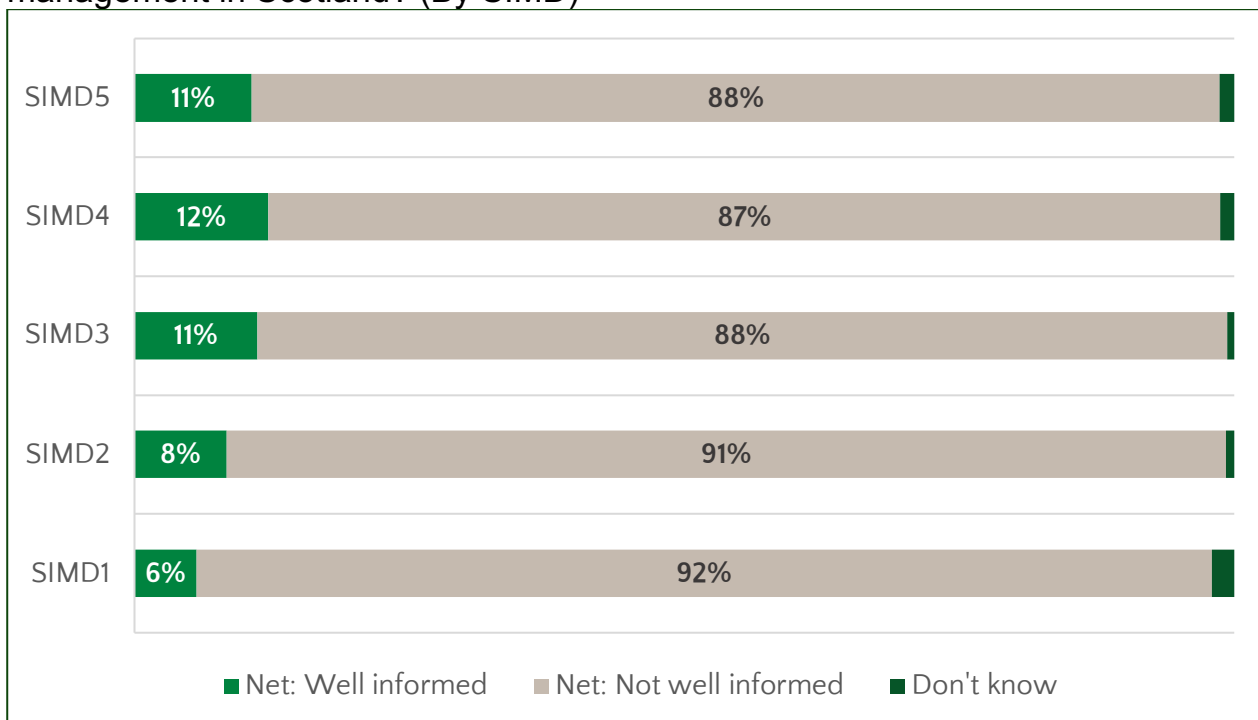
Figure 2.2: How well informed do you think you are about radioactive waste management in Scotland? (By gender)



Base: Male (1,040), Female (1,118)

Self-reported knowledge also differs by Scottish Index of Multiple Deprivation (SIMD) areas (Figure 2.3). Those respondents in the least deprived areas (SIMD5) were more likely to feel well informed (11%) than those in the most deprived areas (6%) (SIMD1)(Figure 2.3).

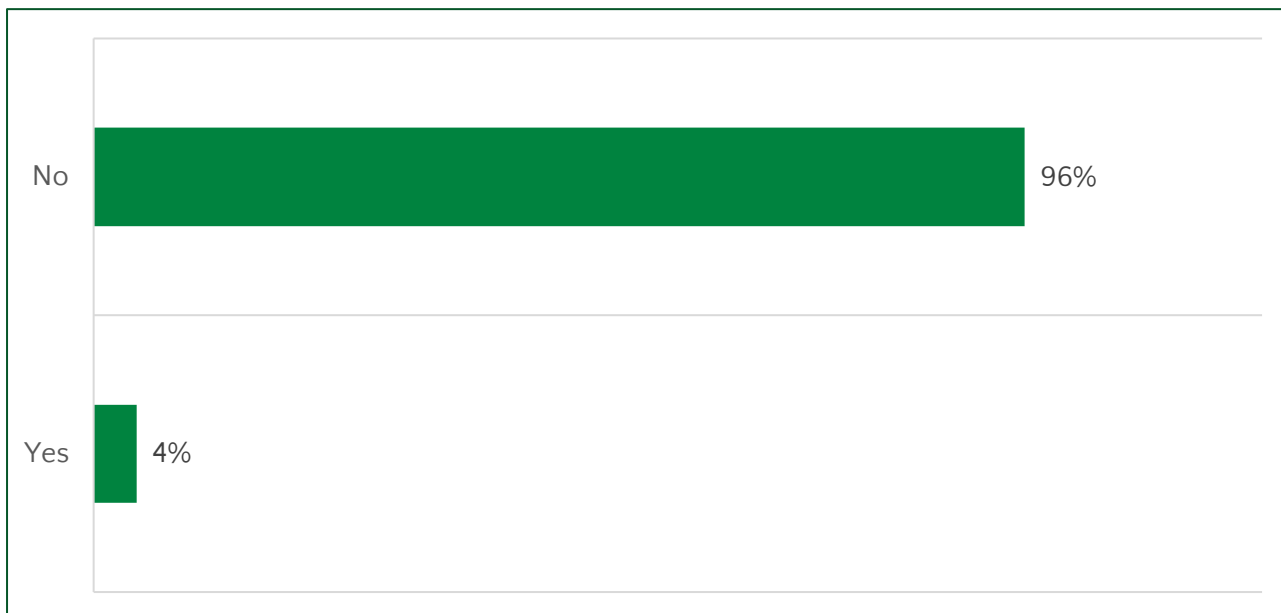
Figure 2.3: How well informed do you think you are about radioactive waste management in Scotland? (By SIMD)



Base: SIMD1 (326), SIMD2 (381), SIMD3 (438), SIMD4 (494), SIMD5 (428)

The vast majority of respondents (96%) had not attempted to find information about the way radioactive waste is managed in Scotland (Figure 2.4). Only 4% of respondents had attempted to source this information.

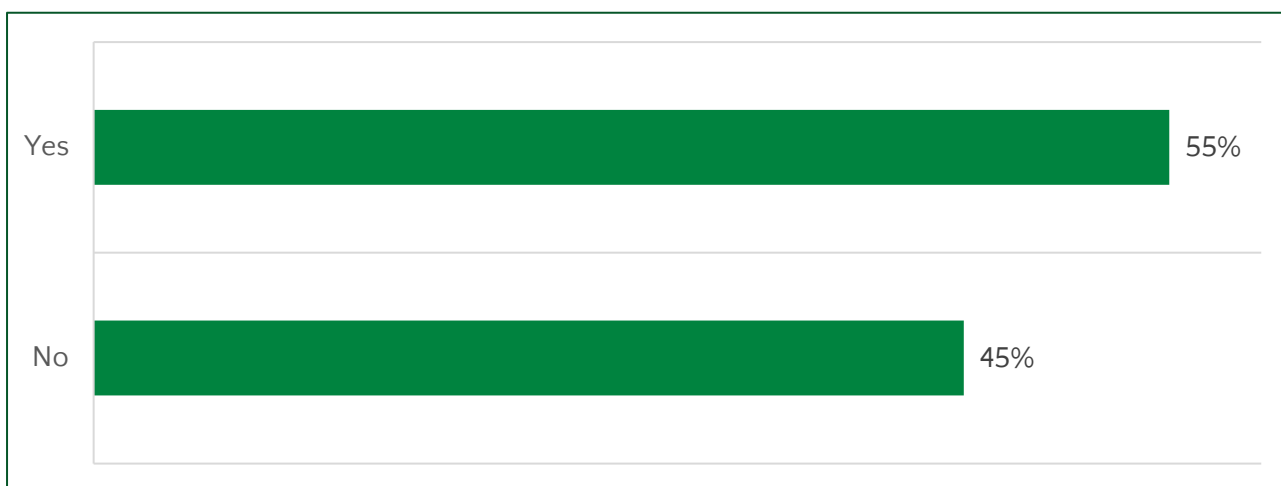
Figure 2.4: Have you ever attempted to find information about the way radioactive waste is managed in Scotland?



Base: All (2,158)

More than half of respondents (55%) said they want to know more about radioactive waste management in Scotland, while 45% do not (Figure 2.5).

Figure 2.5: Do you want to know more about radioactive waste management in Scotland?



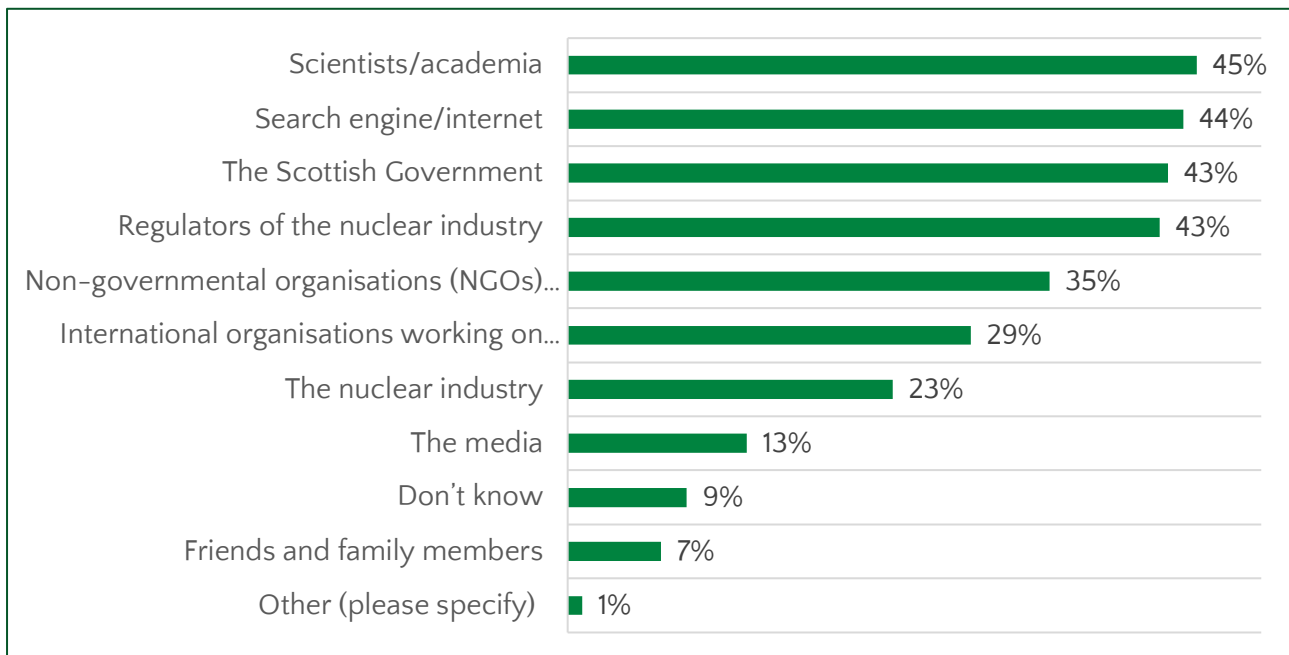
Base: All (2,158)

2.2 Sources of information

The sources of information the respondents would use to find information about the way radioactive waste is managed in Scotland varied. Almost half would source information from scientists or academia (45%), a search engine or the internet (44%), the Scottish Government (43%) or regulators of the nuclear industry (43%).

Around a third would look to non-governmental organisations (NGOs) concerned about the environment (35%) or international organisations working on peaceful uses of nuclear technology (29%) for information on the way radioactive waste is managed. Fewer would look to the media (13%) or friends and family (7%) for information (Figure 2.6).

Figure 2.6: If you wanted to find information about the way radioactive waste is managed in Scotland, which of the following sources would you use?



