

Integrated Strategy for Radioactive Waste What We Heard Report (4)

Youth Engagement

Held Between April and November 2021

Table of Contents

Executive Summary	3
At a Glance - Key Themes from the Youth Engagement Activities	5
Conclusion	8
Youth Engagement Activities - What We Heard	9
Safety is Paramount	10
Education and Engagement	10
Trust and Relationships with Indigenous Communities	12
Communication and Transparency	12
Sustainability and the Environment	13
Environmental Justice	13
Transportation	14
Rolling Stewardship and Waste Disposal	14
Co-location and Centralization	14
Shared Responsibility Framework / Independence of Accountable Entity	15
Appendix A – Youth Engagement Activities	17
Appendix B – Promotion of Youth Engagement Activities	19
Appendix C – ISRW Guiding Principles	22
Appendix D – Youth Engagement Reports	24
Report from Youth Focus Groups on the Integrated Strategy for Radioactive Waste	25
Youth Perspectives on the Integrated Strategy for Radioactive Waste (ISRW) in What Is Currently Canada	39
Summary Report from Youth Roundtables on the Integrated Strategy for Radioactive Wast co-designed and led by Groundswell Projects, Tawi:ne Consulting and Shake Up the	te
Summary Report of NWMO Fall Youth Engagement Sessions	94
Glossary of Terms (Nuclear Waste Management)	101

Executive Summary

In the fall of 2020, the Minister of Natural Resources Canada tasked the Nuclear Waste Management Organization (NWMO) with leading an engagement process with Canadians and Indigenous peoples to inform the development of an integrated long-term management strategy for all of Canada's radioactive waste, in particular low- and intermediate-level waste (radwasteplanning.ca), as part of the government's radioactive waste management policy review.

The NWMO was asked to lead this work because it has close to 20 years of recognized expertise in the engagement of Canadians and Indigenous peoples on plans for the safe long-term management of used nuclear fuel. The Integrated Strategy for Radioactive Waste (ISRW) is distinct from the work that the NWMO is leading on the deep geological repository for used nuclear fuel which will continue as planned.

In 2021, the NWMO began engaging with Canadians and Indigenous peoples, conducting public opinion research, hosting a <u>Summit</u> to hear from diverse voices, listening to citizens in a series of engagement sessions in communities where waste is stored today, and hosting roundtable discussions and technical Workshops. This report summarizes what we heard from youth engagement activities which took place from April to November 2021.

The intent of the ISRW is to identify next steps to address gaps in Canada's current radioactive waste management strategy, in particular for low- and intermediate-level radioactive waste, and to look further into the future. We stipulated at the start of each session that our focus is on engagement, information sharing and gathering, not consultation.

Through these youth engagement activities, conversations took place with close to 200 diverse Canadian and Indigenous youth 14-29 years of age across the country to gain their perspectives on the long-term strategy for managing Canada's low- and intermediate-level waste. All the events offered several opportunities for attendees to participate, give feedback and ask questions about topics that were important to them. Refer to **Appendix A – Youth Engagement Activities** for a list of dates when youth engagement activities were held, and to **Appendix B – Promotion of Youth Engagement Activities** for more details on how the youth engagement activities were promoted to invite youth participation.

To deliver the engagement activities, the NWMO collaborated with independent organizations that have extensive experience and expertise delivering participatory youth processes. For those sessions hosted by the NWMO directly, an independent facilitator led the discussions.

Across all of the engagement activities, youth provided input on a consistent set of questions on the topic of 'How should we best deal with Canada's Low-Level Waste and Intermediate-Level Waste over the long-term?' These included:

- 1. What is **most important to get right** when developing an Integrated Strategy for Canada's Radioactive Waste?
- 2. How do we **best deal with** Canada's Low-Level Waste and Intermediate-Level Waste over the long-term?
- 3. Who should be **responsible** for implementing the strategy?

ISRW guiding principles were also shared with participants. Refer to **Appendix C** – **ISRW Guiding Principles** for the full text of the ISRW Guiding Principles.

A total of 170 youth participated across all engagement activities, from the following provinces and territories: Northwest Territories, British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Nova Scotia, New Brunswick, and Newfoundland and Labrador. Where asked, youth participants self-identified as follows:

- Indigenous
- Black
- East Asian
- Latin American (including Indigenous persons from Central and South America)
- Middle Eastern Arab, Persian, West Asian descent South Asian
- Southeast Asian
- White

The Youth Engagement Activities included the following:

Youth focus groups facilitated by Hill+Knowlton Strategies in April 2021. These virtual focus groups engaged youth participants from across the country. They included three sessions in English and one session in French. NWMO representatives did not participate directly in these sessions.

Youth roundtable sessions designed and led by Shake Up the Establishment in September 2021. These virtual roundtables included an Indigenous-led session, a BIPOC-led session, a women-led roundtable, and a session with youth-led organizations. To create a safe space for youth participants, the NWMO were asked not to participate in these sessions.

Youth roundtables co-organized and co-facilitated by Groundswell Projects, Tawi:ne Consulting and Shake Up the Establishment, September to October 2021.

These virtual roundtables engaged Indigenous and diverse Canadian youth. They used a working-group approach, where the same group of participants was engaged in all three roundtables and were designed to bring together lived experiences, Western Science, and Indigenous Knowledge frameworks as lenses for the exploration of the ISRW. The NWMO's involvement was limited to providing the technical content, materials, and expertise to support the engagement. Fall youth engagement sessions led by NWMO with an independent facilitator, October to November 2021. These virtual sessions engaged university students and representatives from industry organizations with youth memberships. The NWMO's involvement was limited to providing the technical content, materials, and expertise to support the engagement, as well as responding to questions from the participants.

This What We Heard Report presents the commonly heard themes that arose over the course of the 15 virtual youth engagement sessions across the country and is not a reflection of each of the individual comments that were made.

Input from our engagement efforts will be considered in the drafting of the recommendations for the ISRW. This strategy will be based on public input, Indigenous Knowledge, international scientific consensus, and best practices from around the world. Draft recommendations will be published later this year and will also be informed by the Government of Canada's revised radioactive waste management policy.

A summary of key findings is below, and these are addressed in more detail in the section entitled Youth Engagement Activities – What We Heard.

Refer to **Appendix D – Youth Engagement Reports** to read the summary reports and insights prepared by the third-party youth engagement organizers, as well as a summary from the NWMO hosted youth engagement sessions.

At a Glance - Key Themes from the Youth Engagement Activities

Key Finding 1 - Safety is Paramount

We heard that as a key priority, safety should be considered through a long-term lens. This is important so that the strategy is able to respond to future risks and ensure safety in unpredictable and potentially unstable future conditions in the environment, government, and technology. For the participants this meant choosing solutions that offer the highest level of safety in terms of storage and isolation of waste; integrating climate and social change modeling as part of risk management; embedding flexibility and adaptability into the strategy; and using governance approaches that provide consistency and accountability. Participants prioritized safety over cost efficiency.

Key Finding 2 - Education and Engagement

Youth participants wanted to see broad engagement across diverse stakeholder groups and ongoing engagement and relationship building with impacted communities and Indigenous peoples. We heard that relevant and accessible education about radioactive waste management is a requirement for creating meaningful engagement opportunities for all groups. Participants felt that youth perspectives should be an integral part of any future planning and management strategy. They saw a need for an intergenerational education strategy to cultivate a sense of responsibility for the long-term strategy implementation among young people. Participants highlighted the benefits of learning from international best practices as valuable sources of data and expertise. However, participants generally supported the idea of a Made-In-Canada solution that would consider the unique conditions and environment of Canada including the size of the country, the diversity of Canadians and the changing climate.

Key Finding 3 - Trust and Relationships with Indigenous Communities

We heard that meaningful engagement and ongoing relationship building with Indigenous communities is a priority for young people. Participants wanted the strategy to include a requirement to observe Indigenous communities' right to Free Prior and Informed Consent and to be mindful of exploitative practices with respect to Indigenous involvement. They expressed that the strategy should be centering Indigenous perspectives, expertise and worldviews and contribute to Indigenous Sovereignty through building structures for Indigenous communities to take back control over the long-term stewardship of their land. This includes embedding Indigenous communities and leaders within the management and oversight of the strategy and supporting capacity building for Indigenous communities to take part in these processes.

Key Finding 4 - Communication and Transparency

We heard that transparency, including clear, open, and ongoing communication about decisions and processes, is very important for youth. Transparency in communication means providing all of the key information in a relevant, accessible and an unbiased way. Transparency also includes providing regular and frequent check-ins and updates to the impacted communities and stakeholders. Similar to the theme on education, participants underlined the importance of transparent information and communication for meaningful engagement and building trusting relationships.

Key Finding 5 – Sustainability and the Environment

We heard that protection of land, water, and the environment needs to be a top priority. Participants expressed that waste disposal sites should not be built near water as they can contaminate it and affect their way of life. They also noted that the goal of minimizing environmental impacts should be viewed through a lifecycle approach and include the construction of facilities and transportation of radioactive waste.

Key Finding 6 – Environmental Justice

Youth participants were acutely aware of the history of environmental racism especially towards Indigenous communities. They saw environmental justice as a key consideration when discussing how many facilities to build and where. Participants wanted to ensure that the strategy does not disproportionately place the responsibilities and risks associated with radioactive waste management on some communities.

Key Finding 7 - Transportation

Transportation came up as one of the considerations in the discussion of how many facilities to build and where. While participants understood that transportation of radioactive waste is heavily regulated, they were concerned about the potential risks associated with transporting the waste over large distances and near built up areas. Participants wanted to ensure there are risk mitigation and incident response plans in place. Other concerns around transportation included cost, potential increase of greenhouse gas emissions and potential environmental impacts from building new access roads.

Key Finding 8 - Rolling Stewardship and Waste Disposal

We heard a range of responses on the topic of rolling stewardship vs. waste disposal. Some participants found rolling stewardship to be a good solution for low-level waste. They felt it provided better oversight and created the possibility of taking advantage of future technological advances for recycling or reusing this waste. Concerns around rolling stewardship were around deferring the responsibility of dealing with radioactive waste to future generations and the risks associated with forgetting about these facilities, facility failure or mismanagement. Many participants were open to either approach as long as safety was ensured.

Key Finding 9 - Co-location and Centralization

We heard an overall openness to co-location strategies for all types of waste. However, participants noted that they required more information about how different types of waste are managed and the implications around co-location. Responses showed that most participants considered specialized and more decentralized facilities to be an appropriate strategy for low-level waste due to lower risks associated with this waste. One recommendation that received broad support was to explore building several facilities around the country (multiple facilities but a limited number of them).

Participants expressed a greater preference for using centralized facilities for intermediate level waste to enable greater control and oversight over the long lifespan of this waste. Many participants wanted to see this waste treated the same as high-level waste and to be disposed of in a Deep Geological Repository.

Key Finding 10 – Shared Responsibility Framework / Independence of Accountable Entity

We heard that most participants would like to see a single centralized organization taking responsibility for the implementation of the ISRW. However, some saw this organization as a government body or government-led, while others wanted to see this organization being more independent. A shared perspective among these responses was that this organization should include multi-stakeholder representation with Indigenous communities playing a key, if not the lead role.

There was a mix of responses about the role of waste producers in strategy implementation. Some participants wanted to see waste producers playing a stronger role, with government oversight. Others felt that waste producers' role should be limited to fiscal responsibility and engagement in a multi-stakeholder process. There was broad support for the polluter pays approach for financing the strategy.

Conclusion

We have heard various opinions, feedback, and thoughts from Indigenous and diverse Canadian young people across the country. There is a wide range of sentiment regarding this nuanced issue.

It was our intention to collect and present these views in a manner that reflects the voices of the people we engaged with and integrate this invaluable feedback as we proceed with recommending the next steps towards managing low- and intermediate-level waste in Canada for which there are currently no long-term plans.

This is an ongoing conversation, and inclusion is an essential aspect of our project as this will be a decision affecting future generations of Canadians and Indigenous peoples.

The NWMO's recommendations will also be informed by the <u>revised policy on</u> <u>radioactive waste</u>, which was published for public comment in February 2022.

Youth Engagement Activities - What We Heard

This What We Heard Report represents the commonly heard themes that arose and is not a reflection of all the individual comments that were made.

We heard that young people across Canada care deeply about the environment and their communities. They are concerned about the future and want to be involved in conversations on issues that impact it. Participants felt that youth perspectives should be an integral part of the strategy for the long-term management of Canada's radioactive waste.

At the same time, we heard that for the most part young people are unaware of radioactive waste management in Canada. Youth participants felt that information about this issue is not being brought into spaces where young people are having conversations on issues they care about. Participants identified education and engagement as one of the key requirements for the ISRW. They wanted to see comprehensive, youth-friendly, and unbiased information about the solutions that are being considered as part of the strategy in order to enable youth to provide meaningful input.

Across all engagement activities many participants expressed that they needed to learn more to be able to offer their perspectives or recommendations. Many also felt that the information presented to them felt overwhelming. The Groundswell, Tawi:ne Consulting and Shake Up the Establishment collaborative roundtables showed the value of spending time on learning about the topic over multiple sessions. The approach of engaging the same group of youth over three roundtables helped participants feel more confident about providing their input.

With regard to engagement, youth participants emphasized the importance of comprehensive and meaningful engagement and relationship building with Indigenous communities. They wanted to see Indigenous leaders and communities play a key role in the management and oversight of the strategy implementation.

From the discussion on disposal facilities and solutions for the management of radioactive waste we heard that young people are concerned about ensuring the long-term safety of these solutions. Participants felt that we are facing an uncertain future and wanted to see a strategy that is long-lasting and takes into account potential future risks and instabilities. Approaches that support this from the youth perspective included using solutions that offer the highest level of safety in terms of storage and isolation of the waste, climate modeling and risk management, centralization of governance, pre-allocated funding, and intergenerational education.

Finally, participants saw benefits in using different management approaches for lowlevel and intermediate-level waste because of their different risk levels and time frames associated with these risks. Participants appreciated learning from international best practices, but many expressed an interest in seeing a made-in-Canada approach to account for the unique context and conditions of our country.

The following are the key themes that emerged from the Youth Engagement Activities:

Safety is Paramount

Youth participants across all engagement activities identified safety as a priority. Participants spoke about safety with respect to water, land usage, people, and the environment.

Participants especially focused on safety in the context of the long-term management of Canada's radioactive waste. Youth expressed a deep concern for the future and how today's decisions will impact it. They worried about the unpredictable nature of potential future risks, such as climate change, environmental disasters, and social disruptions. They wanted to see a strategy that takes into consideration these future risks and plans for unstable and unpredictable conditions in the environment, government, and technology.

This meant choosing solutions that offer the highest level of safety in terms of waste storage and isolation and reflect global best practice, while also making climate and social change modeling as well as integrated risk management a must regardless of the types of facilities that are built. Participants also identified the need for embedding flexibility and adaptability into the strategy so that it can be responsive to emerging technology and other shifts. From the governance perspective, youth wanted to see approaches that would ensure consistency such as a single government body regulator and pre-allocated funding. At the same time, they highlighted the importance of building in checks and balances to ensure accountability, especially in cases of failure.

The conversation around safety also considered trade-offs between safety and cost. Youth saw cost-effectiveness as an important consideration and a priority for low-level waste given lower risks associated with low-level waste. However, they underlined that safety measures should be prioritized over cost or time considerations.

For youth participants, considerations around safety also included ensuring health and workplace safety of workers at sites where radioactive waste is produced and stored and those responsible for the transportation of radioactive waste.

Education and Engagement

Youth identified engagement and education as being two of the most important areas that we need to get right today and going forward as part of the ISRW. Education and engagement always came up as interconnected. Youth felt that relevant and accessible education is critical for creating meaningful engagement opportunities in decision making on this issue. Participants noted that youth are generally unaware of the issue of radioactive waste or of any plans for the long-term management of radioactive waste in Canada. They felt there is a lack of information about the issue. They have not seen it brought into spaces where youth are having conversations on issues they care about. Youth saw a need for an intergenerational education strategy as a way to ensure ongoing attention to radioactive waste management and to instill a sense of responsibility for the long-term implementation of the strategy among future generations. In this regard, they saw an opportunity for taking the lead from Traditional Indigenous Knowledge to promote an intergenerational stewardship mindset.

Some youth participants also highlighted the need for education on nuclear energy and destigmatizing the public perceptions around this industry. One participant suggested incorporating educational institutions and programs, for example a museum, as part of the facilities to ensure we continue building awareness about our responsibility for its safe management and for the wellbeing of people, planet, and future generations.

Participants highlighted the benefits of learning from international best practices when thinking about the development of Canada's ISRW. They felt it provides important data and expertise to help evaluate different approaches. However, participants generally supported the idea of a Made-In-Canada solution that would consider the unique conditions and environment of Canada including the size of the country, the diversity of Canadians and the changing climate.

In terms of engagement, youth participants underlined the importance of engaging a diverse set of stakeholders with a mindset of responsibility and care. They wanted to see broad engagement as part of strategy development as well as during its implementation. They especially emphasized the importance of comprehensive engagement and ongoing relationship building with communities that may be directly impacted and with Indigenous communities. They saw this as key for making good decisions today, to support ongoing collaboration and to cultivate intergenerational stewardship. We heard that engagement activities should include open dialogue, information sharing and feedback loops. Youth highlighted roundtables and conversations among multiple stakeholders as a form of engagement that can help facilitate dialogue. Youth also underlined the importance of outreach in multiple languages to engage newcomer and immigrant communities.

Participants wanted to see youth perspectives as an integral part of any future planning and management strategy. Youth bring important perspectives from their lived experiences, how they see the world, and the future they want to live in. We heard that youth see radioactive waste as an intergenerational issue. It is an issue they are inheriting from the past, but they have a responsibility for shaping today's decisions about it, because those decisions will have an impact beyond their lifetimes. They felt it is important to communicate the urgency and the importance of this issue to young people and to engage them in meaningful and relevant ways. This should include providing sufficient, accessible, and youth-friendly information to equip participants to confidently assess different strategies and provide their input.

Trust and Relationships with Indigenous Communities

Across all activities, youth participants identified Indigenous engagement, relationship building, and uplifting as a critical part of the strategy. This included centering Indigenous expertise, worldviews, and sovereignty as long-term stewards of this land. We heard that participants wanted to ensure the strategy is mindful of past exploitative practices with respect to Indigenous involvement. They wanted to see early engagement with Indigenous communities and a requirement for communities to be able to exercise their right for Free Prior and Informed Consent.

Youth expressed that the ISRW needs to be intentional about what land facilities are built on, and to be considerate of the communities that will be burdened with this decision. They recommended the strategy includes financial aid and support for Indigenous communities affected as a result of the chosen waste management plan.

Furthermore, youth wanted to see Indigenous communities and leaders involved in the management and oversight of strategy implementation. One broadly supported recommendation was to engage Indigenous groups in supporting or leading environmental monitoring of projects during their implementation as well as during facilities construction. To offer support towards self-determination and self-governance of Indigenous Nations, it was recommended to work with existing Indigenous-led groups that have capacity to undertake environmental monitoring or build capacity where it doesn't yet exist.

Another recommendation was for an Indigenous-led, single government organization to lead strategy implementation. Indigenous members of this organization would in part be selected by affected communities. Participants that supported this recommendation felt that this approach would be most beneficial to the respect and incorporation of Indigenous communities, transparency, and longevity of the strategy, creating a trustworthy process to regulate current waste.

Communication and Transparency

We heard that transparency, including clear, open, and ongoing communication about decisions and processes, is very important for youth. Like education, participants felt that transparent information and communication are key for meaningful engagement and building trusting relationships. Youth noted that transparent communication provides all of the key information in a relevant, accessible and an unbiased way. This includes highlighting both the advantages and the potential disadvantages and risks associated with different solutions; what it takes to develop solutions, including the work involved in the planning and development stages; and information regarding decision-making and implementation processes (e.g., role of waste creators and waste owners). Transparency also includes providing regular and frequent check-ins and updates to the impacted communities and stakeholders.

In almost every session we heard from several youth who felt they did not receive sufficient information to be able to provide adequate input into the strategy. Some felt

information provided was inaccessible and some felt overwhelmed by it. In one of the sessions, a group of participants pointed out that one of the videos shared during the engagement displayed potential bias, because it only highlighted the positive features of a solution, but did not address any potential risks, especially for communities. Many Indigenous youth participants also shared feelings of mistrust for any materials related to radioactive or nuclear industry, based upon past legacy experiences.

Participants recommended for the long-term strategy to be mindful and intentional about communication to support future engagement and trust-building. An ongoing education program was identified as an important component supporting these outcomes.

Sustainability and the Environment

Youth participants expressed that protection of land and water, and considerations around environmental impacts, including disruptions to wildlife, need to be a top priority. A long-term strategy for radioactive waste management must minimize any risks of radioactive waste contaminating the environment. When reviewing technical options, participants expressed a preference for solutions that appeared to have less environmental impact.

Indigenous youth participants underlined the importance of protecting water, including groundwater. They felt strongly that waste disposal sites should not be built near water as they can contaminate it and affect their way of life. Some participants expressed feeling reassured hearing that underground facilities such as the Deep Geological Repository (DGR) would be placed below the ground water level.

Minimizing visual impacts was also highlighted as an important consideration especially from participants that have seen other types of industrial facilities near where they live.

Finally, youth wanted to ensure that the selected strategy would not contribute to a further rise in greenhouse gasses.

Environmental Justice

Environmental justice was a key consideration. This includes being mindful of the history of environmental racism and the harm done to Indigenous communities and making sure it doesn't happen again. When discussing centralization vs. decentralization of management and disposal facilities, many participants expressed a concern around ensuring equitable distribution of the responsibility and the risks from these facilities. They wanted to ensure that this burden is not placed on some communities over others. This included concerns for how the construction of these facilities may affect the social determinants of health in communities that will be in close proximity to the waste disposal sites.

Transportation

Discussion around transportation came up as part of consideration of whether to build centralized or decentralized facilities. Youth participants understood that transportation is heavily regulated, however, they expressed concerns about risks of accidents and spills especially in and around built-up areas. Some youth favoured the strategy of building multiple facilities to help reduce these risks. Participants wanted to know that there is a risk mitigation and an incident response plan in place.

Other concerns around transportation included cost, potential increase of greenhouse gas emissions from transporting waste across large distances. Concern was also expressed for the ecological harm that could be inflicted when building new access roads.

Rolling Stewardship and Waste Disposal

We heard differing perspectives with regard to rolling stewardship. Some participants felt that it was an acceptable solution for low-level waste because of lower risks associated with this type of waste. Proponents of this approach also felt that it creates an opportunity for taking advantage of future technological innovation especially around recycling or reuse of the waste. However, most participants favoured disposal solutions, rather than storage, for intermediate-level waste.

Some participants felt that rolling stewardship reflects the care-taking approach and would enable maintaining oversight of the waste in the long-term. Along the same lines, some felt that the presence of rolling stewardship facilities would serve as a reminder for future generations to reduce waste. Some participants also felt that these facilities may provide benefits such as job creation.

Participants that did not support rolling stewardship felt it was deferring the issue of dealing with radioactive waste to future generations and there was a risk it will be forgotten or missed. Some felt there were risks of container failure or mismanagement of these facilities if the responsibility for their management was left with waste producers.

Many participants were open to either option so long as the regulations for the health and safety of people and the environment are respected. Several participants noted that the scientists and experts are better placed to provide appropriate advice.

Co-location and Centralization

Similarly, we heard multiple opinions with regard to co-location of waste and centralization vs. decentralization.

We heard an overall openness to co-location strategies for all types of waste. However, participants wanted to know more information about the compatibility and risks of storing different waste types and levels in one facility.

Participants generally favoured centralized facilities for intermediate level waste. Many participants felt that intermediate level waste should be treated as high-level waste due to its long lifecycle and future risks. They were in favour of it being stored in a DGR.

Arguments in support of centralization included impacting less land, easier management and oversight and cost savings. Some noted that the establishment of a centralized facility may take less time due to only having to assess and consult in one location. There was also a sense that centralized facilities would consolidate risks in one place and reduce the number of communities and habitats or ecological zones impacted by construction of new facilities. Centralized facilities seem to offer more stability in view of an uncertain future, because they would be easier to control. However, participants noted that there should be considerations around future capacity needs in a single facility. They expressed that if we choose to build one single facility, it should be big enough that we do not need to build another one at a later date.

Participants generally favoured decentralized and specific facilities for low-level waste. They noted that low-level waste appears to have less risk compared to other levels of waste, and that decentralization reduces the risks associated with transportation. Additionally, participants noted that given Canada's size – the transportation of low-level waste from across the country would not be environmentally sustainable.

Other arguments in favour of decentralization included fairness and environmental justice by spreading the burden of hosting facilities across multiple communities, and reducing risks associated with transportation. Those who supported multiple sites commented that this was a better option because potential disasters could be very difficult to manage in one big facility due to the unpredictable nature of radioactive disasters.

Some noted there should be a finite number of these facilities to reduce the risk of leaks across the country. One suggestion was to explore two-or-three regional sites across Canada.

Additional locational considerations identified by participants included situating facilities further away from cities and Indigenous communities.

Shared Responsibility Framework / Independence of Accountable Entity

We heard broad support for a single organization to hold the responsibility for implementing the ISRW. Many participants noted that this organization should be a government organization or that government, especially the federal government, should play a lead role. This was seen as an opportunity to reduce the amount of bureaucratic and political red-tape, ensure fairness and consistency in the implementation of the strategy in the future. Some participants supported a single organization but thought that it should be an independent entity, similar to NWMO.

In both cases, participants felt that this organization should include representation or participation from diverse stakeholders such as civil organizations, communities, waste owners, scientists, experts, regulators, workers, youth, and Indigenous peoples. This was important to ensure accountability throughout the process. Participants from the some of the roundtables suggested that this organization should be Indigenous led.

On the other hand, we heard differing perspectives about the role of waste producers in strategy implementation. Overall, participants agreed that waste producers should have a financial responsibility for waste management and disposal, and that they should have a seat at the table in multi-stakeholder processes. However, some participants felt that this is where the involvement of waste producers should end. They wanted to see separation between the governing body and waste producers, ensuring the relationship doesn't get too close. They expressed concerns that giving too much power to the waste owners will cause the strategy to fail. These concerns were shaped by observations and news/social media coverage that corporations in other industries (such as energy) have in the past ignored their environmental and safety responsibilities. Others felt that waste producers may be best positioned to take on a greater responsibility as part of the ISRW strategy implementation, because they would understand the type of waste they are producing. Some participants noted that they would be open to waste producers implementing the strategy under supervision and oversight from the government.

Appendix A – Youth Engagement Activities

All youth engagement activities took place in 2021. The dates of the youth engagement activities, hosting organization and participant focus are below. Sessions were conducted in English unless otherwise noted

Youth Focus Groups facilitated by Hill+Knowlton Strategies

The dates for the focus groups are as follows:

Session 1 – Youth 17-19 years of age – April 27, 2021 Session 2 – Youth 17 -19 years of age – April 28, 2021 Session 3 – Youth 20-25 years of age – April 29, 2021 Session 4 – Youth 20 -25 years of age – April 29, 2021 (French)

Participants came from the following provinces: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Québec, New Brunswick, Nova Scotia, and Newfoundland and Labrador. Participants included youth who identified as members of an Indigenous Nation.

Roundtable sessions designed and led by Shake Up the Establishment (SUTE)

Session 1 – Indigenous youth 14-30 years of age – September 11-13, 2021

Session 2 – BIPOC youth 14-30 years of age – September 11-13, 2021

Session 3 – women and gender diverse youth 14-30 years of age – September 11-13, 2022

Session 4 - representatives of youth-led organizations - September 11-13, 2021

Participants came from the following provinces: Northwest Territories, British Columbia, Alberta, Ontario, Quebec, and Nova Scotia. 69% of participants identified as women (cis-, non-binary-, and trans-identifying); 14% identified as gender diverse, 14% identified as men; and 3% identified as gender neutral.