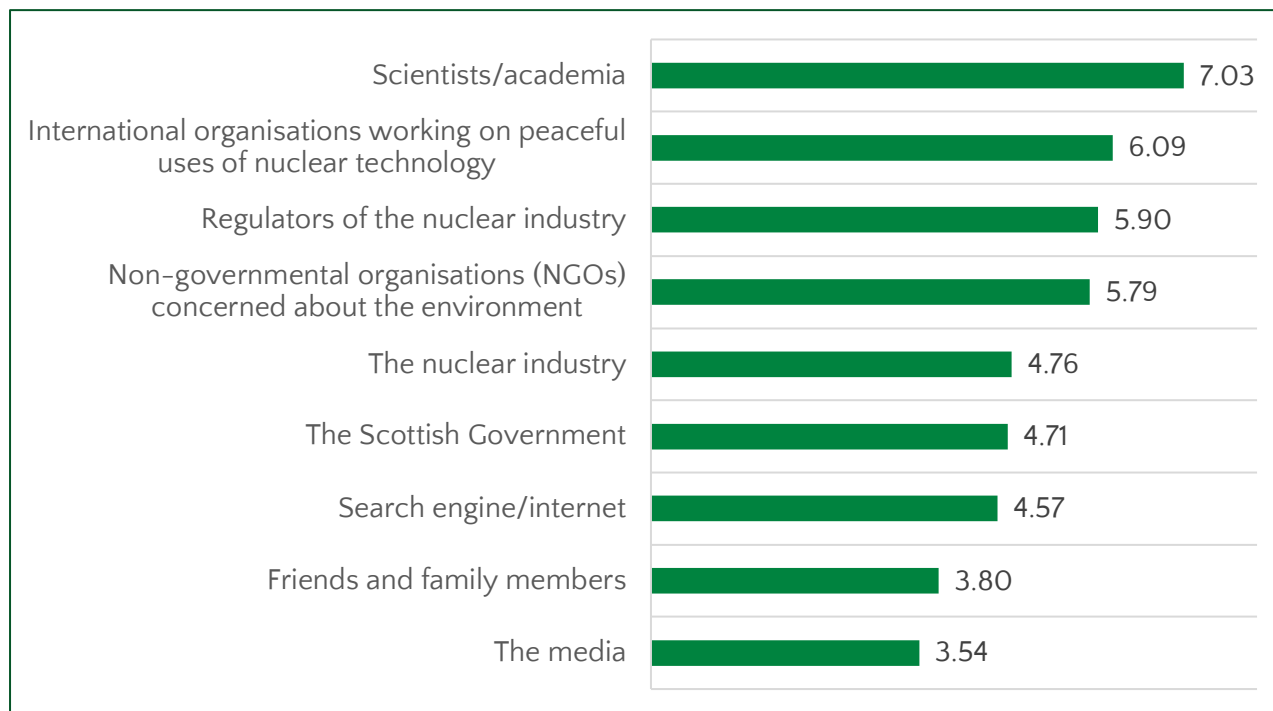
Base: All (2,158)

Other sources that respondents said they might refer to included books from the library, the UK Government and friends or family more specifically in the industry.

The level of trust the respondents have in these sources followed a different pattern. Scientists or academia were the most trusted source of information, with an average trust rating of 7.03 out of 10 (where 0 is do not trust at all and 10 is trust completely). Despite only one in three (29%) indicating they would use this as a source of information, international organisations working on peaceful uses of nuclear technology had an average trust rating of 6.09 (Figure 2.7). This is closely followed by regulators of the nuclear industry (5.90) and non-governmental organisations (NGOs) concerned about the environment (5.79).

The nuclear industry (4.76), the Scottish Government (4.71) and search engine/internet (4.57) had scores which were slightly below the midpoint of five out of 10. However, the sources the respondents trust the least were friends and family members (3.80) and the media (3.54).

Figure 2.7: To what extent do you trust each of the below to give you information about the way radioactive waste is managed in Scotland? Where 10 is trust completely and 0 is do not trust at all.



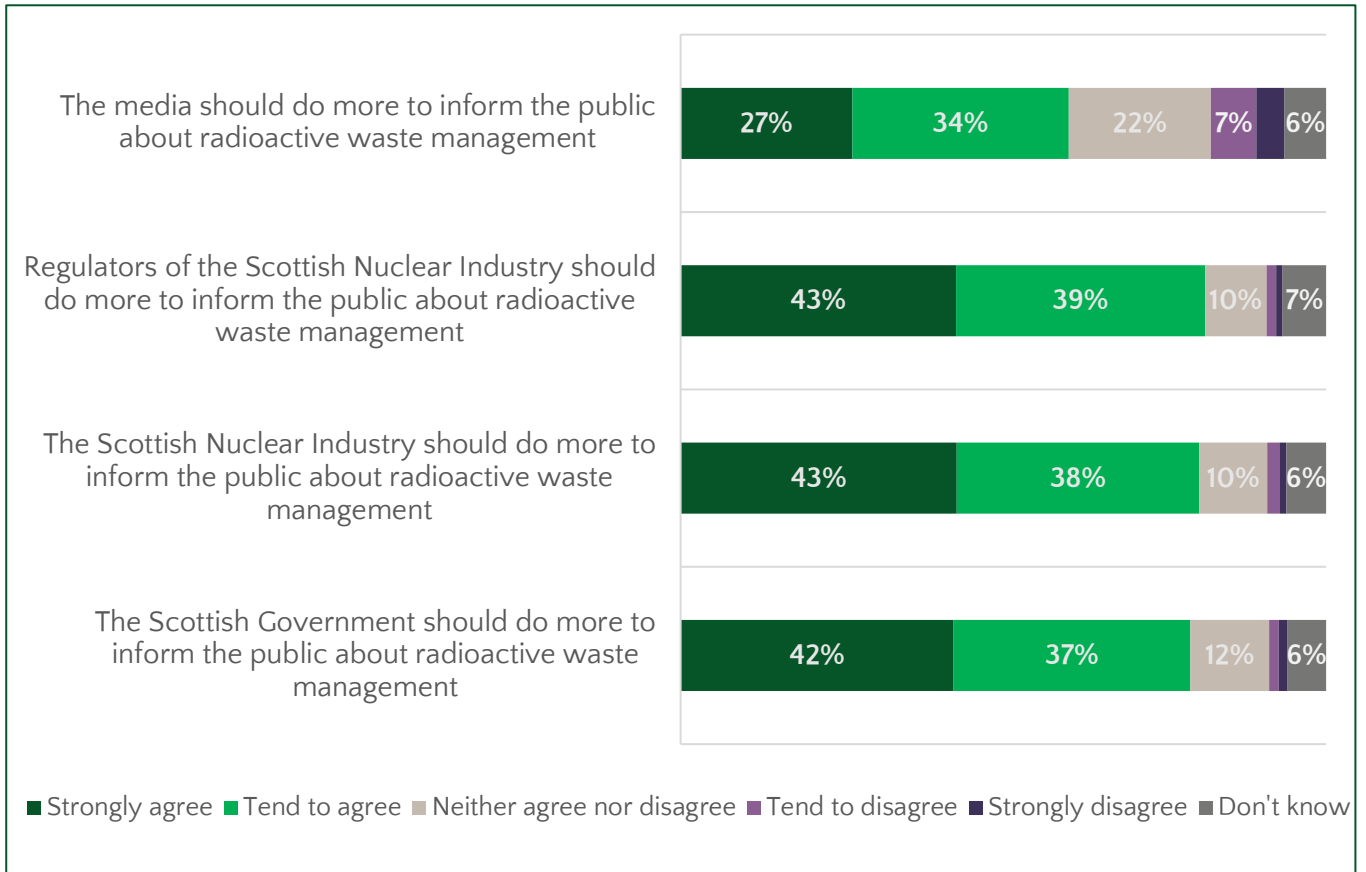
Base: All (2,158)

2.3 Public education on radioactive waste management

The respondents were broadly in agreement that institutions should do more to educate the public (Figure 2.8). In particular, the regulators of the Scottish nuclear industry (81% strongly or tend to agree), the Scottish Nuclear industry (80% strongly or tend to agree) and the Scottish Government (79% strongly or tend to agree) should do more to inform the public about radioactive waste management.

Fewer believed media should do more to inform the public about radioactive waste management (60% strongly or tend to agree) which perhaps reflects relatively low trust in the media as discussed above.

Figure 2.8: To what extent do you agree or disagree with the following:



Base: All (2,158)

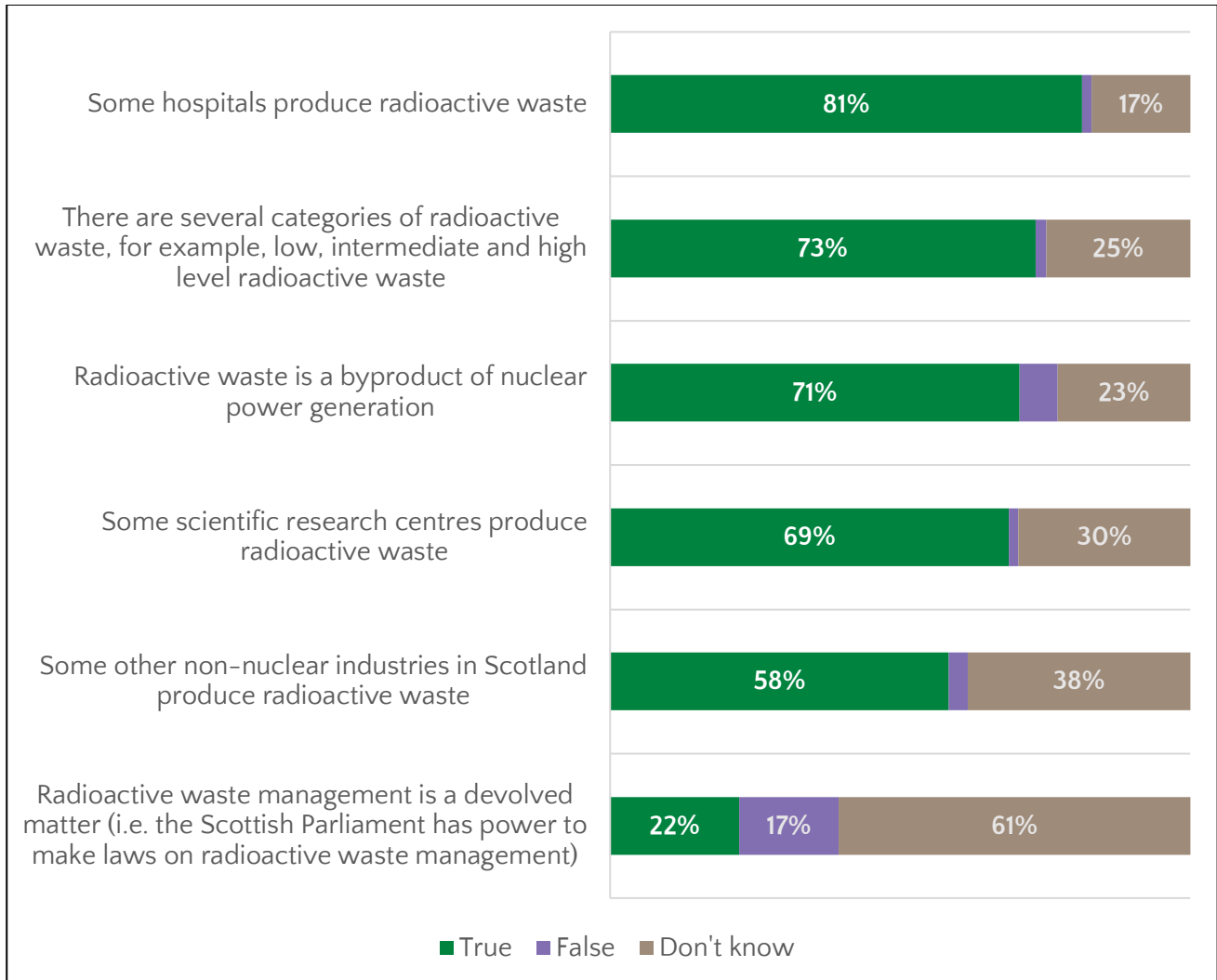
2.4 Perceptions of radioactive waste management

Respondents were presented with six statements about radioactive waste. They were then asked to indicate whether they thought each statement was true or false. In this instance, all of the statements were true (Figure 2.9).

The majority of respondents correctly identified that some hospitals produce radioactive waste (81%), that there are several categories of radioactive waste, for example, low, intermediate and high-level radioactive waste (73%) and that radioactive waste is a byproduct of nuclear power generation (71%). Just over two thirds identified the statement that some scientific research centres produce radioactive waste as true (69%). Only one fifth of respondents correctly identified that radioactive waste management is a devolved matter (i.e. the Scottish Parliament has power to make laws on radioactive waste management).