13.7% of participants identified as First Nation or Métis; 24.1% identified as Black; 54.99% identified as South Asian, West Asian, or East Asian; and 3.44% identified as White. 37.93% identified as either a permanent resident or new immigrant.

Youth roundtables co-organized and co-facilitated by Groundswell Projects, Tawi:ne Consulting and SUTE

Session 1A – Indigenous & diverse Canadian youth 15-28 – September 22, 2021 Session 1B – same group as session 1A – October 5, 2021 Session 1C – same group as session 1A – October 19, 2021

Participants came from the following provinces: British Columbia, Alberta, Saskatchewan, Ontario, Quebec, Nova Scotia, and New Brunswick. 27.8% of participants identified as First Nations or Métis. 5% of participants identified as Black; 50% identified as East Asian, South Asian, or Southeast Asian; 5% identified as Latin American; 11% identified as Middle Eastern Arab, Persian, or West Asian; and 11% identified as White.

Fall Youth Engagement Sessions led by NWMO

Session 1 – industry youth organizations – October 4, 2021

Session 2 - university students - October 13, 2021

Session 3 – industry youth organizations – October 19, 2021

Session 4 - university students - October 26, 2021

Youth came from the following provinces and communities: Ontario, Quebec, New Brunswick, and Saskatchewan.

Appendix B – Promotion of Youth Engagement Activities

The Youth Engagement Activities used a variety of strategies to promote the sessions to youth across the country.

Youth Focus Groups facilitated by Hill+Knowlton Strategies

H+K worked with an external vendor to recruit participants.

Participants received an honorarium to thank them for their time.

Roundtable sessions designed and led by Shake Up the Establishment (SUTE)

SUTE actively recruited youth who had unique identities to participate in the roundtables. SUTE's social media channels were used for outreach and engagement. SUTE also included an additional (fourth) roundtable in order to accommodate strong interest and to listen to youth-led organizations' perspectives.

Participants received an honorarium to thank them for their time.

Sample social media post / promotional material:



For more information on Shake Up The Establish please visit **ShakeUpTheEstab.org**

Youth roundtables co-organized and co-facilitated by Groundswell Projects, Tawi:ne Consulting and SUTE

For these roundtables participants were recruited primarily through the existing networks and communities of the host organizations. The recruitment methods included the following:

- sharing the engagement opportunity through organizations working with youth in schools, university groups, and organizations working with diverse populations;
- recruiting in tandem with other youth roundtables (sharing the opportunity with participants who expressed interest but were unable to attend previous roundtables);
- extending the invitation to youth members of Indigenous organizations that participated in previous engagement processes;
- Sharing the opportunity via the host organizations' social media communities and via @radwasteplan, the official ISRW social media channel.

Participants received an honorarium to thank them for their time.

Sample social media post / promotional material:



Fall Youth Engagement Sessions led by NWMO

The NWMO used various outreach and promotional tools, including owned social media as well as tailored emails to broaden its existing reach to relevant audiences in order to raise awareness of the Fall Youth Engagement Sessions and stimulate registration. The NWMO reached out to 26 schools and youth organizations in regions of interest such as Ontario (Pickering, Port Hope, Clarington), Quebec, New Brunswick, and Saskatchewan. The NWMO also drafted posts for the project's owned social channels (Twitter (English), Twitter (French), Facebook (English), Facebook (French)) to promote the sessions.

Methodology, Parameters and Results

The **Fall Youth Engagement Sessions** were designed to provide a safe shared space for youth voices to be heard and to connect participants in new and meaningful ways. The events were free of charge and open to Canadians and Indigenous peoples.

As it was important to encourage wide participation, the NWMO used various outreach and promotional tools, including social media (owned) and tailored emails to stakeholder lists, to reach to relevant audiences to raise awareness of the Fall Youth Engagement Sessions and stimulate registration.

Emails and Owned Social Media

The NWMO sent tailored email invitations to stakeholder lists to encourage registration. The NWMO also shared social media posts across their owned channels, with four owned social media posts in both English and French on Facebook and Twitter, promoting Fall Youth Engagement Sessions, inviting interested Canadians and Indigenous peoples to reach out and encouraging registration and participation.



Radioactive Waste Planning @RadWastePlan - Sep 8, 2021 ... It's time for back-to-school and we're travelling across Canada (virtually) meeting with students. If your class is interested in learning about the future of our low-and intermediate-level radioactive waste let us know via email info@radwasteplanning.ca. #BadWasteplann



Appendix C – ISRW Guiding Principles



The NWMO developed a set of principles that are comprised of what the organization had heard previously from Canadians and Indigenous peoples. These initial principles were included in public opinion research and refined by participants at the Canadian Radioactive Waste Summit — the first of the engagement events for the development of an Integrated Strategy for Radioactive Waste (ISRW), held from 30 March to 1 April 2021. The principles that emerged from the Summit were used as the basis for discussion in subsequent ISRW engagement sessions.

The guiding principles are:

- Safety as an overarching principle
- Informed by the best available knowledge
- Respect Indigenous rights and treaties
- Be transparent and inform and engage the public
- Meet or exceed regulatory requirements
- Fiscally responsible
- Make use of existing projects
- Security must be ensured
- Environment is protected

The full text of the guiding principles is as follows:

- The strategy must have safety as the overarching principle guiding its development and implementation. Safety, including the protection of human health, must not be compromised by other considerations.
- The strategy must ensure the security of facilities, materials, infrastructure, and information.
- The strategy must **ensure that the environment is protected**, including the protection of the air, water, soil, wildlife, and habitat.
- The strategy must be developed and implemented to meet or exceed regulatory requirements for the protection of health, safety and the security of people and the environment.
- The strategy must be informed by the best available knowledge. This includes Indigenous Traditional Knowledge, science, social science, local knowledge, and international best practices. Ensuring that Traditional Knowledge and ways of life are interwoven throughout is important for a strong strategy. This includes knowledge about the land and environment. It also includes values and principles about developing and maintaining effective and meaningful relationships.
- The strategy must **respect Indigenous rights and Treaties** and consider that there may be unresolved claims between Indigenous peoples and the Crown.
- The strategy must be **developed in a transparent manner that informs and engages the public, including youth and Indigenous peoples.** It is important to proactively provide easily understandable information to those most likely to be affected by implementation of the strategy. Questions and concerns must be heard, acknowledged, and addressed. Information used to develop the strategy will be readily available to the public.
- The strategy must be **developed and implemented in a fiscally responsible way** to ensure that the cost of the project does not become a burden to current electricity ratepayers, taxpayers, or future generations.
- Where possible, the strategy should **make use of existing projects** for the long-term management of Canada's nuclear waste.

Appendix D – Youth Engagement Reports

The following engagement reports are included:

- Report from Youth Focus Groups on Integrated Strategy for Radioactive Waste, designed and conducted by Hill+Knowlton Strategies dated May 2021 (independent report).
- Youth Perspectives on the Integrated Strategy for Radioactive Waste (ISRW) in What Is Currently Canada, prepared by Shake Up the Establishment, dated October 22, 2021 (independent report).
- Summary Report from Youth Roundtables on the Integrated Strategy for Radioactive Waste co-designed and led by Groundswell Projects, Tawi:ne Consulting and Shake Up the Establishment, prepared by Groundswell Projects, dated November 8, 2021 (independent report).
- 4) Summary Report of NWMO Fall Youth Engagement Sessions dated December 2021.

Report from Youth Focus Groups on the Integrated Strategy for Radioactive Waste

Prepared by: Hill+Knowlton Strategies May 2021

Executive Summary

The Nuclear Waste Management Organization (NWMO) has been asked by the Minister of Natural Resources Canada to lead the development of an integrated strategy for the long-term management of low-level and intermediate-level radioactive waste by engaging with Canadians and Indigenous peoples. As part of this engagement, the NWMO is hoping to hear from diverse voices including young people from across the country to hear their perspectives on what matters most in an integrated long-term strategy for radioactive waste.

To inform future engagement sessions, the NWMO hosted a series of four youth engagement sessions aimed at better understanding the perspectives of young people, and to test messaging and materials leading into future engagement sessions. These sessions were held in English and French and welcomed twenty-three young people from across Canada to the discussion.

Based on the discussions, the young people engaged care deeply about the safety of humans and the environment and believe that a strategy must incorporate as many protections as possible to ensure the long-term viability of the strategy. Young people do want to participate in Canada's conversation on the development of a long-term strategy for the management of radioactive waste but feel as though they do not have enough information and understanding on the issue to be able to properly share their thoughts and opinions. Youth tend to trust the scientists, the regulators, and the experts with their advice, and are hesitant to allow the waste owners too much control over the long-term management of the radioactive waste they produce.

The participants highlighted several interesting opportunities for engaging young people more broadly, including important considerations for the creation of social media campaigns – and other engagement opportunities targeted to different spaces that young people occupy, including secondary and post-secondary institutions.

Several participants mentioned that they were interested by the subject, had learned a lot during the discussion and hoped to continue learning about the issues, and expressed that they would be keen to participate in future engagement sessions organized by the NWMO. They noted that some sessions should be targeted specifically to young people.

This report serves as an overview of the youth engagement sessions, and the messages and insights that were heard during the four sessions.

Background and Objectives

The Nuclear Waste Management Organization (NWMO) has been asked by the Minister of Natural Resources Canada to lead the development of an integrated strategy for the long-term management of radioactive waste, in particular low- and intermediate-level waste, and to engage with Canadians and Indigenous peoples to complete this work. As part of this engagement, the NWMO is hoping to hear from diverse voices including young people from across the country to hear their perspectives on what matters most in an integrated long-term strategy for radioactive waste. To inform future engagement sessions, the NWMO retained the assistance of Hill+Knowlton Strategies (H+K) to facilitate a series of youth engagement focus groups.

The objective of these youth engagement focus groups was to help inform the strategy by getting a better understanding of this audience's perspectives on this topic and what matters most to them; and to test that proposed messaging and materials work with this audience before undertaking a series of other engagements with young people across Canada.

The questions in the focus groups were designed to better understand what is top of mind for youth when considering an integrated long-term strategy on radioactive waste, to better understand young people's preferences when presented with certain options, and to understand how best to reach young people to participate in these discussions.

This report serves as an overview of the youth focus groups, and a summary of what was heard during the sessions.

Methodology

Hill+Knowlton Strategies organized a series of four online focus groups that were held during the week of April 26, 2021. Three of the engagement sessions were held in English, and one was held in French. Two engagement sessions were comprised of youth between the ages of 17 and 21, and two engagement sessions were comprised of youth between the ages of 22 and 25. The young people were recruited by an external vendor and were compensated for their time and insight.

The focus group participants represented a wide diversity of backgrounds and communities from across Canada, and included youth from British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Québec, New Brunswick, Nova Scotia, and Newfoundland and Labrador. The groups included participants who identified as being members of an Indigenous nation, and as a recently arrived Canadian. The intention was to include six participants per focus group, with between six and eight recruited to ensure complete attendance. A total of twenty-three participants attended between the four sessions.

Hill+Knowlton Strategies was responsible for the concept and implementation of the focus groups in consultation with the NWMO. H+K worked with an external vendor to recruit the participants and was responsible for the facilitation of the sessions. H+K

prepared an English presentation and a French presentation that were used to encourage conversation during the sessions. H+K was responsible for the drafting of a focus group guide that was approved by the NWMO and used to facilitate the discussions. Finally, H+K was responsible to submit a report to the NWMO outlining what was heard during the focus groups, and some key considerations leading into broader engagements with young people, as well as broader engagement within communities, on an integrated strategy for radioactive waste.

The focus group sessions were broken down into five key discussion areas.

- 1. Participants were asked to share what came to mind when presented with the statement 'the management of radioactive waste' to gauge their perceptions on this topic before sharing any background information with the groups.
- 2. Participants were then asked to watch a series of three videos and were provided with two slides containing information on Canada's current system for the management of radioactive waste, the intention to create an integrated strategy for all of Canada's radioactive waste, and the various options that are available to Canadians for the long-term management of low-level, intermediate-level, and high-level radioactive waste. Following this information, participants were asked to share some of their initial thoughts, and some areas in which they feel like they still do not have enough information.
- 3. Once some basic background information on an integrated strategy for radioactive waste, the options available to Canada, and some best practices from around the world had been share with participants – the participants were asked to identify guiding principles that should be included in the strategy. This discussion helped identify several key considerations that young people view as being necessary to include in a strategy for it to be considered acceptable.
- 4. Participants were presented with a series of four situations and three options for solutions to each of the situations and were asked to identify their preference and why. These situations generalized important decisions that will be decided and included in an integrated strategy for the long-term management of radioactive waste and allowed the participants to express their opinions on some of the various options that are available to Canada.
- 5. Finally, participants were asked about how the NWMO can best reach young people across Canada to participate in a broader conversation about the long-term management of radioactive waste in Canada. This included questions about how to spark interest among young people on this topic, how to reach them and on what platforms, and how to best incorporate younger voices into the planning of this strategy.

Results and Responses

Young Canadians are very interested in climate change, environmental protection, and conversations on safety but are generally unaware of the topic of radioactive waste management and believe that more visibility on the issue would increase interest and engagement. Youth are keenly interested in the safety of radioactive waste management, including the safety of workers, neighbouring communities, and the environment. Generally, youth seem to trust the scientists and experts in developing a strategy that is both safe and sustainable; and feel that they require much more information on the topic of radioactive waste management to feel comfortable participating actively in a conversation on the issue. Many participants noted that they did not feel as though they had enough information to adequately provide their input.

Top of Mind – Management of Radioactive Waste

The focus groups were first shown a slide with the words "the management of radioactive waste in Canada" and were asked to share what came to mind when they heard that statement.

There were a significant number of participants that noted that they did not think of much when they read that statement. Participants noted that youth are generally unaware of the issue of radioactive waste and are not aware of any plans for the long-term management of radioactive waste in Canada. It is not something that is talked about very often, and they felt as though there is both a lack of awareness and information about the issue. One participant noted that, *"Young people don't think about waste. They probably do care, but probably feel lost in everything and don't want to speak to it. You assume that someone else is already dealing with it."*

Another participant added that they did not even think that nuclear power, and as a result nuclear waste, still existed in Canada at all. "Antiquated came to mind. Before this meeting, I didn't know we still had nuclear facilities." Many participants expressed that they would want more information about the issue, the options, and the strategies that are being proposed in Canada before they would feel comfortable talking about this issue. "I feel like we don't talk enough about radioactive waste. Young people care about environment a lot, but this specific topic is not talked about much. We are not taught this at schools."

Several participants highlighted that they think of the environment, and the risks that radioactive waste poses to the environment. They expressed that safety of the environment needs to be a top priority, and that a long-term strategy for radioactive waste management must minimize any risks of radioactive waste spilling into the environment.

Some participants expressed concerns about the idea of disposing or storing radioactive waste and expressed a desire to learn more information about radioactive waste management. They noted that they had not put a lot of thought towards the management of radioactive waste, but that they do understand the importance of

managing this waste properly. Some had assumed that the waste was being well managed, and that plans were already in place.

Informational Videos

The participants were then instructed that they will be shown a series of three videos, followed by two slides containing some background information on the management of radioactive waste in Canada. The participants were asked to keep their questions until the end of all five sections, in case the answer to their question was contained elsewhere – but were asked their initial thoughts and reactions after each video.

Video 1 – Introduction on Integrated Strategy for Radioactive Waste

Some members of the focus groups expressed that nuclear energy is far more prominent in Canada than they had realized. Other participants wanted to confirm that today's discussion was only about low-level waste and intermediate-level waste, and that Canada already had plans for the long-term management of used nuclear fuel. One group noted that they were disappointed that there was not a long-term strategy for the management of radioactive waste from the start of Canada's nuclear activities.

Video 2 – Options for Management of Radioactive Waste

Some participants expressed that they really enjoyed this video. They noted that the statistics included in the video were missing some very important context. For example, this video mentions that intermediate-level waste represents 1.4% of all radioactive waste in Canada – but fails to provide the context of if the total amount contained in that percentage would fill a shipping container, or a hockey stadium. It was noted that without that information, it is difficult to understand the scale of the issue being addressed by this strategy. Last, participants would have liked more information on which provinces produce radioactive waste, and how much waste is being produced in which part of the country.

Video 3 – What other Countries are Doing

Participants expressed being struck by the idea of burying the waste underground and wondered if this approach was truly the best practice being proposed around the world. Participants generally supported the idea of a Made-In-Canada solution to Canadian-produced radioactive waste but did also agree with the idea of consulting with European countries on the processes that they are taking.

Slide 1 – Regulations

Several participants noted that they were supportive of the idea that the waste producers had an ongoing financial and management obligation over the waste that they've produced. However, an equally important number of participants expressed concerns and doubt that private corporations would be responsible themselves to manage radioactive waste safely and sustainably without direct oversight and direction from a government or other oversight entity. Some participants wondered what power the CNSC has over radioactive waste, if the waste producers are responsible for managing and for paying the costs related to their radioactive waste

Slide 2 – Transportation

The participants noted that it made more sense to focus on the safety of the transport package rather than the mode of transportation itself. Some participants asked if Canada already had a plan to respond to a spill of radioactive materials while being transported, and that a plan should be in place to mitigate any risks. Several participants noted that the transportation of radioactive waste over long distances has environmental impacts of its own that should be considered, including pollution from the method of transportation itself.

Additional Questions

Many of the participants expressed that they did not feel as though they had enough information to participate in the discussions, and to provide an informed opinion on the issue. It is important to note that several participants did not want to express opinions that were uninformed, because of the importance of this topic to the health and safety of communities and the environment. Many caveated their views with the fact that they were not experts and would want to receive more information before giving more detailed answered. Some of the questions asked by the participants included:

- What are the impacts of a leak of radioactive materials on the environment?
- How are Indigenous peoples being consulted, and how will the project impact Indigenous lands?
- What are the differences between low-level, intermediate-level, and high-level waste? How dangerous are the different types of waste to humans? When talking about *low level*, what does *low* actually mean?
- Is the production of nuclear energy better for the environment than fossil fuels?
- Once waste has been buried in a Deep Geological Repository, is it possible to reverse the burial?
- How much radioactive waste is being produced in Canada? What is the scale of this issue?
- What are the other options for intermediate-level and high-level radioactive waste, besides a Deep Geological Repository? What are the risks of these other options, compared to the risks of a DGR?
- What have been the costs of this process to taxpayers?
- What are the motivating factors for companies to dispose of their waste?
- How will potential storage sites be marked?

Generally, the participants sought more context and more information, including additional statistics to support the need for a strategy – and to better conceptualize the issue at hand.

Guiding Principles

Once participants had some more background information, they were asked to identify some of the most important things that they thought needed to be included or addressed in a Canadian strategy for the long-term management of radioactive waste for it to be acceptable to them. These are the things that young people feel we need to make sure of when considering this strategy:

- Safety is Paramount Participants expressed that the strategy must consider the safety of people above all else. This includes the safety of workers at sites where radioactive waste is produced and stored, those responsible for the transportation of radioactive waste, as well as the communities that are close. This also includes consideration around the storage or transportation of radioactive waste in and around built-up areas.
- Protect the Environment The protection of the environment was highlighted as being a key priority area. This includes a vision of environmental viability that is over the long-term, many participants noted concerns with the risk of one day regretting the choice that Canada had made. Many participants noted this issue as being a generational issue, that it is the responsibility of this generation to ensure that waste is properly managed and ensures the ongoing protection of our natural environments.
- Redundancies are Necessary In order to ensure the first two points above, participants expressed that the strategy absolutely must contain several redundancies and back-up plans so that any eventuality can be addressed quickly and adequately.
- **Mindset of Care** Participants noted that it is critical that everyone involved in the creation and implementation of Canada's strategy for radioactive waste be engaged in the process using a mindset of responsibility and of care. Participants recognized that the plan would incorporate a number of stakeholders, including privately-owned waste producers, and that all stakeholders will need to take their responsibilities within the strategy seriously.
- Location is important The choice of a location for any storage facility was noted as being a critical consideration. This location should consider its proximity to human populations, and to sensitive environmental areas.
- Respect of Indigenous nations Several participants noted that Indigenous peoples in Canada needed to be involved in the process early, and that any nation whose traditional territory might be impacted by a site should be brought into the conversation.

• **Fiscally responsible planning** – Finally, participants noted that this strategy should not represent a significant burden to the Canadian taxpayer. Rather, emphasis should be put on opportunities for economic development and job creation.

Situation Questions

The focus groups were then presented with a series of four situations, each representing an important consideration or decision that will need to be outlined in an integrated strategy for the long-term management of radioactive waste in Canada.

It is important to note that several participants expressed that they did not have enough information to properly make a choice. One group in particular (every participant) expressed that they would have wanted more information before sharing their preference – because some of that missing information would provide more context to the options that were available to Canada.

Situation 1 – Permanent Solution v. Status Quo

The first situation explored the creation of a permanent solution for low- and intermediate-level radioactive waste – meaning the creation of a storage facility for these types of waste – or the status quo – meaning the rolling stewardship of these types of waste at the facilities in which they were produced.

- Option A was to build facilities for the low- and intermediate level waste
- Option B was to continue storing the waste at the site it was produced
- Option C was that it did not matter so long as all regulations were respected

Nearly all participants expressed not having enough information to adequately answer this question. They noted that safety was the biggest concern, and that whichever was the safest option for human populations and the environment would be best for Canada's strategy.

Participants noted that specialized facilities were a good idea, and that a finite number of these facilities reduces the risk of leaks in various spots across the country.

Regarding Option B, participants noted that there are significant risks of leaving the waste where it is currently stored including the risk of the container failing, the risk of a company forgetting or ignoring its waste, and the risk of leaving the responsibility of waste management with a waste producer.

Generally, participants leaned towards Option C – that either option works, so long as the regulations for the health and safety of people and the environment are respected. Several participants noted that the scientists and experts are better placed to provide appropriate advice.

Situation 2 – Management of Low-Level Waste

The second situation explored the management of low-level radioactive waste, and the option to build several disposal facilities close to where the waste is produced – or putting all similar low-level waste into one disposal facility that is shared by the owners.

- Option A was to build several facilities
- Option B was to put all similar waste into one facility
- Option C was that either option is fine, so long as all Canadian and international safety regulations are met

The majority of participants expressed that their preferred option was Option A, to build multiple facilities. They noted that low-level waste appears to have less risk compared to other levels of waste, and that this option reduces the risks associated with transportation. Additionally, participants noted that given Canada's size – the transportation of low-level waste from across the country would not be environmentally sustainable. *"If we have only one disposal facility, it would make for a large transportation project. Trucks will create environmental waste. Multiple smaller facilities close to where the waste is produced will reduce the carbon footprint."*

Some participants expressed support for a single site, noting that the provinces should not be approaching the management of radioactive waste independently. This issue is too important to not have a national strategy and approach. They added that a single site would receive the attention and financial support of all waste producers and would reduce the risk of radioactive leaks happening in different places in Canada. However, the participants generally agreed that a single site shared by all the producers of the various kinds of low-level waste would be incredibly complex and would require significant regulation.

Other participants agreed with Option C, and that regardless, there will be risks and impacts related to the transportation of waste from the site where it is produced to the site it is stored.

One participant noted that it might be worth exploring not one, but maybe two-or-three sites across Canada to minimize transportation distances from various producers, participants voiced support for this additional suggestion.

Situation 3 - Management of Intermediate-Level Waste

The third situation explored the management of intermediate-level waste, and the options to build separate facilities for intermediate-level waste and used nuclear fuel – or to store both levels of radioactive waste in the same facility.

• Option A was to build separate facilities, at different locations, for intermediatelevel waste and used nuclear fuel

- Option B was to build one long-term management facility combining intermediate-level waste and used nuclear fuel
- Option C was that either option is alright, so long as regulations are respected

Participants expressed a desire to know more about the plan in place for the long-term management of Canada's high-level radioactive waste including used nuclear fuel and felt as though the status of that management plan has an impact on their views for their preferred option. They also expressed a desire to know more about the differences between intermediate-level waste and high-level waste, including the level of radioactivity and danger to humans and the environment.

The older groups (20-25) tended to lean towards a preference for Option A and expressed that so long as all regulations are met at both sites, specific sites designed for each type of waste is likely the better option. Participants noted that the management of different types of waste is probably different, and that facilities specifically designed for each type of waste reduces risks.

The younger group (17-19) tended to lean towards a preference for Option B and expressed that a single facility is easier to control, and that there is less risk of a leak impacting human populations in various regions of the country. Participants noted that this option only makes sense if there are no additional risks associated with a "mixing" of various types of radioactive waste and would like to have had more information about how exactly high-level waste is stored as opposed to intermediate-level waste, and if the storage methods are compatible.

Situation 4 – Implementing the Strategy

The fourth situation explored the establishment of an oversight entity to manage the implementation of Canada's strategy for the long-term management of radioactive waste.

- Option A was the creation of a single organization to implement Canada's strategy
- Option B was that each waste owner be allowed to implement its part of the strategy
- Option C was that either option is fine, so long as safety regulations are met

The majority of participants supported the creation of a single organization responsible for the management of Canada's strategy as the better option (Option A). They expressed that this organization must include the waste owners, scientists, experts, government regulators, workers, youth, and Indigenous peoples. Although most participants agreed this was the better option, it was stressed that the group must be well organized, ensure proper communication, and ongoing transparency with the public. All of Canada should know what is going on. Participants agreed that the waste owners should have a spot at that table, but most agreed that they should not be solely responsible for their part of the strategy. It was highlighted that many corporations in other energy industries tend to ignore their environmental and safety responsibilities unless there is strong government oversight. There are concerns that giving too much power to the waste owners will cause the strategy to fail. *"A lot of people sadly don't care about environment. Some people will just not care, we have seen oil companies and such who just care about money and not regulations. I am worried that the companies can turn a blind eye."*

Future Youth Engagements

Most participants agreed that youth would care more about this issue and want to be involved in the conversation around the long-term management of Canada's radioactive waste if this issue was more visible to them. Young people care deeply about environmental concerns, but this topic is not brought up in spaces where young people are having conversations on these issues. There needs to be more experts talking about the issue, and about the potential solutions in spaces where youth can see and participate in that discussion.

Participants highlighted that it is important for youth to see the issue in a way that relates the urgency of the issue. It is important that it is visible, and that people start talking about it in public spaces to help reduce the taboo nature of the conversation around radioactive waste and nuclear waste in general.

It is important to note that when young people do not feel informed, or comfortable sharing an informed opinion, they tend to defer to the experts and trust that those studying the science will put forward recommendations that consider the health and safety of communities and the environment.

Online Platform Engagement

Although participants noted that for most youth social media is the best place to find a captive audience that is willing to learn more about issues and participate in relevant discussions, there is no obvious agreement as to where to conduct a conversation with youth about this particular issue.

It was noted that the audiences of certain social media platforms are different, and that the approaches used for each might be different as well. For example, Twitter is a better medium to engage a millennial audience (80's-90's) and to seek opinions from individuals; whereas TikTok is a better medium to engage a GenZ audience (90's-00's).