While the proportion of respondents which identified each of the statements as false was relatively low, the proportion selecting the 'don't know' option was often relatively high. Three in five respondents selected 'don't know' for the statement on radioactive waste management being a devolved matter (61%) while over a third selected the 'don't know' option for the statement on whether other non-nuclear industries in Scotland produce radioactive waste (38%). Three in ten (30%) also selected 'don't know' for the statement on whether scientific research centres produce radioactive waste.

Figure 2.9: For each of the following statements, please select whether you think it is true or false.



Base: All (2,158)

Respondents were then presented with statements exploring how radioactive waste is currently managed in Scotland (Figure 2.10).

About two-thirds (63%) of respondents incorrectly identified that some radioactive waste is disposed of in deep underground sites while a third did not know if this was true or false (34%). A third of respondents also incorrectly identified that some radioactive waste is dumped at sea (30%) while a fifth (21%) knew this was false. The remaining half (49%) did not know if this was true or false.

Around half of all respondents did not know if some radioactive waste is reused or recycled (54%), some radioactive waste is disposed of in licensed landfill sites (48%) or some radioactive waste is put into solid form and packed into steel drums (47%). Overall, responses to this question indicate relatively limited knowledge about radioactive waste management among the respondents.

Figure 2.10: For each of the following statements please select whether you think it is true or false about the way radioactive waste in Scotland is currently managed.



Base: All (2,156)

Respondents had the opportunity to add any further overall comments or reflections on radioactive waste management in Scotland. 751 respondents gave comments at this opportunity.

Several respondents re-iterated how radioactive waste management is a complex issue requiring a well-thought-out response. Many were of the view that radioactive waste should be managed, for the most part, by independent experts in this field. Nonetheless, there was some agreement that as many different groups and actors as possible should be consulted, to reach a solution which is mindful of all of those who are affected. Comprehensive planning, research into best practice and an openness to innovation were also seen as important:

“A totally comprehensive and integrated plan is necessary involving novel and innovative research, management and upskilling”.

A few respondents suggested that the use of any materials that could produce harmful waste, whether radioactive or not, be eradicated. Others were of the view that investments should pivot towards renewable energy.

“A solution of waste management should not encourage more funding for radioactive materials in future, and investments should be made in renewable energy”.

Respondents emphasised a need for both national and local authorities to choose site locations that are acceptable to all, or as one respondent put it, “not just big businesses”:

“Do the research and engage with the local community before jumping into any construction of a facility in any capacity”.

“There should be a country-wide approach. Local residents must be consulted in depth and timeously to stave off Nimbyism [Not in my backyard-ism]”.

Thinking about the impact of radioactive waste on health and the environment, many respondents felt that waste management facilities should not be situated near populated areas:

“I said I wouldn't want it in my local area, not because of Nimbyism but because I live in a densely populated part of the city and I think a less populated area would make more sense”.

A few respondents commented on the role of the survey itself as an awareness raising piece. Some wondered why a survey was being undertaken on the topic of radioactive waste management now, and felt that plans for disposal should have been decided when plants were initially implemented. Others noted that the survey had raised their awareness of the issue of radioactive waste management, given them “something to think about”, and prompted them to find out more:

“I was unaware there are plans afoot for changes to current [radioactive] waste management and this survey has given me that knowledge”.

“I realise I am quite ignorant of the facts about how nuclear waste is currently managed, yet I feel strongly that it should be appropriately risk assessed and managed safely. I intend to find out more about how this happens currently and about plans for the future management of nuclear waste”.

“I do feel the opinion of someone like myself (if given some basic knowledge around this topic) could be valuable in these types of discussion”.

Chapter 3: Attitudes toward radioactive waste management

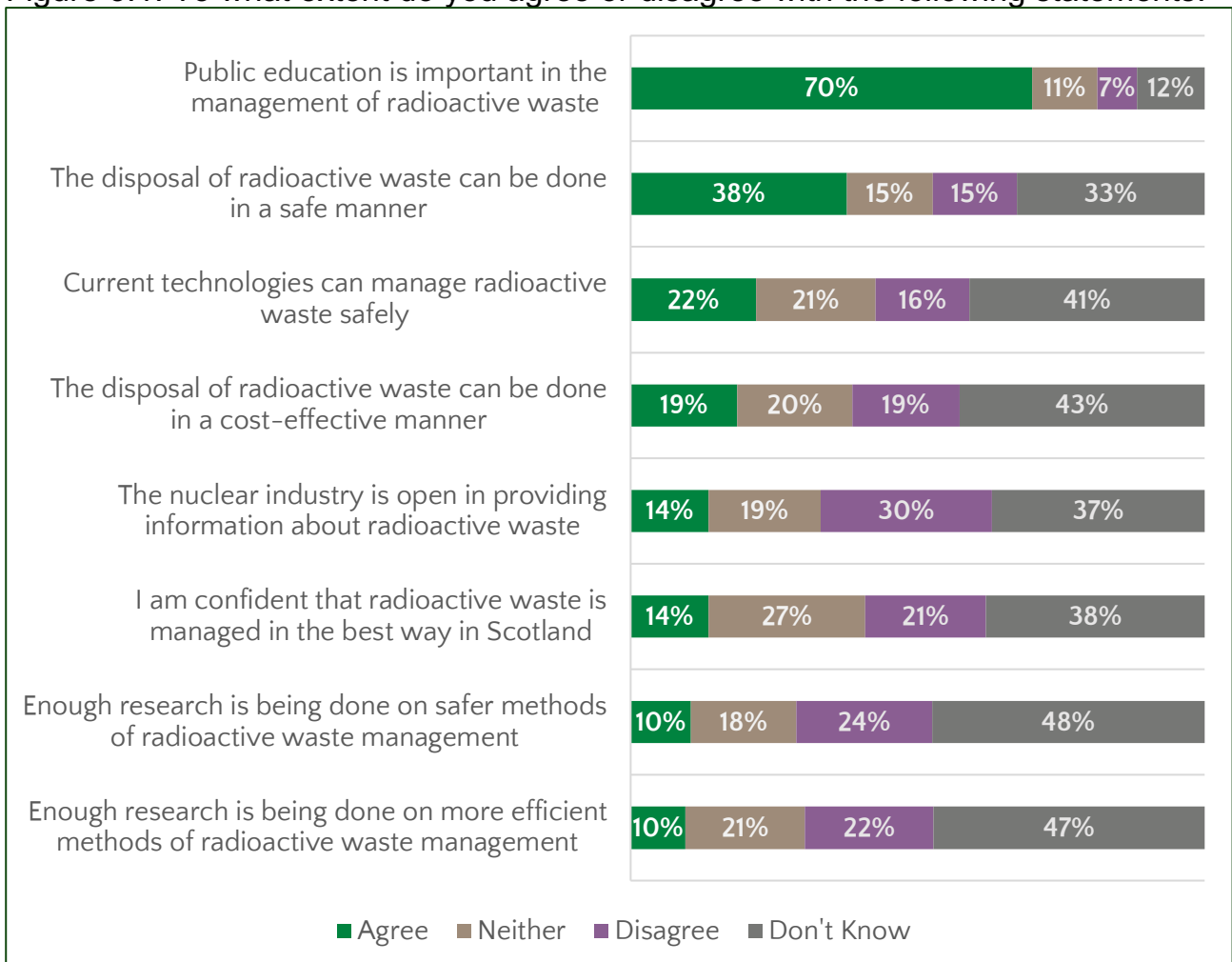
This section explores the public’s attitudes towards specific aspects of radioactive waste management, including their concerns about radioactive waste and their support for the construction of new facilities.

3.1 Attitudes towards radioactive waste management

Respondents were asked a series of questions about their attitudes towards and opinions on radioactive waste management in Scotland.

Across all statements, the largest agreement amongst those with an opinion was registered in relation to the statement ‘Public education is important in the management of radioactive waste’. Here, a large majority (70%) of respondents expressed an opinion agreeing that public education is important in the management of radioactive waste. In contrast, only 11% neither agreed nor disagreed and 7% disagreed (Figure 3.1).

Figure 3.1: To what extent do you agree or disagree with the following statements:



Base: All (2,160)

The second greatest agreement amongst respondents was that disposal of radioactive waste can be done in a safe manner (38%).

Uncertainty was significantly higher for the other statements surveyed, as signified by the large proportion of respondents that reported that they 'don't know' to what extent they agree or disagree with each statement. Levels of 'don't know' responses varied by statement but were reported by over a third of the respondents. At its highest, nearly half stated that they 'don't know' that enough research is being done on safer (48%) and more efficient (47%) methods of radioactive waste management, suggesting that knowledge of research on radioactive waste management is particularly low amongst the population.

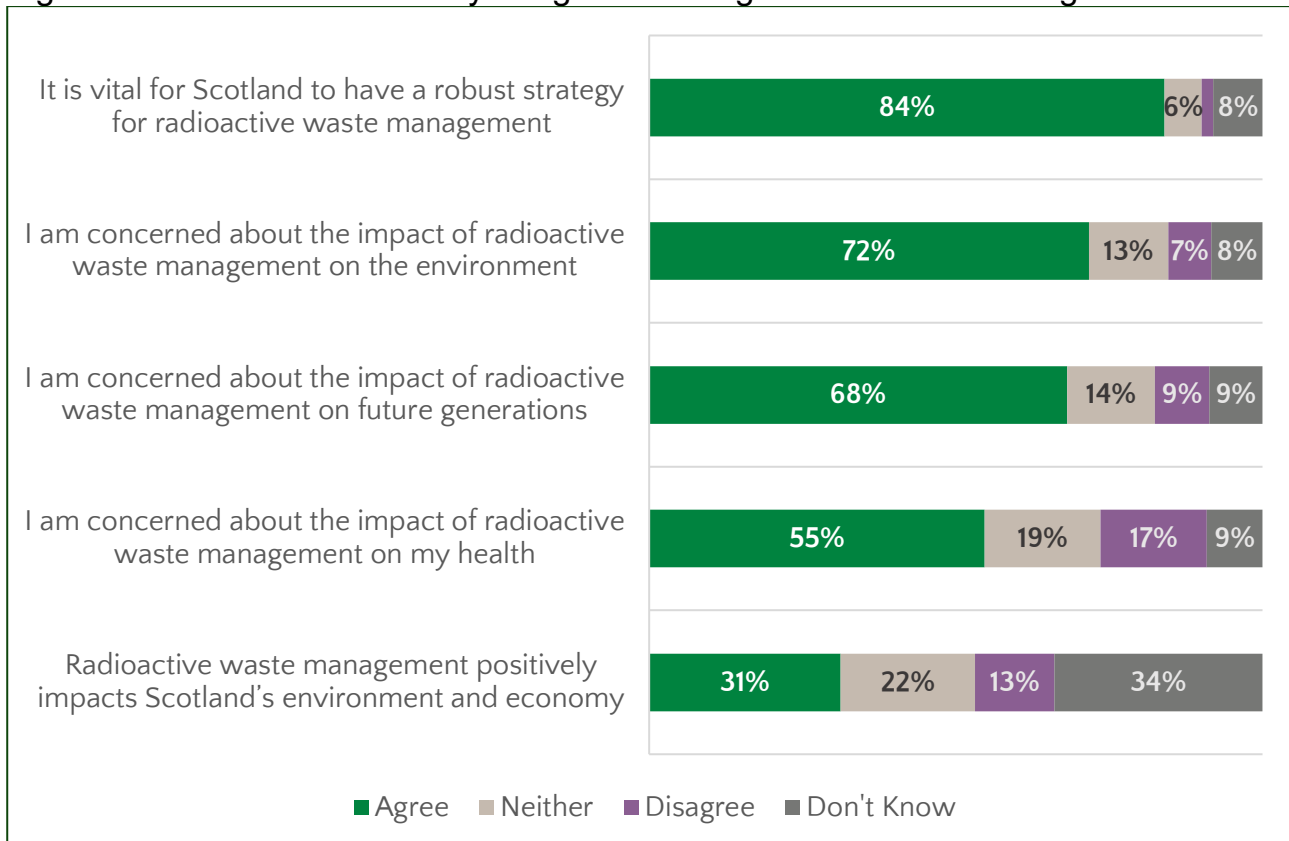
3.2 Concerns of radioactive waste management

A large proportion of respondents agreed that they were concerned with the impacts of radioactive waste management (Figure 3.2). The highest level of concern was registered around environmental impacts, as almost three in four respondents (72%) agreed that they are concerned about the impact of radioactive waste management on the environment. However, a majority were also concerned about the impact on future generations (68%) and on their health (55%).

A large majority (84%) agreed that it is vital for Scotland to have a robust strategy for radioactive waste management.

Some also believed that radioactive waste management can have positive effects, with just under one in three (31%) agreeing that radioactive waste management positively impacts Scotland's environment and economy. A nearly equal proportion (34%) reported that they 'don't know' if radioactive waste management positively impacts Scotland's environment and economy.

Figure 3.2: To what extent do you agree or disagree with the following statements:



Base: All (2,151)

Similarly, when considering the risks and benefits of radioactive waste management, 38% reported that they didn't know if the benefits or the risks are greater (Figure 3.3). Beyond those who didn't know, a sizable percentage believed that the benefits of managing radioactive waste are greater than its risks (31%), while only a small minority believed that the risks are greater than the benefits (15%).

Respondents were then given the opportunity to explain the reasoning behind their answers. 1,195 respondents gave comments at this opportunity.

A large proportion of respondents felt that they did not know enough about radioactive waste to make an informed comment on the risks or benefits of managing it. Many were of the view that there is a lack of information on the risks and benefits of managing radioactive waste at a local level, whether through Scottish Government channels or traditional media. Some respondents caveated that they have had no need to search for information regarding the disposal of radioactive waste, while others wrote that radioactive waste management is typically not highlighted to the public unless there is an incident:

“There is no open/ promoted information advertised by Scottish Gov[ernment]. It is not a topic often mentioned in traditional media”.

Many believed that more transparent information needs to be shared with the public to enable them to feel confident in forming opinions on the matter, and address any misconceptions or concerns about the topic:

“The term radioactive is scary. People either don’t know because they don’t care or are too worried to even look into what is happening with it. Public education is vital clearly”.

Meanwhile, some respondents who described themselves as ‘laypeople’, said that they felt it was the responsibility of decision makers – rather than the public – to weigh up any risks and benefits, and provide appropriate, publicly available updates or bulletins on their decisions and reasoning:

“As a layman, you'd hope and trust [that] those making these decisions now are actually working on it - nothing wrong with a quick quarterly news update”.

Likewise, others felt that decisions relating to radioactive waste management should be left to, and informed by, “*scientists who are experts in that field*”.

Other respondents highlighted the benefits of managing radioactive waste. For many, there was an overall sentiment that it is “*better to be proactive rather than reactive*” and that “*the risk of managing radioactive waste are far outweighed by the risks of not managing*” it.

Respondents suggested a myriad of positive outcomes from the proper management of radioactive waste, including the protection of human health, a “*cleaner and safer environment*” for current and future generations (with some respondents referencing their children and grandchildren), and a reduction in carbon emissions:

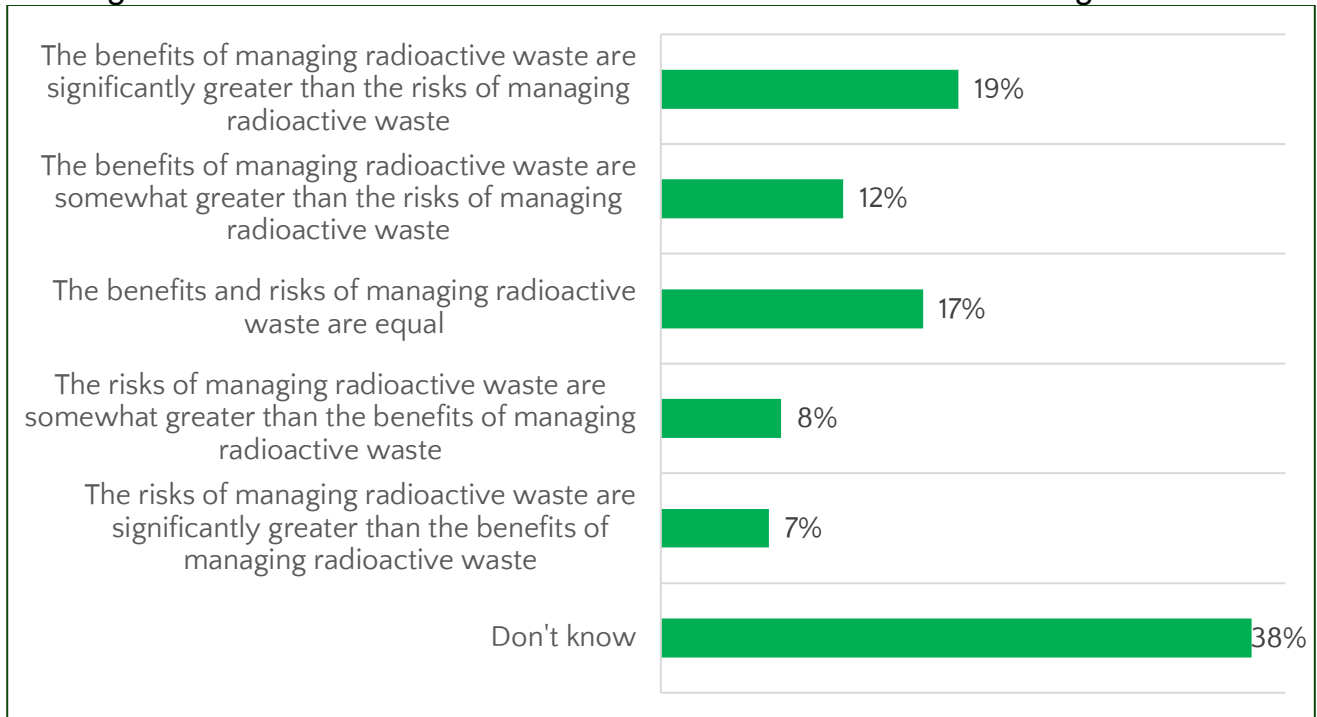
“Making radioactive products safely and storing and disposing of their waste effectively creates a more efficient and carbon neutral future”.

Some respondents mentioned the financial or employment benefits of effective radioactive waste management, in improving conditions for those working in the sector and those living or working near radioactive waste sites. Others cited the risks associated with not managing radioactive waste, such as exposure or leakage, and felt that rigorous standards should be in place, with strong independent oversight.

Aside from sites, plants and other facilities directly involved with radioactive waste, respondents noted the everyday uses of radioactive products, such as in power generation and medical devices like X-rays, to further point towards the benefits of safe management and disposal:

“If radioactive waste is what I assume it to be; the byproduct of nuclear energy, cancer treatment etc, then the costs of its safe disposal are far outweighed by cheaper energy and saving lives”.

Figure 3.3: Which of the following statements comes closest to your view when thinking of the risks and benefits in relation to radioactive waste management:

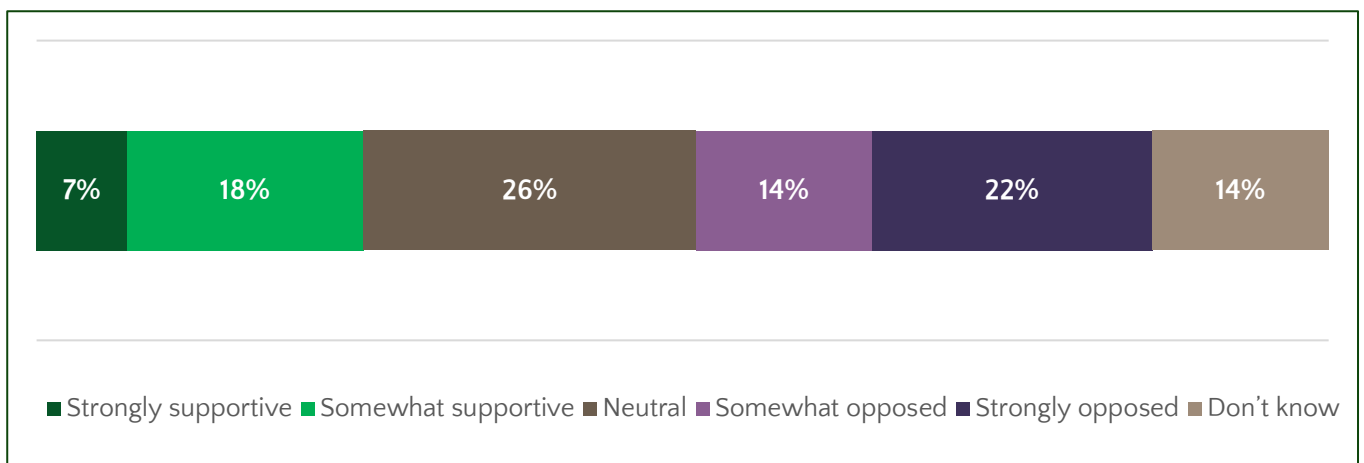


Base: All (2,154)

3.3 Support for new facilities

The respondents were divided on support for facilities to manage radioactive waste in their local area (Figure 3.4). While one in four (25%) reported that they were supportive, a similar proportion reported that they were neutral to the idea (26%) and a plurality (36%) reported that they were opposed to the idea. Opposition to the construction of facilities for radioactive waste management in their local area was particularly apparent, with 22% of those surveyed saying that they were strongly opposed. In contrast, those who were supportive of the notion were more likely to be only somewhat supportive, as reported by 18% of those surveyed.

Figure 3.4: How supportive are you of the construction of facilities for managing radioactive waste in your local area?



Base: All (2,145)

Chapter 4: Priorities in radioactive waste management

This section explores the public's priorities in managing radioactive waste. This includes benefits and concerns the public hold on new disposal facilities in Scotland.

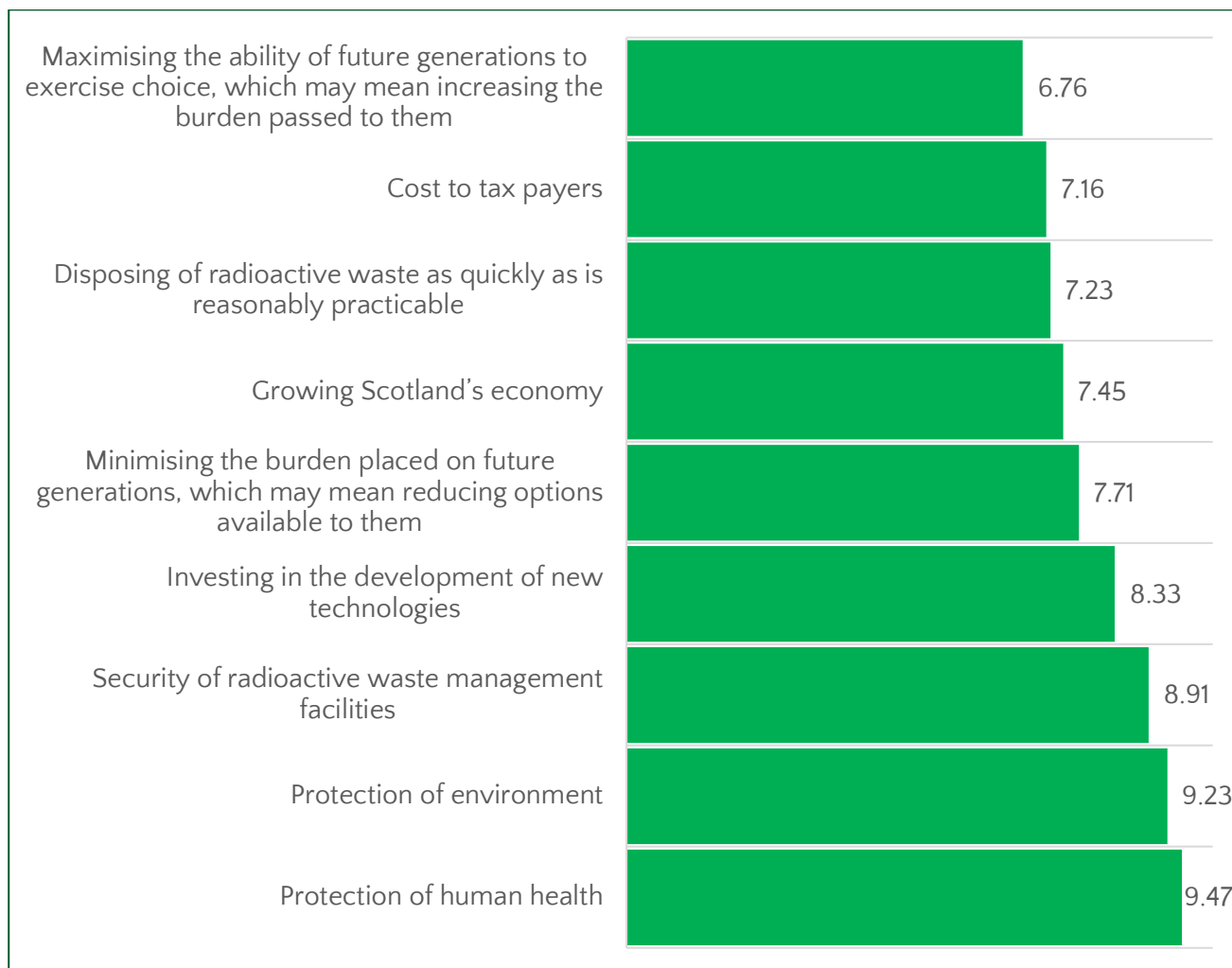
4.1 Priorities in radioactive waste management

The public was asked about how important they believe a series of aspects are to the managing of radioactive waste, on a scale from 0, 'Not important at all', to 10, 'Extremely important' (Figure 4.1). Protection of human health emerged as the top priority, with an average score of 9.47. Other top priorities included protection of the environment (9.23), security of radioactive waste management facilities (8.91), and investing in the development of new technologies (8.33).