Participants noted the value of sharing informative videos about the strategy, and Canada's plan for radioactive waste. One participant from the younger group noted that, *"they have to be short but with interesting content. Lots of bright colours. You have to make it interesting to watch, not a documentary."*

It was highlighted that sponsored ads do work for various audiences, but that these ads must be targeted to a specific audience and a platform. Twitter and Facebook users might want to see a graphic invitation to participate in an engagement event, or to learn more - whereas TikTok users might want to see a flashier video that contains information in a more visually appealing way, or that engages Canadian influencers. "If it's boring, I am going to scroll off. Study how to get our attention. Bringing in some broken humour of our generation can help reel in people a bit more. Use humour to talk about a serious issue. For example, Québec had trouble getting teenagers to wear masks – so they made a campaign where someone showed off their mask collection and was cool." One participant from the older group noted, "I'm a sucker for targeted ads. It might be a more millennial approach, but I like old-school Facebook advertising, and I would click to learn more". Regardless of the platform, it was expressed that the best message to captivate a young audience is to speak to the urgency of the issue, and the importance that Canadians be involved a decision that needs to be made now. It was noted that this issue was already passed down from one generation to another, and that not passing it down to the next generation is a message that resonates.

Regarding other methods to reach young people, participants noted that some integrated media targeted to younger audiences could help increase awareness and interest in this topic – including media sources like VICE News and HuffPost. "Youth people's worldview is cultivated by media and social media platforms – and on there, nuclear facilities are very hidden. They don't come to mind. It's not that youth don't care, it's a lack of awareness."

Academic and Community Engagement

One group noted that young professionals would be interested in a sort of certificate program in radioactive waste management awareness that could be added to one's resume would be a great opportunity; as would a series of case competitions with university students with a scholarship prize, as another example.

The participants did note that schools offer a captive audience, and that there are numerous opportunities to link discussions around radioactive waste management to any number of classroom subjects for high school and post-secondary ages. Although the upcoming engagement sessions are likely planned for the summer months, outside of the regular school year, the participants noted that these are excellent opportunities for engagement in the long-term. It was added that community centres, libraries, and other community gathering spaces should be used to increase visibility and accessibility of these consultations.

Last, the participants highlighted that young people must be offered a variety of engagement opportunities throughout the coming months to give individuals the capacity to engage in a way that makes them feel comfortable. This includes providing more background information prior to any engagements so that participants can arrive feeling prepared, offering a variety of engagement opportunities including virtual sessions and surveys, and ensuring that some virtual sessions are youth-only – some
young people may feel uncomfortable sharing their perspectives where there is a broad audience that might have different levels of background information and expertise. They also added, at community sessions, that, "you should create two sections, for younger people and older people. Younger people have lost a sense of filter when their opinion is different than older people."

Conclusion and Considerations

The NWMO intends to engage Canadians and Indigenous peoples on Canada's integrated strategy for the long-term management of radioactive waste. Young Canadians do want to be involved in these conversations and want to have access to more information on these issues.

Based on the discussions, the young people engaged are deeply interested in topics related to the environment, climate change, and the protection of natural spaces – and this includes the safe and responsible management of radioactive waste. However, they do not feel as though this is a relevant or pressing conversation – as it is not a topic that they are aware of or that is being discussed in the public sphere (not mainstream).

Participants highlighted that they felt as though their level of knowledge and understanding of the topic of radioactive waste management limited their ability to fully express their opinions, notably during the scenario questions. Participants had varied views, but more often sought additional information to inform the scenarios further. Several participants noted that they would rather see decisions be based on expert opinion, over their views, given these gaps in information and understanding.

Youth engaged perceive the health and safety of people as paramount in a strategy for the management of radioactive waste. This includes the safety of workers and communities. The mitigation of risks related to impacts of leaks on the land, people, and communities – and the need for adequate back-up plans were mentioned by every focus group.

Participants voiced uncertainty related to the commitment of privately-owned waste owners to follow the regulations put in place by government and other regulators. Concerns were highlighted that companies might put profits over people and ignore some of their responsibilities towards the waste if there is not adequate oversight, accountability, and transparency built into the strategy.

Last, having learned more during these sessions, the participants expressed that young people would be very interested in the topic of radioactive waste, and that they want to learn more about it by engaging and consulting on these issues.

The participants outlined a number of critical considerations for engaging with youth on the strategy including using school curriculum, targeting social media posts, selecting to specific audiences and desired engagement outcomes, and exploring other incentives to increase youth engagement like a certification program or case study competition. It is critical that the NWMO engage young people in a way that meets them where they are and allows them to feel informed and engaged in the conversation. Consideration can be given to expanding owned social media platforms that are targeted based on age groups, and that consider platform, messaging, and content (videos).

These youth focus groups provided insight into young Canadian's perspectives and concerns regarding radioactive waste, and several participants expressed an interest in wanting to participate in future engagement sessions related to the strategy.

Youth Perspectives on the Integrated Strategy for Radioactive Waste (ISRW) in What Is Currently Canada

Prepared by: Shake Up the Establishment October 22, 2021



Youth Perspectives on the Integrated Strategy for Radioactive Waste (ISRW) in What Is Currently Canada

By: Shake Up The Establishment 4303 Golf Club Road, Hannon, Ontario, Canada LOR 1P0

October 22, 2021

Acknowledgements

AUTHORS: Rose Duncan (she/her) Aarisha Elvi Haider (she/her) research@ShakeUpTheEstab.org

CONTRIBUTERS: Manvi Bhalla (she/her) Mei-Ling Patterson (she/her)

DESIGNED BY: Michelle Tieu (she/her)

WITH DESIGN EDITS FROM:

Alena Blanes (she/her)

Confidentiality

Prepared for Wild Matriarch by Shake Up The Establishment [October 22, 2021]. The information in this report is prepared directly for Wild Matriarch and is to be used per the agreement between Shake Up The Establishment and Wild Matriarch for the purposes of informing Canada's approach towards handling radioactive waste. [Confidential]. The report will be shared with the Nuclear Waste Management Organization (NWMO) by Wild Matriarch. SUTE gives the NWMO permission to treat the report as a formal submission to the Integrated Strategy for Radioactive Waste (ISRW).

Table of Contents

BACKGROUND	1
METHODOLOGY	3
Participants	4
Participant Data	5
Google Jam Board Activity	7
Critical Discussion	8
KEY FINDINGS:	9
Key Discussion Themes	9
Further Analysis	12
YOUTH CLIMATE ORGANIZER'S PERSPECTIVES	19
ON ISRW - ROUNDTABLE 4	
KEY TAKEAWAYS	20
LIMITATIONS	21
POLICY IMPLICATIONS	22
REFERENCES	24

Background

The Integrated Strategy of Radioactive Waste is focused on comprehensive strategies to radioactive waste that currently have no long-term plan. The Minister of Natural Resources Canada has asked the Nuclear Waste Management Organization (NWMO) to emphasize strategies on low and intermediate level waste across what is currently Canada with collaboration of Indigenous communities and Canadians for their involvement in consolidating proper strategies for the next generations (1). The project includes planning interactive, accessible engagements with stakeholders alongside a collaborative effort with Indigenous communities and community groups to host a diversity of voices regarding the issues of different radioactive waste types and the respective integrated strategies for the long-run (2). SUTE facilitated conversations with youth community members to collect stakeholder insights on behalf of Wild Matriarch and the NWMO. This work engagement between Wild Matriarch and SUTE will directly affect and make space for Indigenous communities, intergenerational knowledge keepers, and racialized youth to share their voices, concerns, and solutions to radioactive waste management. For SUTE's purposes, we are defining youth as any person between the ages of 14 - 30. Understanding and creating safe circles for these communities will continue to be crucial in order to develop concrete strategies and centre collaboration for future generations.

SUTE initially designed three roundtables that would consist of 75% women and gender diverse folks to offer a holistic and integrated perspective on nuclear waste strategies, and its implications on communities that are often the bearers of climate change impacts. The intention was to not only cultivate a sense of belonging but also to create a safe space when discussing the strategies of radioactive waste management. The energy that is shared within community stakeholders, and the exchange of stories largely reveals robust, powerful and resilient solutions. Keeping with the theme of story-telling throughout the roundtable discussions, SUTE's role was to include young people who are often thinking about solutions but do not otherwise have access to spaces for engagement. Ultimately, as the project was leading its outreach and social media engagement, it witnessed that

YOUTH PERSPECTIVES ON IRSW



Methodology



SUTE designed four youth roundtable sessions: an Indigenous led session, a BIPOC led session, a women-led roundtable, and a session with youth-led organizations. On average, each roundtable hosted 7 youth to discuss the ISRW and its implications for the future, with a total of 29 participants. Each session was livetranscribed for accessibility purposes and to capture important quotes that are relevant to the key themes related to the ISRW. The quotes are anonymized for confidential reasons and to maintain the integrity of safe spaces for the entirety of this engagement. The first session was facilitated by a northern Ontario-based Indigenous youth so as to ensure that the session remained a safe space for Indigenous participants to share their thoughts freely, given the nature of the conversation and Indigenous histories. The second focused roundtable was facilitated by a mixed race youth to carry the same responsibilities of safe circles for participants; and to make them feel included in the conversation while avoiding imposter syndrome. The women-led roundtable accommodated a large number of participants who identified as racialized women, which allowed us to sample a larger group of diverse youth voices to provide a deeper wealth of knowledge that amplifies historically oppressed voices over traditionally colonial views. The fourth roundtable hosted youth organizers who showed great passion for this conversation and the ISRW development. Facilitated by a racialized youth, this roundtable invited youth of all backgrounds who were community organizers; their expertise and years of experience shared valuable perspectives in the conversation of ISRW and its long-term planning.

To create a safe space for youth participants, NWMO were not asked to participate directly, and provided a pre-taped 20 minute video with an overview and considerations of the strategies. The video was played in the beginning of the roundtables which then followed the questions asked by the facilitators (Please see Critical Discussion). At SUTE's request, and with the consideration of creating a safe space, an independent expert who was not affiliated with the NWMO was made only available in case participants needed clarification, but was largely kept separate from participants.

YOUTH PERSPECTIVES ON IRSW

Participants

In order to include a diverse array of perspectives, SUTE actively recruited youth who had unique identities and therefore brought a new lens to each discussion, producing valuable and engaging results:



Participant Data



Fig. 2. Participant Gender Identity. Across all four roundtables, 69% of participants identify as women (cis-, non-binary-, and trans-identifying). 10% of participants identify as male.



Fig. 3. Participant Ethnic Identities. There were a total of 29 participants (n=29), with some participants identifying as multiple ethnicities. Overall, 13.7% of participants identify as First Nation or Metis; 24.1% of participants identify as Black; 54.99% identify as South Asian, West Asian or East Asian, and 3.44% identify as white.

YOUTH PERSPECTIVES ON IRSW



Google Jam Board

The goal of the **Google Jam Board Activity** was to allow participants to ground themselves before the more technical discussion questions were explored, to open the floor for sharing about what it is that we truly care about as youth, and to guide us to recommend the best possible strategies to handle radioactive waste through a less technical lens.

The Activity consisted of a 15 minute word association task, exploration of first thoughts & a quick 'coming together' in the form of bubble maps using the collaborative Google Jam Board tool.

Participants were asked to consider the following prompts when completing the activity:

After watching the video, anything striking you wish to address and care to see about our future?

How does that video make you feel?

What parts of the strategy outlined in the video do you feel is the most important part to get right?



Fig. 1. Google Jam Board Activity - Key Themes - This word cloud represents all the key words discussed across all four roundtable sessions, answering Question 3 in the activity: "What parts of the strategy outlined in the video do you feel is the most important part to get right?" When completing the Google Jam Board activity, participants identified their top priorities for what part of the strategy is the most important to get right as being: communities, safety, transparency, and education. These words were most frequently noted, for totals of 6, 5, 2 and 2 utterances, respectively.

YOUTH PERSPECTIVES ON IRSW

Critical Discussion

The roundtables then moved to **Critical Discussion**, where the below four questions were asked of participants. An industry expert was brought in to the main forum to answer any technical questions participants had in order to ensure they were confident with their answers and accurate with their interpretation of these strategies. When not answering participant queries, the industry expert remained in a breakout room so as to maintain an independent and safe space for participants.

Prompt Questions

- After reflecting on the story telling activity, what strategy do you think will be best for ensuring our safety in the futurecentralizing the waste in a single facility or building multiple facilities close to where the waste is today? Please explain your thought process when answering.
- 2. In your opinion, what do you think is the best way to manage low-level waste over the long-term? What should we do with this waste that already exists?
- 3. In your opinion, what do you think is the best way to manage intermediate-level waste over the long-term? What should we do with this waste that already exists?
- 4. Who should be responsible for this waste? Do you think the polluter-pays model is sufficient or do you think there should be a single government organization that includes civil organizations and Indigenous communities? Or do you think neither is sufficient if so, why?

SHAKE UP THE ESTABLISHMENT

Key Findings

When participants were asked about their initial thoughts in the Google Jam Board Activity, key concerns identified by the four groups were safety, transportation, accountability, community involvement, and longevity of a strategy. These are themes that continued to emerge within the critical discussion. Here, we will outline the key themes, trends, and ideas that were shared by youth during the roundtables.

Key Discussion Themes	Findings
1. Indigenous Relations	 The most important priority listed by 100% of the participants across all four roundtables was a requirement for the strategy to be mindful of exploitative practices with respect to Indigenous involvement.
	 There must be financial aid and support to Indigenous communities who have been affected as a result of the chosen waste management plan.
2. Mistrust	 While the future is the topic specific to these roundtables, it is imperative to note that both the legacy and ongoing treatment of Indigenous peoples in what is currently known as Canada created a sense of mistrust amongst some of the participants.
	Mistrust centred around:
	Safe management practices
	 Unbiased information presented to communities
	 17% of participants directly called out bias in the video provided by the NWMO, and expressed trust as a concern.