However, all aspects queried were seen as relatively important in radioactive waste management, with the lowest element, 'maximising the ability of future generations to exercise choice, which may mean increasing the burden passed to them' receiving an average of 6.76, signifying some importance overall. Notably, the cost to taxpayers also received a relatively lower ranking, with an average of 7.2, seen as important in general, but less so compared to other aspects of radioactive waste management.

When considering the impact of radioactive waste management on future generations, there was a preference for present-day decision makers to take action. The statement 'minimise the burden placed on future generations, which may mean foreclosing options available to them', achieved a mean of 7.71. This is one point more than the statement 'maximising the ability of future generations to exercise choice, which may mean increasing the burden passed to them', 6.76.

Figure 4.1: On a scale of 0-10, with 10 being extremely important and 0 being not important at all, how important do you believe each of these should be when thinking about managing radioactive waste in Scotland? (Average score)



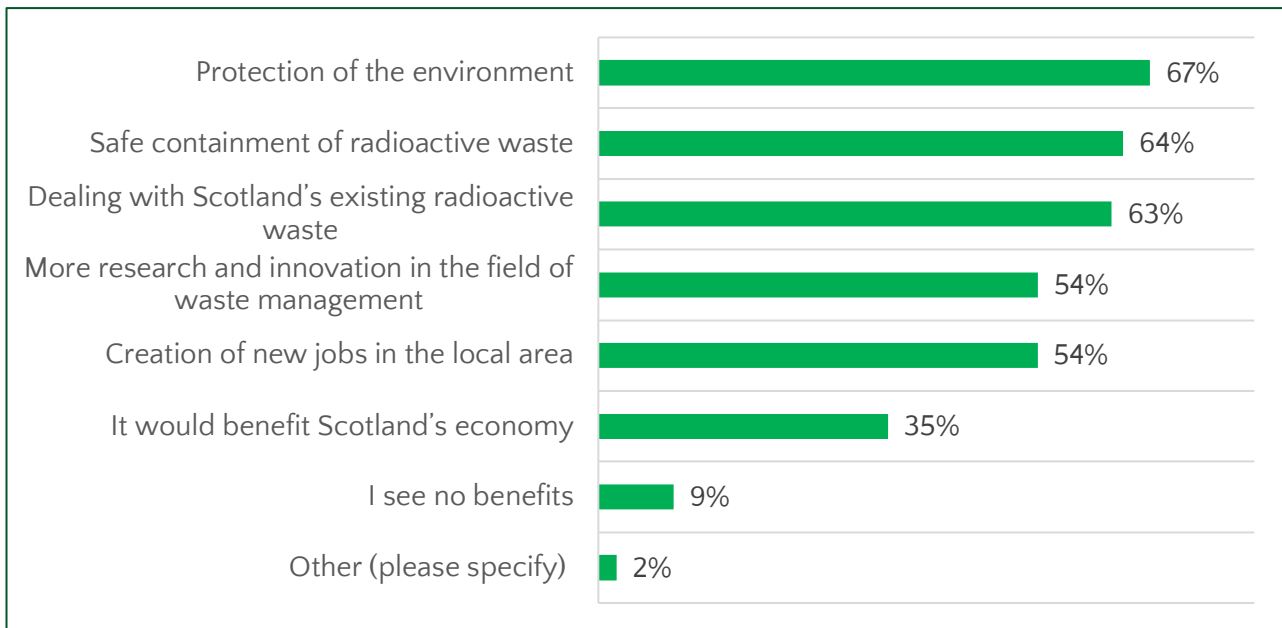
Base: All (2,155)

4.2 Impacts of new facilities to dispose of radioactive waste

In general, respondents believed there would be some benefits to Scotland from new facilities for managing radioactive waste (Figure 4.2). About two in three selected that new radioactive waste management facilities would add to the protection of the environment (67%), safe containment of radioactive waste (64%), and deal with Scotland's existing radioactive waste (63%). Respondents seemed more sceptical about the economic benefits of new facilities for radioactive waste management in Scotland, with about half (54%) of the view that new facilities would lead to the creation of new jobs in the local area and about one in three (35%) selecting that new facilities would benefit Scotland's economy.

Less than one in ten said that they see no benefits from new facilities for managing radioactive waste in Scotland (9%).

Figure 4.2: Which, if any, of the following benefits do you think new facilities for managing radioactive waste would bring to Scotland?



Base: All (2,160)

The other (please specify) option was used by 52 respondents to share that they either don't know what the benefits of a new facility would be or that they don't feel there would be any benefits of a new facility, e.g.: *"no benefits, it's deadly"*.

Indeed, many used the opportunity to discuss their concerns about new facilities. Those respondents who did not perceive any benefits of a new facility were concerned about Scotland being used to store radioactive waste created elsewhere:

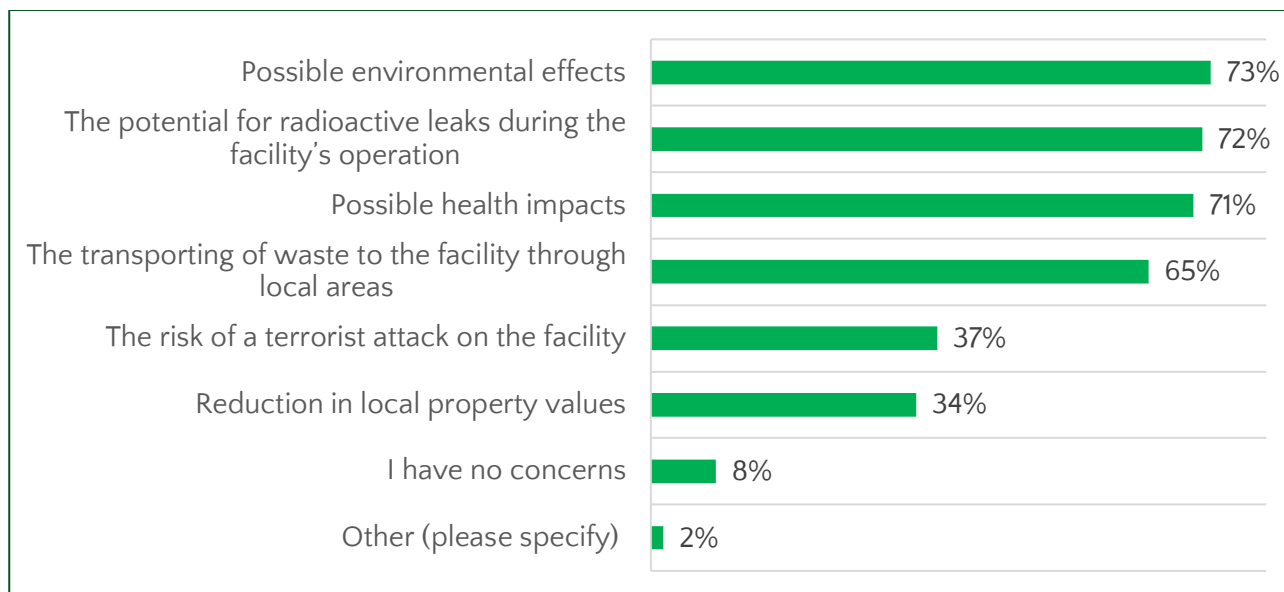
"I do not want Scotland to become a dumping ground for everyone`s waste".

"Scotland should not be taking nuclear waste from other countries. If another country has imposed nuclear sites on Scotland e.g., England then the waste should be taken back to that country and they should have to deal with it or dealing with other countries radioactive waste – also managing waste should be a devolved area".

Respondents were asked explicitly about the concerns they have about new facilities for managing radioactive waste in Scotland (Figure 4.3). About seven in ten respondents report concern with possible environmental effects (73%), potential for radioactive leaks during the facility's operation (72%), and possible health impacts (71%). About one in three were concerned about the risk of a terrorist attack on the facility (37%) and a potential reduction in local property values (34%).

Less than one in ten said that they have no concerns with new facilities for radioactive waste management in Scotland (8%).

Figure 4.3: Which, if any, of the following concerns do you have about new facilities for managing radioactive waste in Scotland?



Base: All (2,160)

A total of 39 respondents gave comments at this other (please specify) option and as with the previous question, many used this facility to report that they don't know what concerns they had about new facilities for managing radioactive waste in Scotland.

Some were worried about "adverse economic impacts and disinvestment in areas", while others were worried about the funding for such facilities. In particular, concerns about a lack of funding and what consequences would arise in particular:

"Costs to taxpayers and governments (local and national), particularly long term costs"

"Corners being cut to cut costs"

Again, disposal of waste from other areas was raised as respondents don't want Scotland to "become a dumping ground for other countries waste".

Other issues raised include risks of wartime damage and the facility being the target of a terrorist attack.

More positively, some also used the comment box to state they had no concerns about new facilities for managing radioactive waste. However, they would want assurances that the systems are regulated.

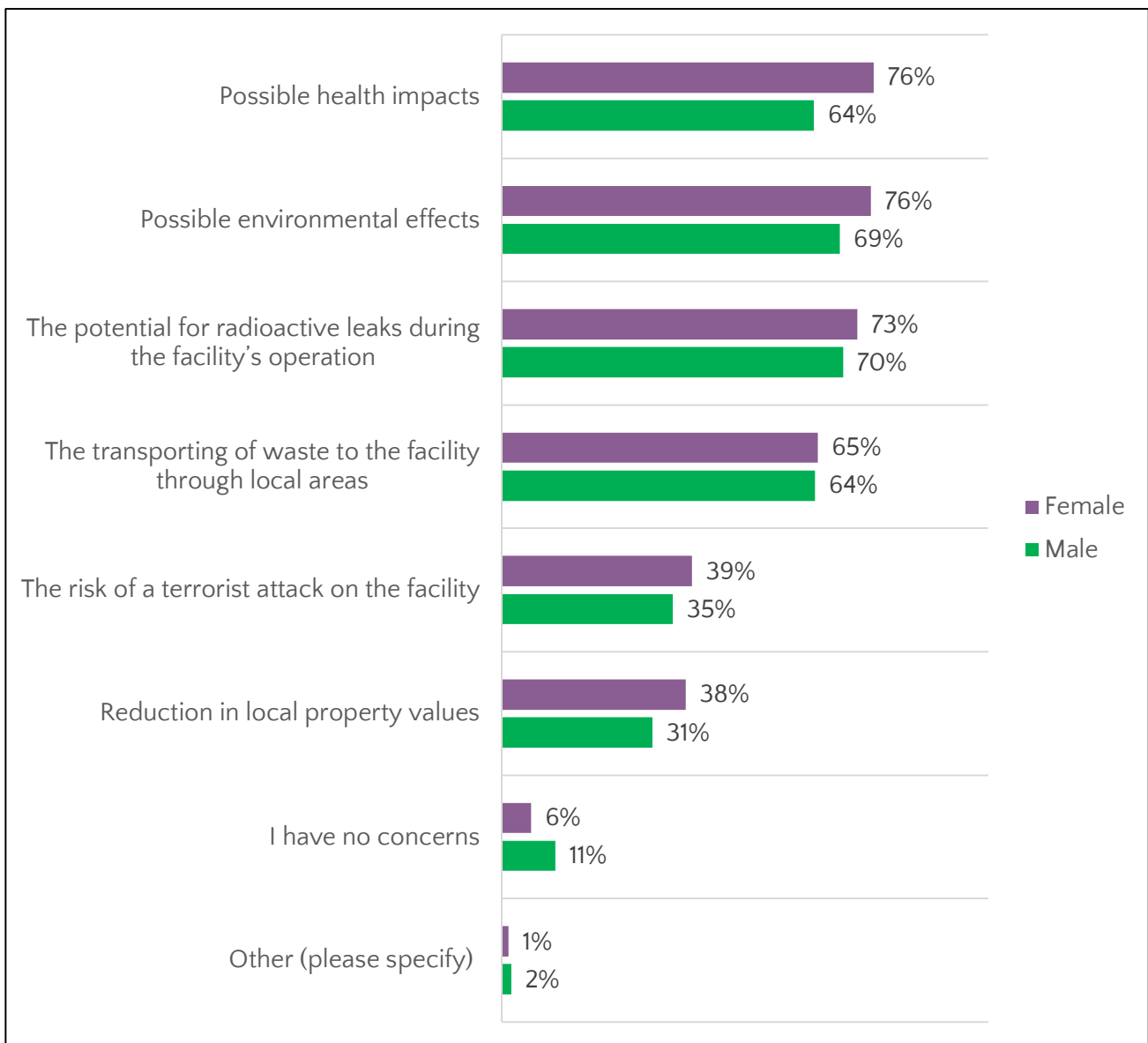
"I don't have any concerns as long as the companies, staff and anyone involved directly or indirectly are properly vetted and regulated. The sites and transport are adequately protected and ran to the high standards required"

Looking at between-group differences, females were more likely than males to be concerned about the possible health impacts (76% vs 64% males) and

environmental effects (76% vs 69% males) of new facilities for managing radioactive waste in Scotland. Females were also more likely than males to be concerned about the reduction in local property values (38% vs 31% males), however this was the least prevalent concern among the respondents.

In contrast, males were more likely than females to have no concerns about new facilities for managing radioactive waste in Scotland (11% vs 6% females).

Figure 4.4: Which, if any, of the following concerns do you have about new facilities for managing radioactive waste in Scotland? (By gender)



Base: Male (1,041), Female (1,119)

Chapter 5: Decision making in radioactive waste management policy

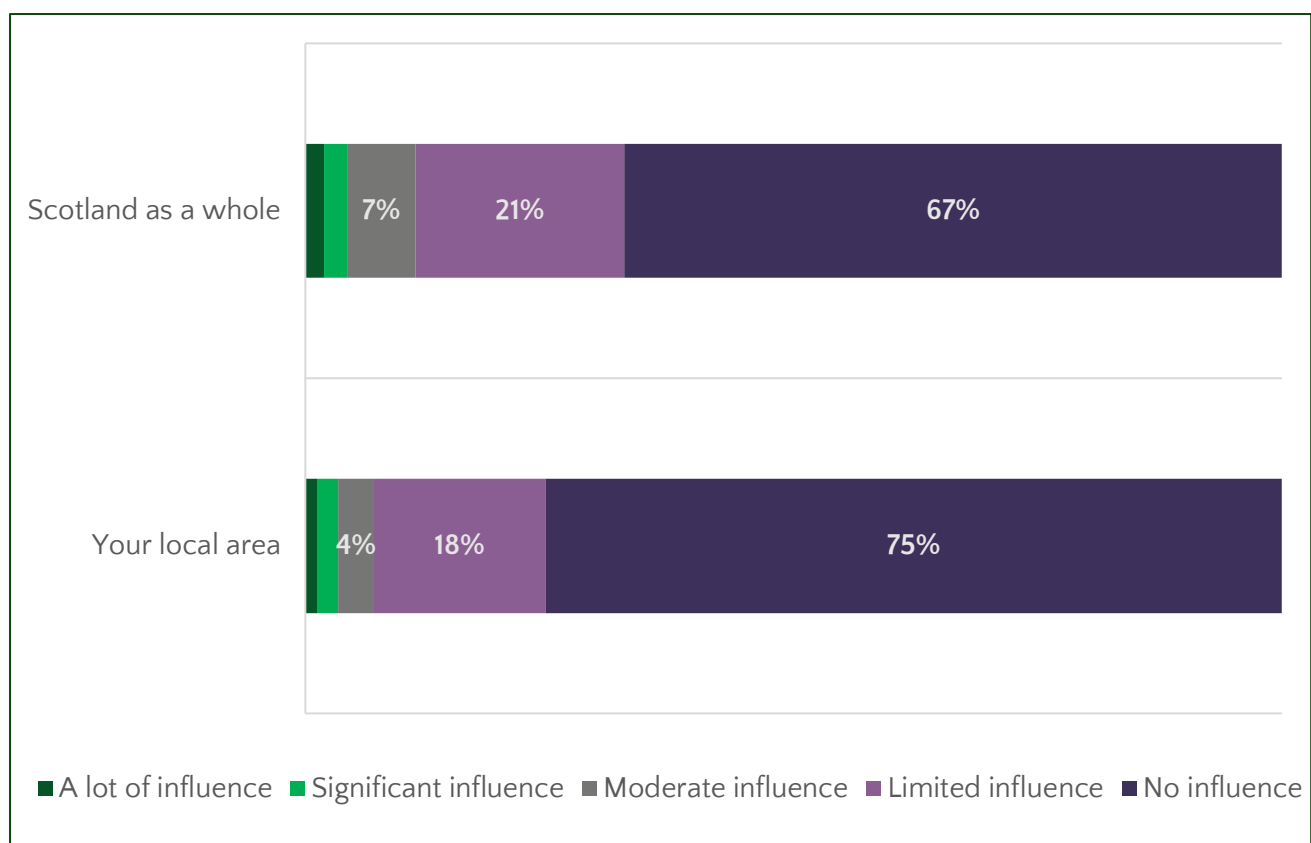
This section explores the public’s participation in, and influence in, decision-making at a local and national level.

5.1 Influence over decision-making

A vast majority of respondents believed that they have little to no influence over decision-making about radioactive waste disposal, both in Scotland as a whole (88%) and in their local area (93%). Most commonly, respondents reported that they have no influence over decision-making in either area (67%; 75%).

Only a very small proportion of respondents believed that they have a more than limited influence on decision-making in Scotland as a whole (11%) or their local area (7%).

Figure 5.1: How much influence, if any, do you feel you have over decision-making about radioactive waste disposal in:



Base: All (2,150)

It is worth noting that more respondents feel like they have less influence over decision-making in their local area over Scotland as a whole.

Looking more closely at those who feel they have no influence over decision making, there were some notable demographic differences in opinion (Figure 5.2).

In particular, those from the most deprived neighbourhoods – SIMD 1 and 2 – were most likely to report that they have no influence over decision-making, either at a national or local level. 83% of those in SIMD 1 said they have no influence over decision-making in their local area, while 74% said they have no influence over decision-making in Scotland as a whole. In contrast, these percentages fell to 72% and 62% respectively for those in the least deprived neighbourhoods – SIMD 5.

Figure 5.2: How much influence, if any, do you feel you have over decision-making about radioactive waste disposal in: (By those who feel they have no influence over decision making only)

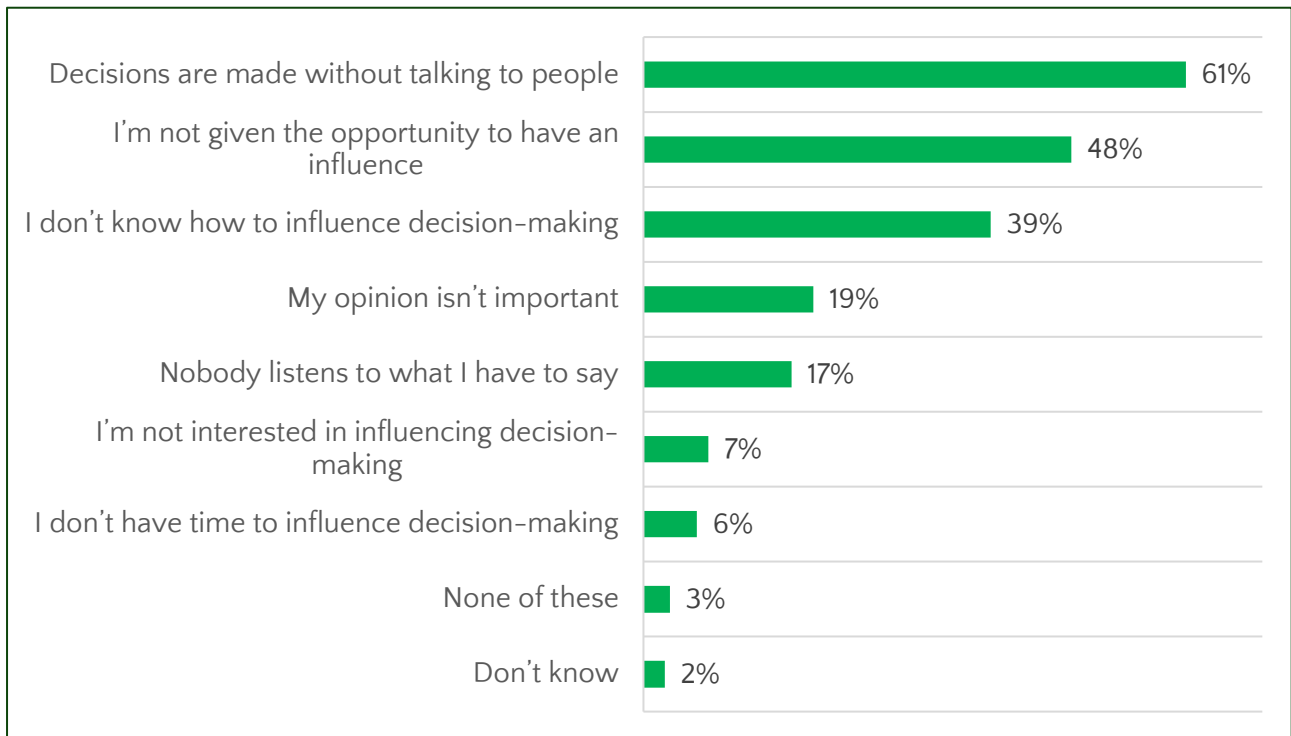


Base: Those with no influence only (Your local area (1,622), Scotland as a whole (1,446))

Those who selected that they have limited or no influence over decision-making about radioactive waste disposal in either area were asked a follow-up question, to ascertain why they feel this way. Most commonly, those who report they have limited or no influence said they feel this way because they feel that decisions are made without talking to people (61%) or that they're not given the opportunity to have an influence (48%). Two in five (39%) selected that they have limited or no influence over decision-making because they don't know how to influence decision-making.

Of those who felt like they have limited or no influence over decision-making, a small minority reported that they are not interested in influencing decision-making (7%) or that they do not have time to influence decision-making (6%).

Figure 5.3: You said that you feel you have limited or no influence over decision making. Why do you feel like this?