YOUTH PERSPECTIVES ON IRSW

3. Who Is Responsible For Managing The Waste?	 An Indigenous-led, single government organizatio that includes civil organizations and communitie was determined to be a necessary consideration for the strategy.
	 Youth expressed that a single government bod in charge of management would reduce the amoun of bureaucratic and political red-tape when creatin regulations and policies, and that the wast generator should finance this governing bod independently through high taxes and fines for mismanagement.
4. Disposal Strategy: Centralization vs Multiple Sites	 27% of participants vocalized support for centralized facility over multiple sites. Reason stated included consolidating the risk in one place only one community to be impacted, and ease of administration.
	 13% of participants supported multiple sites Reasons stated include lower levels of risk b spreading out the radioactive material, les transport required, and reducing the impact tha would be taken on by a single community.
	 45% of participants did not directly state their reasoning and/or did not comment.
	 While 2/4 roundtables came to a general consensu within their discussions, 1 roundtable did not fee adequately prepared to make any recommendation and 1 roundtable was split in their opinions.
5. Instability of Institutions & Infrastructure	 Participants in the third roundtable, youth-leader and organizers, dedicated time to discussing wha the long-future could look like, and what must b considered in a strategy when planning for material with as long a half-life as radioactiv waste has, most specifically this focused on intermediate-level waste.
	 It was concluded that the governing body any waste facilities must plan for unstable any unpredictable conditions in both governmen structure, technology, and quantity of future wast outputs.
	 Overall, participants in this roundtable agreet that the management strategy chosen that would best account for this instability would be centralized, single government body regulato and a single, centralized facility to store the waste.

Key Findings

6. Climate Change	 Participants in all four roundtables raised the concern of climate change and the implication: of the integrated strategies would ultimately have as a result. Youth strongly felt that when choosing a strategy, that they pick one that would not resul in a further rise in greenhouse gas emissions o risk contamination to water.
	 The discussion led to reflecting on the location of the waste disposal site: youth, especially Indigenous youth, strongly felt that the site should not be built near water as it car contaminate the water and affect their way of life There was a large concern for how the construction of these sites could ultimately affect the social determinants of health in communities that will be in close proximity to the waste. Youth were also mindful that transportation can cause further rise in global temperatures as a result of climate change.
	 18% of participants strongly opposed the building of a site near water; and 70% expressed concerr about the overarching implications of climate change of ISRW.
7. Managing Risks Associated with Transportation of Radioactive Waste	 There was a broad discussion on spills despite knowing that transportation is heavily regulated and it was noted that strategies should be factoring risk management regardless if a centralized facility or multiple sites are built.
8. Combining Management of Differing Waste Levels	 Participants felt that the NWMO should treat the intermediate level waste as high-level waste because of its long lifecycle, and to ensure prope management to reduce the risk to future generations.
9. Innovation Potential	 Conversations were had about innovative ideas with regards to low-level waste management Since low-level waste has a small lifecycle participants leaned more towards storing the waste on the surface for potential access and use for future technological advancements.

YOUTH PERSPECTIVES ON IRSW

Further Analysis

1. Indigenous Relations

The government and industries have historically and presently excluded, undeserved and unduly harmed Indigenous communities in what is currently known as Canada. They have been oppressed and left out of pivotal social and environmental decision making, resulting in harmful radioactive and nuclear strategies and facilities being green-lit (3). It did not go unnoticed that this was an underlying factor in many of the youths' responses, most predominantly so in the Indigenous-led roundtable. Indigenous communities, relations, and uplifting was the most prolific and reinforced strategy consideration across all four sessions, by each and every participant.

Key notes:

- The most important priority listed by many of the participants was a requirement for communities to exercise their right to Free Prior and Informed Consent for the strategy to be mindful of exploitative practices with respect to Indigenous involvement.
- It is critical to fund and support Indigenous communities who have been affected as a result of the chosen waste management plan.
- The strategy must embed Indigenous communities and leaders within its management and oversight - management must be driven through and respectful of Indigenous perspective.
- Youth expressed that strategies need to be intentional about what land a facility is built upon, and to be considerate of the communities that will be burdened with this decision.

2. Mistrust in the System

An underlying influence during many conversations was a mistrust for any materials related to radioactive or nuclear production, based upon past legacy experiences. This was predominantly seen within the Indigenous-led roundtable, and questioned frequently by Indigenous participants. While mistrust does not inform a direct facility strategy, it should be considered within the development of the overarching management strategy so that this mistrust can be remedied and active and trusting participation can be included in all communities throughout the waste management process.

Key notes:

- There were questions asked, and concerns brought up, about legacy incidents/lack of regulation.
- Once youth participants learned that the storage facility was near an Indigenous community, there was huge concern and skepticism about the radioactive waste management process.

"I would like to live on my reserve, but knowing this, that they are going to dispose of this nuclear waste near my community, makes it very undesirable for me to want to go back there, because that's just like, just doesn't seem like a place to raise children."

- Kevin (Black-Indigenous male, age 14 - 17)

- Youth felt that the video showed bias, specifically within the language and tone that was used to communicate. The video was identified as using consistently positive language throughout and that it did not acknowledge any of the challenges associated with each type of strategy or with radioactive waste as a whole. Participants pointed out that there was almost no space for discussing pros and cons of each strategy which made it more difficult for them to reach a conclusion and share their perspectives.
- 3. Ongoing Management of the Strategy Should be an Indigenous-led, Single Government Organization that Includes Civil Organizations and Communities

The primary focus of this discussion was keeping industry out of the driver's seat. Consensus across all four roundtables was that there should be a government organization responsible for managing this waste indefinitely. It was suggested that this organization needed to still be relatively independent at the federal level to avoid the potential delay or bureaucracy of crossprovincial laws and regulations.

Key notes:

YOUTH PERSPECTIVES ON IRSW

- Participants expressed that if one organization has government support as needed with good operational management at a federal level, policies will be easier to develop and be implemented by the government organization.
- Government operated management should require as little long-term intervention as possible and be minimally reliant on long-term human intervention.
- · Waste generators should be contributing to the management

of the waste only in a fiscal capacity through regulated tax contributions alongside any fines for mismanagement. They should not be included in the defining, enforcement, or regulation of the waste.

 Two participants also expressed that they believe the polluter pays model is best in terms of finance, but are cognizant of the risk associated with high autonomy within corporations. While corporations would directly pay for the finance, this would ultimately allow corporations to have the decision making power or determine who will make the decision when it comes to waste, which was not supported by other participants.

"Indigenous communities are in the heart and soul of [most of these] projects that are going on in terms of waste storage, right, and it's their communities that are being personally impacted by this. And so they, because they're the ones that experience it the most, I think they could use those experiences to give back solutions."

- Joshua (Black male, age 14-17)

4. Weighing the Risks: A Lean in Favour of Centralization in Lieu of Decentralized Facilities

Most participants struggled to identify which strategy they believe is the best fit for Canada's radioactive waste when deciding between a single, centralized facility and multiple facilities. 27% of participants vocalized support for a centralized facility over multiple sites. Reasons stated included consolidating the risk in one place, only one community to be impacted, and ease of administration. 13% of participants supported multiple sites. Reasons stated include lower levels of risk by spreading out the radioactive material, less transport required, and reducing the impact that would be taken on by a single community. 45% of participants did not directly state their reasoning and/or did not comment.

Key notes:

 The majority of youth participants ranked a centralized facility higher in their personal risk-benefit assessments. This was mainly due to concerns about management/administration of multiple sites, remediating potential leaks and reducing the number of communities and habitats or ecological zones impacted by construction of new facilities.

SHAKE UP THE ESTABLISHMENT

"I think the more systems you create, and especially when those systems are expected to work for centuries and future like, the more risk you're introducing in different ways."

- Erin (East Asian woman, age 14 - 17)

- Participant 5 from roundtable #3 noted that a centralized facility could have its practices and strategy updated as technologies and education improve, which would be likely easier than doing the same for multiple sites. This would also reduce the costs and resource demand of needing to update multiple facilities spread across the country.
- Considering the time it takes to identify and assess a site location and the time required to appropriately consult the local community, a singular centralized facility would theoretically be approved faster thus allowing the waste to be managed in a more timely manner. However, youth made it clear they are not willing to sacrifice quality of the community consultation or site selection for speed. This sentiment was agreed upon by participants across all four roundtables.
- Placing a single, centralized facility, away from any communities, will limit the likelihood of negative impact should something go wrong.
- Many who opted for a centralized facility as a better option did, however, express that multiple facilities may avoid an unnecessarily large burden on one singular community managing all the waste.
- Those who supported multiple sites commented that this was a better possible option because potential disasters could be very difficult to manage in one big facility due to the unstable nature of radioactive disasters. For one participant, spreading the risk to multiple sites equated to lesser harm should disaster strike as opposed to a single large facility.
- 5. Instability of Institutions & Infrastructure

SUTE has noticed across all of our work that youth spend a lot of time thinking about what the future holds, even beyond their own lifetimes. This observation was just as true when considering the IRWS youth roundtables. The "youth-organizers" dedicated roundtable, specifically, foused time on this topic to discuss what must be considered in our recommendations when we consider how unpredictable such long time scales truly are.

Key notes:

 A singular centralized location greatly reduces the risks associated with potential instability within the current institutions and governance structures that currently exist.

YOUTH PERSPECTIVES ON IRSW

- Given the time frame in which this waste will need continuous management, it is unpredictable whether current institutions and infrastructure will remain in place. Setting a long-term, reliable management plan and facility will be more achievable when there is only a singular political and /or environmental landscape to navigate.
- Concerns were raised and questions were asked about whether a singular, central facility could house all the radioactive waste produced once long-term future waste outputs are considered (i.e. has there been research on the maximum volume a facility can hold? Have future waste outputs been modelled?)
- It was important to participants that a centralized approach considers all future waste output factors so that it can truly act as a singular facility and there would not be a need to develop any additional waste repositories in the future.

6. Climate Change Concerns

In all four roundtables, climate change was an important theme; there was an overall discussion on how the Integrated Strategies would inadvertently or directly affect climate change as a result. Participants strongly felt that when the NWMO will be choosing their strategy, they are factoring in the implications that their strategies would have on climate change.

Key notes:

- Youth expressed concern about climate change with respect to deep geological repository (DGR) and its effects it may have in the long-term given changing climate and environments. Roundtable 3 participants agreed that a DGR location must consider climate change modelling and predictions to climatechange driven social changes (i.e, will society move further north due to the impact of climate change? Will more people end up reliant on resources impacted by the creation of a DGR?).
- Concern was expressed that the building of facilities near water could threaten ecosystems, and ways of living. This was a concern participants identified to be a top priority to be considered for strategy development.
- Youth also expressed that transportation and carrying radioactive waste to multiple facilities could increase the level of greenhouse gas emissions in the long-run.

SHAKE UP THE ESTABLISHMENT

8. Managing risks associated with transportation of radioactive waste

Transportation was another theme that youth have reflected on in their discussions with respect to Climate Change. While they recognize that it is heavily regulated, youth are mindful that transportation can cause further rise in global temperatures as a result of climate change.

Key notes:

- Participants understood that transportation is heavily regulated, however, concern was expressed for the potential harm caused by spills.
- Risk must be balanced between the greenhouse gas emissions associated with transportation and the risks associated with singular versus multi-site location strategies.
- Concern was also expressed for the ecological harm that could be inflicted when building new access roads. Youth are concerned about harming the environment while finding a sound solution for radioactive waste storage methods.

8. Treat Intermediate-Level Waste as High-Level

One participant felt that the NWMO should treat the intermediate level waste as high-level waste because of its long lifecycle, and to ensure proper management to reduce the risk to future generations. This sentiment received support within roundtable three.

Key notes:

- With future regulations unknown and stability of institutions not guaranteed, any waste with a lifecycle above a multigeneration scale (150-200 years) should be managed in a similar manner to high-level waste to reduce the risk of mismanagement or exposure in the long future.
- Deep geological repository was thought to be applicable for all levels of waste - participants were mindful that the video posed this strategy with less associated risk. Potential bias in the language used in the video to describe this particular strategy was noted.

9. Innovation with low-level waste

Youth were thinking about innovative ideas with regards to lowlevel waste management. Since low-level waste has a small lifecycle, participants leaned more towards storing the waste on the surface for potential access and use in future technological advancements.

Key notes:

- Low-level waste was suggested to be stored on the surface to potentially be reused and/or recycled. With a shorter radioactive lifespan, having future access to these materials could become advantageous given potential technological and recycling advancements.
- Low-level waste should be treated on a more reactive scale, allowing more space for future innovation at this level.

SHAKE UP THE ESTABLISHMENT

Youth Climate Organizer's Perspectives on ISRW -Roundtable 4

PARTICIPANT INFO Race/ethnicity: South Asian Gender: man Age: 22-24

Youth organizers in Roundtable #4 engaged in a heartfelt discussion about the future, and deeply felt that the concept of long-term planning must account for the large possibility of unstable institutions in the future, and that current structures in place may be irrelevant. They expressed it is crucial to centre the strategies in line with the seven generations principle that has governed Indigenous land stewardship.

These are the contributions of a South Asian male participant from group 4. A majority of youth community organizers' tend to agree with following points:

- "Allowing for long-term storage that isn't reliant on a government actor or community to continue upkeep. Wherever people are needed, there should be consistent pre-allocated funding for that labour, and an intergenerational education strategy that is specific to the host community or site."
- "I thought that the polluter-pays model was insufficient, rather, I was a fan of the single government organization dealing with this. My thought process was that centralizing this responsibility means this one organization has as much government support as needed and that the treatment is not fragmented - this could probably operate at a federal level I also think it's easier to have policies being developed and actually implemented at the government organization that does this work"
- "Indigenous people have seen firsthand how the government has abandoned centuries-old commitments (such as those in the treaties) and should inform long-term strategies in line with the Seven-Generations principle that has governed much of Indigenous land stewardship since before Canada's creation."
- "We're going to see runaway climate change which means that our environmental risk could be entirely different. Who is to say that communities won't be pushed up north if we put a facility there due to changes in climate. This long-term strategy must also have an understanding of climate risks because of the high level of climate change."

YOUTH PERSPECTIVES ON IRSW

Key Takeaways

During the youth roundtables, many conversations revealed knowledge gaps, that upon reflection, confirm education remains a crucial strategy when developing ISRW. This is primarily due to many youth expressing that communities may not have an informed opinion about radioactive waste in their neighborhoods and, therefore, their perspectives would not be accurately reflected in the strategy. Without participants and community members having an accurate understanding of all possible strategy options and associated challenges, the IRWS risks a missed opportunity for meaningful engagement.

Based on overall discussion throughout the four youth roundtables, there was an overarching concern about potential disasters in storage sites, which led them to lean more towards selecting a centralized facility rather than multiple sites. Youth also felt that an Indigenous-led, single government organization would be most beneficial, transparent and long-lasting, creating a trustworthy process to regulate current waste. Youth have also impressed us with their intersectional and critical thinking about the strategy with respect to climate change. For instance, they were mindful of selecting a transportation method because of the associated risks it will have on increased greenhouse gas emissions. Lastly, youth are less concerned with the fiscal responsibility argument to managing a specific type of facility, rather, they have identified the above key themes as the more pressing and relevant issues with respect to the ISRW and which should be treated with priority above cost.

SHAKE UP THE ESTABLISHMENT

.

Limitations

Youth participants expressed some challenges with the presentation of the information and found that it would be better if there is ongoing education about radioactive waste management in their communities. The video, provided by the NWMO and containing animated short clips discussing the different levels of radioactive waste, how different countries are managing their radioactive waste, how waste and waste transport are regulated in Canada, and briefly outlining a couple of the management options available, provided insufficient data for youth to confidently pick a strategy. There is not enough general knowledge and foundational understanding of radioactive waste for much of the public to confidently interpret and assess potential strategies.

Policy Implications

The youth perspective needs to be an integral part of any future planning and management strategy. Youth do not share peripheral solutions but rather bring in unique perspectives that are all interconnected. As youth, we have earned the opportunity to engage with, and be listened to, when participating in such strategies. We are fighting for a platform to share our voices every day, and as diverse youth our lived experiences shed an integrated perspective on how we see the world, and the future we want to live in. The waste already exists; it is a unique position to be in when the problem at hand started before we were born and will continue beyond our lifetimes.

As identified by our youth participants, it is crucial the strategy should be managed by an Indigenous-led, single government organization. Indigenous members of this organization should in part be selected by affected communities. This would be most beneficial to the respect and incorporation of Indigenous communities, transparency and longevity of the strategy, creating a trustworthy process to regulate current waste. The strategy must embed Indigenous communities and leaders within its management and oversight - management must be driven through and respectful of Indigenous perspective.

Youth have expressed concern of this potential bias in the video provided for our purposes, particularly highlighting the positive features of the strategies without including the associated disadvantages and risks (especially with respect to communities).

SHAKE UP THE ESTABLISHMENT

Policy Implications

When engaging in consultations with young people, it is important that resources supplied are also "youth-friendly," some strongly felt that the information was largely inaccessible. SUTE recommends the following:

- Establish a Youth Advisory board to host brainstorming sessions and "ISRW jams" to gain more clarity of how youth feel about the consultation process regarding the strategies and the strategies themselves.
- Ensure that the presentation of video materials do not contain hidden or unconscious bias in language and visuals. This will ultimately be the main source of creating meaningful and healthy relationships with youth. Considering a diverse range of educational resources from both dissenting and supporting sources will present the opportunity for youth to define their own opinions in a more nurturing environment.
- On-going educational engagement and resources for the public so communities do not feel overwhelmed with the type of information presented.
- Creation of materials that hold honest values about strategy opportunities, decision making influences, and risk-benefit analysis will encourage youth to continue participating in future outreach activities. Present the facts as they are, and youth will be encouraged to engage and present their informed opinions.
- Engage in regular and frequent check ins and provide routine updates to communities, especially affected youth communities, to establish transparency throughout the process.

Youth actively engaged in SUTE's roundtable discussions and showed their passion, but also highlighted their concerns for the future. As an organization, we believe that the recommendations above will create a dedicated opportunity to cultivate meaningful relationships with youth and allow the NWMO to gain the truly integrated perspective they are looking for on the Integrated Strategies of Radioactive Waste.

YOUTH PERSPECTIVES ON IRSW

References

- 1. Nuclear Waste Management Organization [Internet]. Help us create a safe, integrated, long-term strategy for nuclear waste in Canada; [cited 2021 June 2]. Available: https://www. nwmo.ca/en/ABOUT-US/Other-Work
- 2. Nuclear Waste Management Organization [Internet]. A Next Step; [cited 2021 June 2]. Available: https:// radwasteplanning.ca/
- 3. Blaise, K. and Stensil, S., 2020. Small Modular Reactors in Canada: Eroding Public Oversight and Canada's Transition to Sustainable Development. Nuclear Non-Proliferation in International Law - Volume V, pp.209-234.

Made by Shake Up The Establishment

Summary Report from Youth Roundtables on the Integrated Strategy for Radioactive Waste co-designed and led by Groundswell Projects, Tawi:ne Consulting and Shake Up the Establishment

> Prepared by Groundswell Projects November 8, 2021



Youth Roundtables on the Integrated Strategy for Radioactive Waste Summary Report

November 8, 2021

Engagement co-designed and led by Groundswell Projects, Tawi:ne Consulting and Shake Up the Establishment

Report prepared by Groundswell Projects for the Nuclear Waste Management Organization

Table of contents

Executive Summary	2
Methodology	4
About the host organizations	6
Who Participated	7
Key Findings	8
Recommendations for Future Roundtables	13
Appendix	14
Detailed Summary of Discussions	13
Roundtable Agendas	26

Executive Summary

This report summarizes the findings from three Youth Roundtables co-organized and co-hosted by <u>Groundswell Projects</u>, Tawi:ne Consulting and <u>Shake Up the Establishment</u> (SUTE) in September and October 2021 to inform the Nuclear Waste Management's (<u>NWMO</u>) Integrated Strategy for Radioactive Waste (ISRW). The purpose of the roundtables was to gain youth perspectives on what to do with the current low and intermediate level radioactive waste in Canada and how to make decisions about the long-term management of this waste.

The roundtables contributed to NWMO's <u>public engagement on the ISRW</u>, but were developed and led independently by the co-host organizations. The NWMO's involvement was limited to providing the technical content, materials and expertise to support the engagement. The collaboration between Groundswell Projects, Tawi:ne Consulting and SUTE was convened by <u>Wild Matriarch</u>.

The roundtables engaged Indigenous and diverse non-Indigenous Canadian youth aged 15-28 from across Canada. The roundtables were designed to bring together lived experiences, Western Science and Indigenous Knowledge frameworks as lenses for the exploration of the ISRW. They used a working-group approach, where the same group of participants was engaged in all three roundtables.

The benefits of this methodology, as observed in the interactions at the roundtables and the input provided, included:

- building relationships between participants and facilitators;
- · facilitating progressive learning and familiarization on the topic of radioactive waste;
- creating a safe space where youth felt comfortable to share their worldviews and true opinions;
- enabling participants to learn about and explore the issues from multiple perspectives and worldviews through the learning activities and the breakout group conversations; and
- · engaging in deeper and more robust conversations about the ISRW.

The issue of radioactive waste management is complex and may appear unapproachable for a non-technical audience. Taking the time for progressive learning and reflections about our worldviews and lived experiences in relation to the ISRW, helped surface the participants' priorities and create a more grounded conversation about technical options.

The discussions revealed youth priorities for ISRW include:

- · environmental protection and minimizing the impact on land and the environment;
- · centering Indigenous perspectives, expertise and worldviews;
- · ensuring environmental justice;
- contributing to Indigenous Sovereignty through building structures for Indigenous communities to take control back over the long-term stewardship of their land;
- · providing more education on the issues related to ISRW; and

 conducting ongoing engagement with impacted communities and broadly with diverse stakeholders throughout the strategy development and implementation process; the ongoing engagement should include ongoing education as well as collaboration with communities on site monitoring and in remediation processes.

These priorities are reflected in the participants' feedback about the technical options. The Key Findings (pages 6-9) section provides a more detailed summary of youth insights. Synthesized notes from each roundtable are included in the Appendix.

Methodology

Groundswell, Tawi:ne and SUTE co-organized and co-facilitated three virtual roundtables, held on September 22, October 5 and October 19, 2021. These roundtables engaged Indigenous and Canadian youth from across Canada and included a combination of relationship building, learning activities, and breakout group discussions. The methodology consisted of two key approaches:

- (1) working group-style engagement, meaning that the same group of youth participated in all three sessions; and
- (2) bringing into dialogue traditional Indigenous knowledge, lived experiences and Western science frameworks as lenses for reflecting on the issues addressed in the ISRW as well as on the process of making decisions that will have an intergenerational impact.

The objectives of this approach were to:

- create an engagement process where youth are able to meaningfully contribute to the ISRW,
- have an opportunity to learn about and explore the issue of the long-term management of radioactive waste
- See the problems and strategic decisions associated with it through multiple perspectives and worldviews,
- · and to connect with other young people across the country.

To achieve the working-group approach, we asked participants to commit to attending all three roundtables when they signed up. We designed the roundtable agendas as a series to include progressive learning and to address the ISRW through the three lenses of lived experience, Indigenous Knowledge and Western science. We also created space for flexibility and emergence for the final roundtable to address issues that were of interest for the participants. The roundtables were sequenced as follows:

- Roundtable #1 focused on relationship building among the participants; learning about the basics of radioactive waste; and sharing lived experiences in our communities and our hopes for the future.
- Roundtable #2 included learning about Canadian government regulatory frameworks pertaining to radioactive waste and about how NWMO interweaves Indigenous Knowledge with Western Science in addressing the management of radioactive waste, followed by a discussion of long-term decision-making and intergenerational stewardship.
- Roundtable #3 focused on a more detailed discussion of the technical options and strategic questions on how to best deal with Canada's low and intermediate level radioactive waste and who should be responsible for implementing the strategy.

Roundtable agendas are provided in the Appendix.

The learning components included presentations and Q&A with Karine Glenn, Strategic Project Director at NWMO and Julia Smith, Project Officer at the Canadian Nuclear Safety Commission, who has been working on the creation and implementation of standards relating to long-term disposal of radioactive waste. In addition, participants watched <u>ISRW</u> informational videos and were provided with a reading package including NWMO's *Report on Technical Options Layperson's Summary*.

As part of bringing together Indigenous Knowledge and Western Science, each roundtable was opened and closed by a Mohawk Elder, who offered a prayer and remarks sharing teachings about the Mohawk and Haudenosaunee worldviews. The second roundtable included a dedicated discussion of what it means and what it looks like to interweave Indigenous Knowledge with Western Science on the issue of radioactive waste and learnings from this process. This included a presentation by Rebekah Wilson, Indigenous Relations Associate at NWMO and former member of the NWMO's Council of Youth and Elders. In addition, our approach emphasized and encouraged an exchange of perspectives based on the participants' individual lived experiences and worldviews. The approach of having the same participants attend all three sessions further reflects the importance of centering relationships, a value integral to Indigenous worldviews.

The roundtable facilitation approach emphasized creating a safe space for participants to share their opinions and perspectives, ask questions and exchange ideas. To that end, we established a set of community agreements that outlined how we hold space for each other. Participants had an opportunity to review the community agreements at each roundtable, including an opportunity to discuss them in more detail. In addition, the breakout group discussions were led by a diverse group of youth facilitators, who guided the groups to have open and respectful conversations.

About the host organizations

Tawi:ne Consulting Inc. ("Tawi:ne")

Tawi:ne is an Indigenous-owned and operated company specializing in project management, Indigenous engagement and consultation, policy/governance and capacity development. Our company has extensive experience in joint ventures, Indigenous engagement and consultation, Federal procurement, and Indigenous community development. Our team offers professional expertise in government relations, project management, financial and socio-economic assessments, political science, business and policy development. Our involvement and understanding of Indigenous community complexities, culture, traditions, and protocol makes Tawi:ne Consulting an invaluable resource in advice and guidance to assist with desired outcomes for projects at all levels.

"Tawi:ne" is the Mohawk word for Otter. In some Indigenous cultures the otter is a symbol of honesty, rebuilding and never-ending learning. In the creation story the otter delivered tools to heal and build the earth.

Groundswell

Groundswell Projects is a life-centred design studio. We help our clients empathize and build relationships with the people they serve, understand the new complexities of the 21C context and create responsive services, cultures and communications expressive of their values. Each project we take on has a measure of community building through compassionate understanding of stakeholders, thoughtful engagement, and ultimately insights that offer strategic solutions.

Shake Up the Establishment

Shake Up the Establishment is a non-partisan, youth-led, registered organization that aims to make credible, evidence-informed information readily available to the Canadian population to promote informed voting, advocacy practices, and political accountability surrounding human and social justice issues that are exacerbated by the climate crisis. We collaborate directly with groups and communities working to address injustices, alongside our ongoing work towards environment and climate literacy, and most importantly, political action.

Wild Matriarch

Wild Matriarch is a boutique consultancy offering strategic advisory services focused on governance, culture, and reputation. Beyond strategy, Wild Matriarch delivers results for its clients thanks to its transparent, thoughtful, and thorough approach to project management. Our unique combination of diversity and innovation is paired with a deep understanding of the safety and regulatory imperatives of nuclear and other high reliability industries, where a social license is crucial to long-term success.

Wild Matriarch convened the collaboration between Groundswell, Tawi:ne Consulting and Shake Up The Establishment, provided guidance on the development, adoption and execution of the methodology as part of its integration with the broader engagement process, and assistance with event production.
Who Participated

Participants were recruited primarily through the existing networks and communities of the host organizations. We used the following recruitment methods:

- sharing the opportunity through organizations working with youth in schools, university groups, and organizations working with diverse populations;
- recruiting in tandem with other youth roundtables (sharing the opportunity with participants who expressed interest but were unable to attend previous roundtables);
- extending the invitation to youth members of Indigenous organizations that participated in previous engagement processes;
- Sharing the opportunity via the host organizations' social media communities and via @radwasteplan, the official ISRW social media channel.