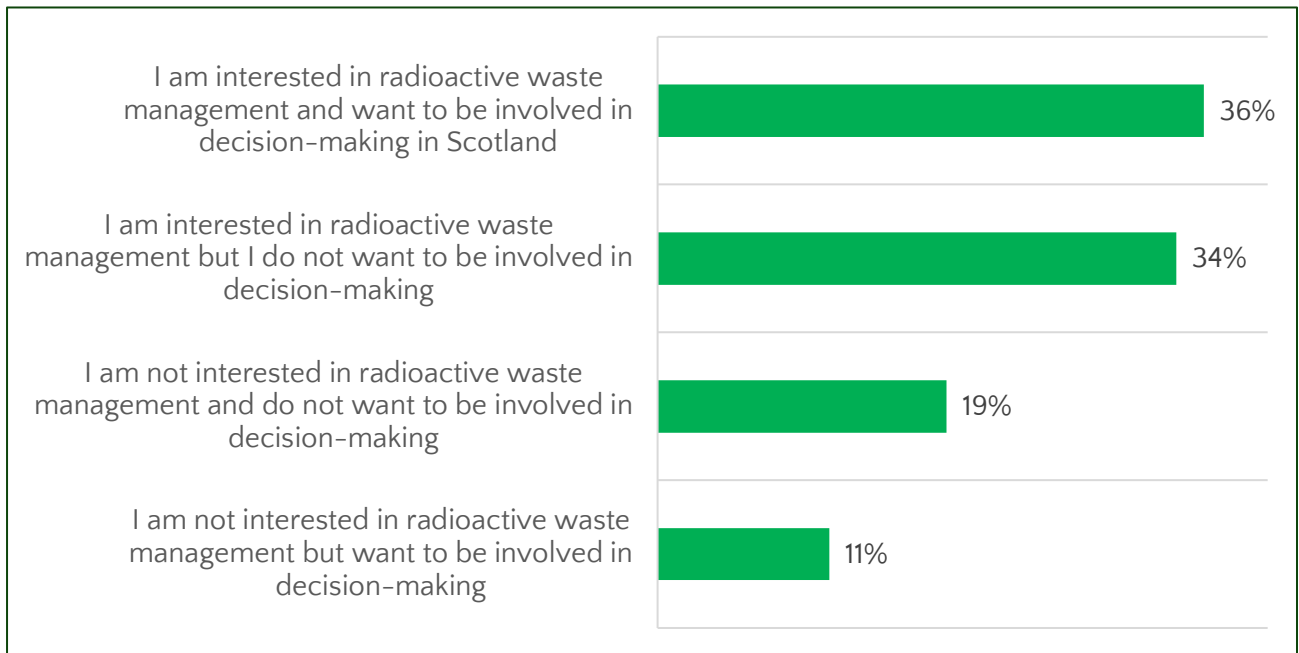
Base: Those who have limited or no influence over decision-making (2,041)

5.2 Involvement in the decision-making process

Results from the survey showed a strong interest in radioactive waste management (Figure 5.4). Overall, 70% of the respondents reported that they were interested in radioactive waste management. However, this majority was split by desire to be involved in decision-making in Scotland; one third (36%) of the respondents were interested in radioactive waste management and want to be involved in decision-making in Scotland, while another third (34%) were interested but do not want to be involved in decision-making.

In contrast, about a third (30%) were not interested in radioactive waste management. Amongst this group, more do not want to be involved in decision-making (19%), than want to be involved (11%).

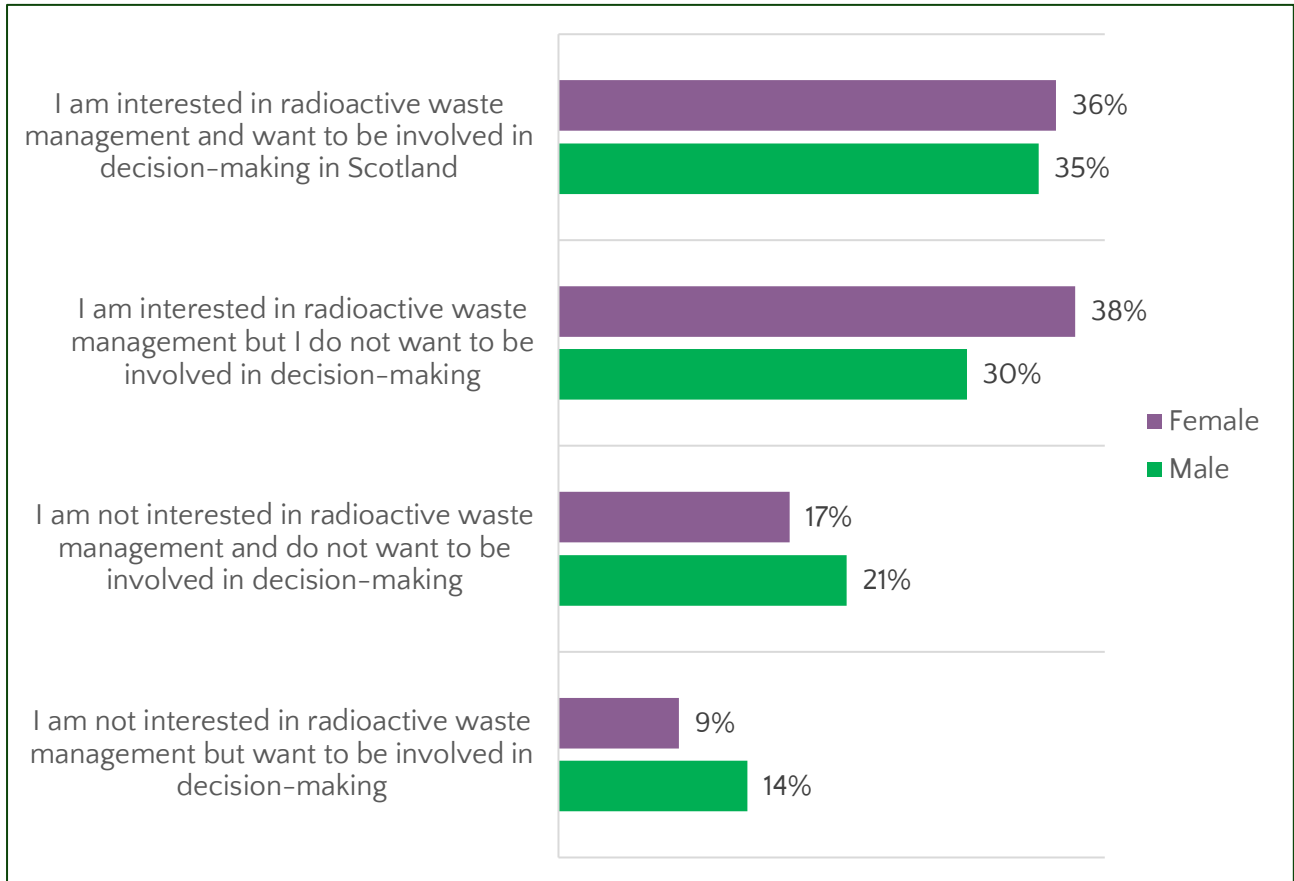
Figure 5.4: Which of the following comes closest to your view?



Base: All (2,144)

Key demographic differences emerged in relation to interest and desire to be involved in decision-making about managing radioactive waste (Figure 5.5). In particular, females (38%) were more likely than males (38%) to select that they are interested in radioactive waste management but do not want to be involved in decision making. In contrast, males were more likely to say they are not interested in radioactive waste management but want to be involved in decision-making (14%) than females (9%).

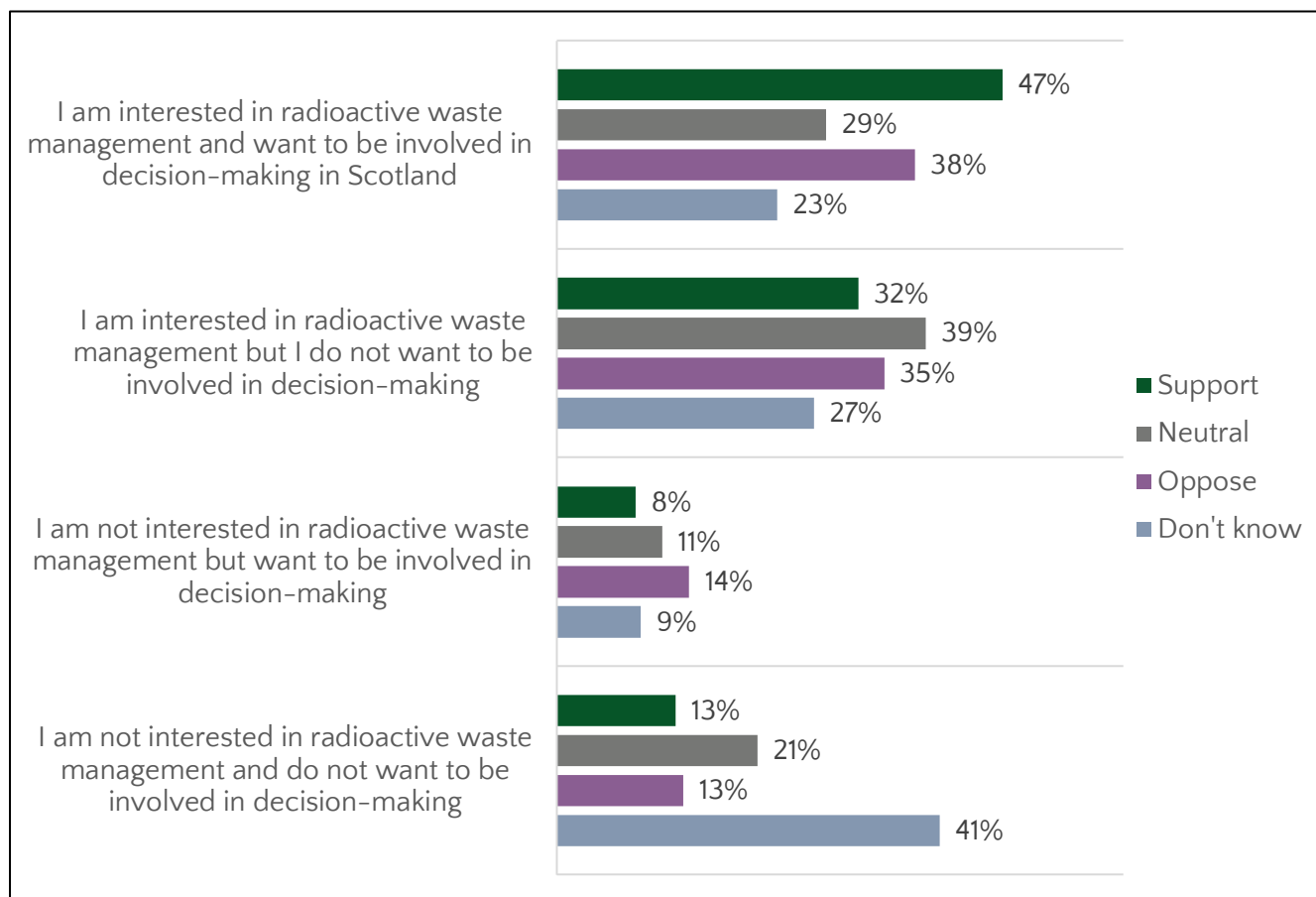
Figure 5.5: Which of the following comes closest to your view? (By gender)



Base: Male (1,036), Female (1,109)

Interest and desire to be involved in decision-making were also related to attitudes towards radioactive waste management and the construction of management facilities (Figure 5.6). Overall, those that hold an opinion about the construction of radioactive waste management facilities in their local area, either supportive (47%) or opposing (38%), were more likely to say that they are interested in radioactive waste management and want to be involved in decision-making than those that were neutral (29%) or those that don't know (23%). Those supportive of the construction of facilities for managing radioactive waste near them were most likely to express interest and want to be involved in decision-making.

Figure 5.6: Which of the following comes closest to your view? (By level of support for new facilities)



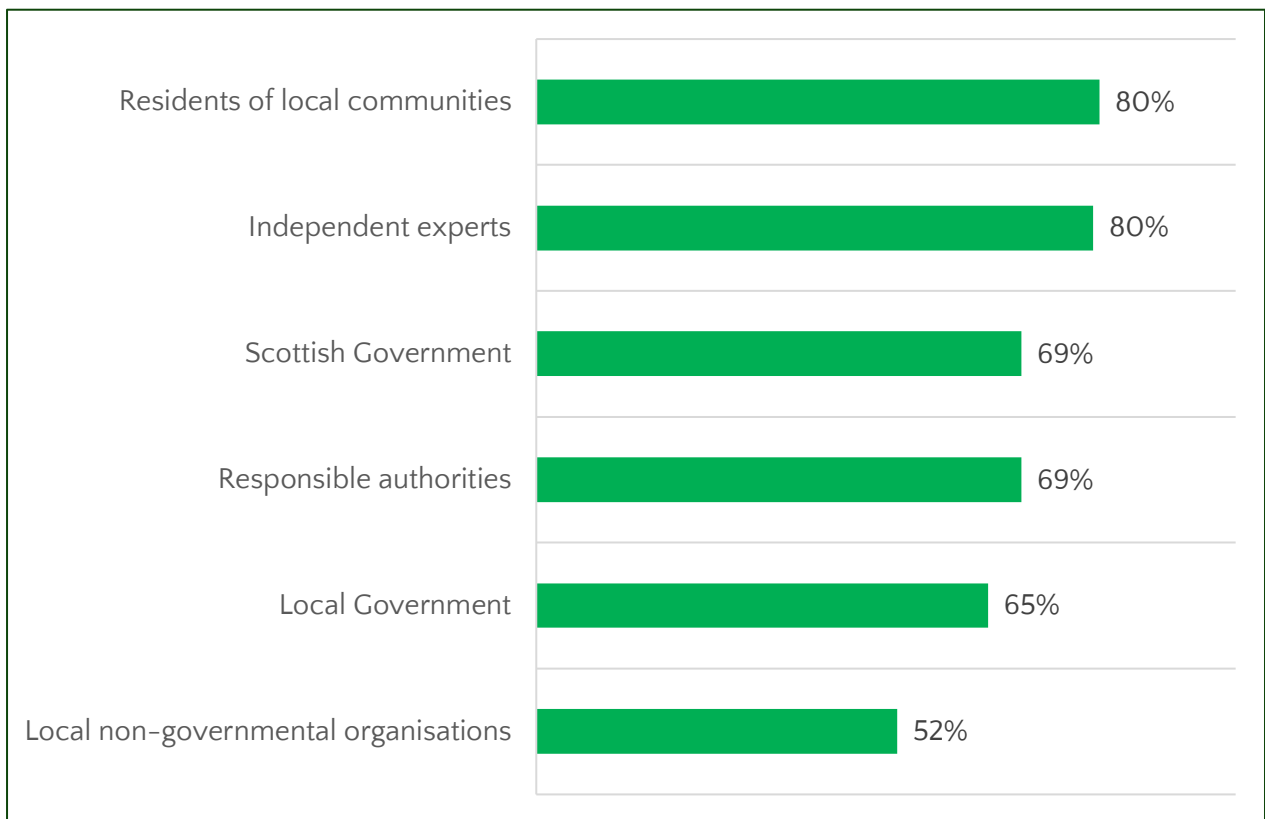
Base: Support the construction of new facilities (541), Neutral (548), Oppose the construction of new facilities (752), DK (291)

Support and opposition to new facilities is explored in section 3.3.

When considering those that should be consulted in the construction of a radioactive waste disposal site in Scotland, the respondents selected a range of actors to be involved in this process (Figure 5.7). Most commonly, four in five believed that residents of local communities (80%) and independent experts (80%) should be involved in this process.

Over two thirds believed the Scottish Government (69%), the responsible authorities (69%) and the local government (65%) should be involved in the decision-making process for new facilities in Scotland. Over half (52%) believed local non-governmental organisations should be included.

Figure 5.7: Thinking about the hypothetical construction of a disposal site for radioactive waste in Scotland, which of the following do you think should be involved in the decision-making process?



Base: All (2,160)

Conclusion

This research provides new insights into the perceptions and views towards radioactive waste management in Scotland. Current and reliable insights from the Scottish public are crucial to ensure policymakers are well-informed, and this is the first research of its kind exploring radioactive waste management in Scotland.

A clear finding from this study is that the majority of respondents don't feel informed about radioactive waste management. There is a mixed appetite for more information, with around half of all respondents interested in learning more about radioactive waste management.

Despite this, almost all respondents have never attempted to become informed in the past. If they were to source information themselves, most people would go to academia, internet, Scottish Government and the regulators of the industry. The results suggest respondents are more likely to trust academics more than information sourced from the internet, the Scottish Government or the regulators of the nuclear industry.

The majority of respondents were also of the view that the regulators of the industry, the nuclear industry and the Scottish Government should be doing more to inform the public on radioactive waste management.

Given the broad lack of knowledge of the radioactive waste management process and related policies it is somewhat unsurprising that respondents to the survey didn't know about the best ways to manage radioactive waste.

However, there is broad agreement that there needs to be a robust strategy to manage radioactive waste with the main concerns for environmental, intergenerational and health impacts.

Indeed, protection of human health, the environment and the security of facilities are the top priorities in radioactive waste management. Interestingly, respondents would rather minimise the burden on future generations than keep more options open to them.

In terms of decision-making, people don't feel they have much influence either at local or national level and this was felt more acutely by people living in the most deprived areas.

There were a range of reasons for feeling this way, however the most common included feeling like decisions were made without talking to people, people aren't given the opportunity to input and people don't know how to input.

There was a mixed appetite for wanting to be involved in decision making with around a half of respondents wanting to be involved.

Interestingly, if a new development was to be proposed the majority of respondents would prefer residents of the local community and independent experts to be involved in the decision-making process.

Appendix A: Survey Questionnaire

Introduction

The Scottish Government is seeking views on radioactive waste management in Scotland.

This survey will ask a few short questions about your knowledge and opinions on radioactive waste management. It should take about 10 minutes. These questions apply only to waste from Scottish sites, including Scotland's historic nuclear power stations.

[Ask all]

Q1. How well informed do you think you are about radioactive waste management in Scotland?

- Very well informed,
- Fairly well informed,
- Not very well informed,
- Not at all informed,
- Don't know

[Ask all]

Q2. For each of the following statements, please select whether you think it is true or false.

[Randomise order]

- Radioactive waste is a byproduct of nuclear power generation,
- There are several categories of radioactive waste, for example low, intermediate and high level radioactive waste,
- Some hospitals produce radioactive waste,
- Some scientific research centres produce radioactive waste,
- Some other non-nuclear industries in Scotland produce radioactive waste,
- Radioactive waste management is a devolved matter (i.e. The Scottish Parliament has power to make laws on radioactive waste management)

Scale: True, False, Don't know

[Ask all]

Q3. And for each of the following statements please select whether you think it is true or false about the way radioactive waste in Scotland is currently managed

[Randomise order]

- Some radioactive waste is reused or recycled,
- Some radioactive waste is put into solid form and packed into steel drums,
- Some radioactive waste is disposed of in deep underground sites,
- Some radioactive waste is disposed of in licensed landfill sites,
- Some radioactive waste is stored for decades before disposal,
- Some radioactive waste is dumped at sea.

Scale: True, False, Don't know

[Ask all]

Q4. Have you ever attempted to find information about the way radioactive waste is managed in Scotland?

- Yes
- No

[Ask all]

Q5. To what extent do you trust each of the below to give you information about the way radioactive waste is managed in Scotland? Where 10 is trust completely and 0 is do not trust at all.

[Randomise order]

- The Scottish Government,
- Non-governmental organisations (NGOs) concerned about the environment,
- Scientists/academia,
- The media,
- Search engine/internet
- The nuclear industry,
- Regulators of the nuclear industry,

- International organisations working on peaceful uses of nuclear technology,
- Friends and family members,

Scale: 0-10, Don't know.

[Ask all]

Q6. Do you want to know more about radioactive waste management in Scotland?

- Yes
- No

[Ask all]

Q7. If you wanted to find information about the way radioactive waste is managed in Scotland, which of the following sources would you use?

[Randomise order]

- The Scottish Government,
- Non-governmental organisations (NGOs) concerned about the environment,
- Scientists/academia,
- The media,
- Search engine/internet,
- The nuclear industry,
- Regulators of the nuclear industry,
- International organisations working on peaceful uses of nuclear technology,
- Friends and family members,
- Other (please specify)
- Don't know

[Ask all]

Q8. On a scale of 0-10, with 10 being extremely important and 0 being not important at all, how important do you believe each of these should be when thinking about managing radioactive waste in Scotland?

[Randomise order]

- Protection of human health,

- Protection of environment,
- Cost to tax payers,
- Investing in the development of new technologies
- Growing Scotland's economy
- Minimising the burden placed on future generations, which may mean reducing options available to them
- Maximising the ability of future generations to exercise choice, which may mean increasing the burden passed to them
- Disposing of radioactive waste as quickly as is reasonably practicable
- Security of radioactive waste management facilities

Scale: 0-10, Don't know.

[Ask all]

Q9. To what extent do you agree or disagree with the following statements:

[Randomise order]

- The disposal of radioactive waste can be done in a safe manner,
- The disposal of radioactive waste can be done in a cost-effective manner,
- I am confident that radioactive waste is managed in the best way in Scotland,
- Current technologies can manage radioactive waste safely,
- Enough research is being done on safer methods of radioactive waste management,
- Enough research is being done on more efficient methods of radioactive waste management,
- The nuclear industry is open in providing information about radioactive waste,
- Public education is important in the management of radioactive waste,

Scale: Strongly agree, tend to agree, neither agree nor disagree, tend to disagree, strongly disagree, don't know

[Ask all]

Q10. To what extent do you agree or disagree with the following statements:

[Randomise order]

- It is vital for Scotland to have a robust strategy for radioactive waste management
- I am concerned about the impact of radioactive waste management on the environment,
- Radioactive waste management positively impacts Scotland's environment and economy
- I am concerned about the impact of radioactive waste management on my health,
- I am concerned about the impact of radioactive waste management on future generations,

Scale: Strongly agree, tend to agree, neither agree nor disagree, tend to disagree, strongly disagree, don't know

[Ask all]

Q11. To what extent do you agree or disagree with the following:

- The Scottish Government should do more to inform the public about radioactive waste management
- The Scottish Nuclear Industry should do more to inform the public about radioactive waste management
- Regulators of the Scottish Nuclear Industry should do more to inform the public about radioactive waste management
- The media should do more to inform the public about radioactive waste management

Scale: Strongly agree, tend to agree, neither agree nor disagree, tend to disagree, strongly disagree, don't know

[Ask all]

Q12. How much influence, if any, do you feel you have over decision making about radioactive waste disposal in:

- Your local area,
- Scotland as a whole.

Scale: A lot of influence, Significant Influence, Moderate Influence, Limited Influence No Influence

[Ask if Q14 = Limited or no influence]

Q13. You said that you feel you have limited or no influence over decision making. Why do you feel this? Please select all that apply.

[Randomise order]

- Nobody listens to what I have to say,
- Decisions are made without talking to people,
- My opinion isn't important,
- I'm not given the opportunity to have an influence,
- I'm not interested in influencing decision making,
- I don't have time to influence decision-making,
- I don't know how to influence decision making,
- None of these,
- Don't know

[Ask all]

Q14. Which of the following comes closest to your view:

- I am interested in radioactive waste management and want to be involved in decision making in Scotland,
- I am interested in radioactive waste management but I do not want to be involved in decision making,
- I am not interested in radioactive waste management but want to be involved in decision making
- I am not interested in radioactive waste management and do not want to be involved in decision making

[Ask all]

Q15. Which of the following statements comes closest to your view when thinking of the risks and benefits in relation to radioactive waste management?

- The benefits of managing radioactive waste are significantly greater than the risks of managing radioactive waste.
- The benefits of managing radioactive waste are somewhat greater than the risks of managing radioactive waste.
- The benefits and risks of managing radioactive waste are equal.
- The risks of managing radioactive waste are somewhat greater than the benefits of managing radioactive waste.
- The risks of managing radioactive waste are significantly greater than the benefits of managing radioactive waste.

- Don't know

[Ask all]

Q16. Please tell us why you feel this way.

Open-text question.

[Ask all]

Q17. Which, if any, of the following benefits do you think new facilities for managing radioactive waste would bring to Scotland? Please select all that apply.

[Randomise order]

- Creation of new jobs in the local area
- Protection of the environment
- Dealing with Scotland's existing radioactive waste
- It would benefit Scotland's economy
- Safe containment of radioactive waste
- More research and innovation in the field of waste management
- I see no benefits
- Other (please specify)

[Ask all]

Q18. Which, if any, of the following concerns do you have about new facilities for managing radioactive waste in Scotland? Please select all that apply

[Randomise order]

- The transporting of waste to the facility through local areas
- The potential for radioactive leaks during the facility's operation
- The risk of a terrorist attack on the facility
- Possible environmental effects
- Possible health impacts
- Reduction in local property values
- I have no concerns
- Other (please specify)

[Ask all]

Q19. How supportive are you of the construction of facilities for managing radioactive waste in your local area?

- Strongly supportive

- Somewhat supportive
- Neutral
- Somewhat opposed
- Strongly opposed
- Don't know

[Ask all]

Q20. Thinking about the hypothetical construction of a disposal site for radioactive waste in Scotland, which of the following do you think should be involved in the decision-making process?

[Select all that apply]

- Residents of local communities
- Local Government
- Local non-governmental organisations
- Scottish Government
- Responsible authorities
- Independent experts

[Ask all]

Q21. Reflecting on radioactive waste management in Scotland overall, do you have any further comments you would like to make in response to this survey?

Open text



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This document is also available from our website at www.gov.scot.
ISBN: 978-1-83601-404-1

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

Produced for
the Scottish Government
by APS Group Scotland
PPDAS1469198 (08/24)
Published by
the Scottish Government,
August 2024



Social Research series
ISSN 2045-6964
ISBN 978-1-83601-404-1

Web Publication
www.gov.scot/socialresearch

PPDAS1469198 (08/24)