A total of 18 youth participated across all three roundtables, including 13 in Roundtable #1; 12 in Roundtable #2; and 15 in Roundtable #3.

The geographic representation of participants included:

- 3 participants from BC and 1 participant from Alberta
- 2 participants from Saskatchewan
- 9 participants from Ontario
- 1 participant from Quebec
- 2 participants from Nova Scotia and New Brunswick

Participants self-identified as follows:

- 5 Indigenous (Métis Nation of Ontario; Cheyenne, A'aniiih and Nakoda; Siksika Nation; Muskoday First Nation; Mohawks Nation of Akwesasne)
- 13 Non-Indigenous
- 1 Black (African, Afro-Caribbean, African Canadian descent)
- 4 East Asian (Chinese, Korean, Japanese, Taiwanese descent)
- 1 Latin American (including Indigenous persons from Central and South America, etc.)
- 2 Middle Eastern Arab, Persian, West Asian descent (e.g., Afghan, Egyptian, Iranian, Lebanese, Turkish, Kurdish)
- 2 South Asian (Indian, Pakistani, Bangladeshi, etc.)
- 3 Southeast Asian (including Filipino, Vietnamese, Cambodian, Thai, Indonesian, other Southeast Asian descent.)

7

• 2 White (European descent)

Key Findings

This section summarizes the key youth inputs for ISRW from each of the roundtables. Synthesized notes from each roundtable are included in the Appendix.

The first roundtable engaged youth in sharing what they love about their communities and environments where they live; what they want for their communities in the future; and their hopes for how we relate to each other in the future. This discussion helped participants to get to know each other and revealed what youth value in their lives today and in the future.

Participants expressed that they care about nature and natural spaces, the conditions of those spaces and having access to them. For participants living in cities, this included green spaces in urban areas, but also in the surrounding areas. Youth also valued strong community connections and opportunities to be involved in their communities. Indigenous participants emphasized their connection with land and the integral relationship between the health of the land and the health of their communities. The values of caring for the environment and their communities area anajor thread throughout the rest of the roundtables. Indigenous participants emphasized that they see this as part of their roles and responsibilities to the land, creation and future generations.

Thinking about the future, youth were looking for more opportunities to connect with others from different communities, to exchange experiences, to build empathy and dialogue, and to learn and grow together. They expressed hope for a more collective mindset and desire for more mutual support and working together to care for their communities and for the future generations.

Finally, participants expressed concern about what it might mean to have radioactive waste disposal or management facilities near where they live, how that might affect their lifestyles today and in the long run. They felt it was important to consider the potential impact of facilities on nearby communities, especially if this includes Indigenous communities, as well as on future generations.

At the second roundtable, youth learned about the experience of NWMO in bringing together Indigenous Knowledge and Western Science. The discussions explored what it means to be thinking about the long-term and making decisions that will impact many future generations to come. Participants considered long time scales through the lenses of the Seven Generations Principle from the Haudenosaunee teachings (140 years); longest living mammal lifespan (bowhead whale 200+ years); the lifespan of an old growth forest (200-2,000 years) and the species timescale of alpacas (2.5M years). These were referencing the kinds of time frames that will be impacted by the ISRW. The final question in the discussion asked participants to consider what is most important for us to get right today with the ISRW when thinking about the impact or implications over long time periods.

The participants found it valuable to think about the long-term timescales as part of decision-making because it made them think about their **responsibility** for the future and the possible impacts of today's actions. They felt it would be a useful lens to integrate as part of other decision-making processes. They also saw opportunities for a **dialogue between**

8

Indigenous Knowledge and Western Science around long-term thinking because Indigenous knowledge systems include intergenerational responsibility and continuity of relational networks connecting past, present and future, as well as a practice of environmental observation that can contribute towards monitoring future changes and impacts. This discussion highlighted that the concept of time scale reflects a Western science-based view of time, whereas the Seven Generations principle speaks to a continuum of the generations. Further dialogue could help to explore how we might make different decisions if we consider time through this perspective.

Youth identified engagement and education as being two of the most important areas that we need to get right today, when it comes to ISRW. They saw the need for broad, diverse and comprehensive engagement especially with communities that may be directly impacted, as key to making good decisions on this issue. At the third roundtable, youth identified types of engagement activities they felt would support this. Engagement from their perspectives also needs to include ongoing relationship building with communities as a way to ensure we are able to work together to address emerging issues in the future and to support intergenerational stewardship. They underscored the importance of providing education that would support participation in this decision-making process. These themes were echoed as part of the conversation around the implementation of the ISRW.

Engagement with Indigenous communities as the stewards of the land and centering Indigenous knowledge, worldviews and sovereignty were further identified as priorities throughout the conversations in all three sessions. Youth felt strongly about the need to center environmental justice as part of the ISRW to ensure we do not repeat the history of environmental racism and harm done to Indigenous communities.

At the third roundtable, participants discussed the following questions:

- · How do we best deal with Canada's Low and Intermediate Waste over the long-term?
- Who should be responsible for implementing the strategy?

Prior to this roundtable, our team shared a learning package that included the NWMO's Report on Technical Options Layperson's Summary as well as ISRW videos <u>The Global</u> <u>Context: What Other Countries are Doing with Radioactive Waste</u> and <u>The Trade-Offs</u> -<u>Explore the Considerations Involved in Developing an Integrated, Long-term Solution</u>. At the roundtable, participants listened to a recap presentation from NWMO.

Youth identified a series of considerations that they saw as important for both, low level and intermediate level waste disposal and management. These included the following:

 Considering how conditions may change over the long-term and anticipating future risks including environmental disasters, climate change and social disruptions. Participants identified the need for embedding flexibility and adaptability into the strategy and building in checks and balances in case of failures and changes to the status quo. They also saw an opportunity for taking the lead from Indigenous Knowledge to shape intergenerational stewardship mindsets.

9

 Learning from precedents but considering the unique conditions and environment of Canada including the size of the country, diversity of Canadians and the changing climate. Participants found it valuable to learn from the experience of other countries, but saw the need for adapting the solutions to the Canadian context.

• Minimizing the impact on the land and the natural environment, including disruptions to wildlife. Participants expressed a preference for technical options that appeared to have less environmental impact. They felt that options which place waste underground or that can be restored or covered with vegetation appear to address this priority of minimizing environmental impact. Indigenous youth especially highlighted concerns about potential impacts on water sources. Some participants expressed feeling reassured hearing that the facilities such as the Deep Geological Repository (DGR) would be placed below the ground water level.

Minimizing visual impacts was also highlighted as an important consideration especially from participants that have seen other types of industrial facilities near where they live.

When it comes to environmental impacts, some participants were inspired by the conversation around interweaving Indigenous Knowledge and Western Science. They felt that the materials discussing the technical options were still centering "hard science" and wondered what it might look like to include the perspectives of the impacted nature and people in this discussion. For example, for the shallow cavern option how might adding the perspective of "how would the rock feel?" shape the conversation.

 Education was highlighted as a key factor when engaging people in the decision-making process. Participants recognized that different levels of knowledge may impact the choice of facilities. One participant suggested incorporating educational institutions and programs, for example a museum, as part of the facilities to ensure we continue building awareness about our responsibility for it's safe management and for the wellbeing of people, planet and future generations.

There was a mix of opinions for the sub-question: Should we centralize the waste in as few facilities as possible or should we build disposal facilities closer to where the waste is?

Arguments in support of centralization included impacting less land, easier management and cost savings. Arguments in favour of decentralization included fairness and environmental justice (spreading the burden) and reducing risks associated with transportation. Additional locational considerations identified by participants included situating facilities further away from cities and Indigenous communities.

In addition, some participants expressed a concern about how cost and time pressures may impact the choice of facilities, the quality of materials used and the rigour of safety measures. There was also a concern about the impacts on those working in the facilities and ensuring health and workplace safety.

With regard to the specific facility types, there was interest in the <u>Engineered Containment</u> <u>Mound</u> because it appeared to be the least disruptive to the environment. The <u>Shallow</u> <u>Rock Cavern</u> was also highlighted as an interesting type of facility because it appeared to require less human-made materials and had the potential to minimize visual impact.

10

There was a mix of opinions regarding <u>Rolling Stewardship</u>. Some participants felt it was deferring the issue of dealing with the radioactive waste to future generations and there was a risk it will be forgotten or missed. Some participants felt it was a better option because it reflects the care-taking approach, because there is potential that the waste could be reused in the future, and because the presence of Rolling Stewardship facilities would serve as a reminder for future generations to reduce waste.

The <u>DGR</u> and the <u>Deep Bore Hole</u> received positive feedback because they were deep underground and participants felt this offered safety and reduced impact.

Overall, the input on facility types reflects participants' priorities noted above and was influenced by the participants' level of understanding and perceptions of the technical options.

For the question *Who should be responsible for implementing the strategy,* the discussion noted the importance of collaboration among multiple stakeholders and highlighted the important roles to be played by the government, community and the waste producers. Several participants also named NWMO as the organization that should be responsible for the implementation of ISRW.

Participants saw the government playing a key role because it has influence and power. Some believed it would be able to ensure fairness in how the strategy is implemented. It was underlined that both, Federal and local governments should be involved. The local governments would add value from being closer to the communities on the ground and being able to collaborate with other local actors.

Building on the "polluter pays" principles, a number of participants saw the need for waste producers to take on a greater responsibility as part of the ISRW in addition to covering the cost of waste disposal and management. Adding to this, some participants identified the cost of disposal could also be shared with high volume consumers of energy. At the same time it was noted that it would be important to have separation between the governing body and the waste producers, ensuring the relationship doesn't get too close.

The participation of communities, especially those located near facilities and Indigenous communities was highlighted as a key element of the strategy implementation. Participants saw local communities and Indigenous groups supporting the monitoring of projects during construction and environmental monitoring during the strategy implementation. To offer support towards self-determination and self-governance of Indigenous Nations, it was recommended to work with existing Indigenous-led groups that have capacity to undertake environmental monitoring (eg. the Metis Nation of Ontario is building out such a program) or build capacity where it doesn't yet exist. Participants also noted that Indigenous communities should be leading the conversations and engagement about what happens on their land. Finally, there was a recommendation to leave some roles for future generations at the community level and to consider stewardship of the land as part of the implementation process.

Ensuring accountability and transparency was also very important for participants. In terms of accountability, several participants suggested establishing an oversight committee and ensuring this is treated as a non-partisan issue. The proponents of the collaborative implementation approach, involving multiple actors in the system, felt it would provide

11

greater accountability throughout the process. The discussion of transparency included ensuring clear, open and ongoing communication about decisions and processes.

Engagement came up again as a major theme driving strategy implementation. Youth underlined the importance of wide engagement with as many diverse stakeholders as possible and they emphasized the need for ongoing engagement through feedback loops and open dialogue, especially with Indigenous communities. Youth highlighted roundtables and conversations among multiple stakeholders as an engagement that can help facilitate dialogue. Youth also underlined the importance of outreach in multiple languages to engage newcomer and immigrant communities.

Recommendations for Future Roundtables

The following is a summary of learnings to help improve future roundtables.

Operational:

 For short online events it is valuable to have a dedicated IT / production team for sharing the slides, setting up breakout rooms, etc. to ensure smooth transition between activities.

Learning opportunities:

- Sharing a learning package with participants in advance helped with preparation for more in-depth and technical discussions.
- Future roundtables should explore processes for facilitating technical experts' support of breakout groups, while ensuring a safe and open space for conversation.

Engagement approach & activities:

- It is important to avoid "Pan Aboriginalism" in engagement materials and processes when speaking about Indigenous Knowledge, because Indigenous Nations are all different. Site and context-specific approaches can help with this.
- It is important to ensure sufficient breakout group time to include relationship building activities.
- Implementing some flexibility into the agenda for the last roundtable worked well to
 ensure the learnings and discussions can address the participants' interests.
- It is important to pay attention to the potential impacts of the conversation on participants from Indigenous communities and those that have past experiences of environmental racism. Future roundtables should consider providing more trauma-informed support for participants.
- Participant feedback received to date asked for more interaction and exchange among the participants throughout the sessions, especially during the main group activities.

Appendix

Detailed Summary of Discussions

Roundtable #1 | September 22, 2021

Q1: What do you love about your community and/or environment?

- Green space and access to nature: to be active (cycle, hike) to enjoy these spaces and their beauty ٠
 - clean environment (air, water) being close to nature or being able to get there easily .

Identity & connection:

connecting with others and spaces that enable these connections

- friendly community
- working together with community members on issues that impact us (eg.,
- climate change, environmental stewardships)
- community acceptance and support .
 - opportunities for community involvement community resilience
- community identity and culture, including connection to nature in our area ٠

Q2: What do you want the most for your community in the future?

Basic needs for all communities:

- Ensure basic needs are met everywhere: access to clean drinking water, electricity, accessible health care, education, safe spaces
- Creating a safe environment and community
- Affordability .

- Investing into our communities: Prioritizing community needs and issues for investment
 - Investment into renewable energy and community energy projects that support independence and sovereignty for Indigenous communities .
 - Create more green spaces and equitable access to green spaces

Caring for our communities together:

- Acceptance and mutual support
- Diversity .
- Opportunities to grow together .
- Communities setting shared goal and supporting each other .
- . Caring for those who are in need
- Caring for future generations .

Centering Indigenous knowledge and languages:

- Connection with the land, recognizing the interconnection between the health of . community and land
- Reclaiming Indigenous languages .
- Highlighting roles and responsibilities land, creation and future generations

Q3: What are your hopes for how we relate to each other in the future?

Build connections across communities:

- Thinking beyond our own communities, how do we interact with other communities, . how do we impact them?
- Building more understanding of communities in different parts of Canada, what their . lived experiences are and how different decisions impact them.

End systems that perpetuate inequities and cause harm:

- More equitable society
- Recognize the intersection of racism and colonialism and their impacts
- . End prejudice, discrimination, systemic racism and colonization

- Create more empathy and understanding: Improve our ability to interact and relate with each other, to build understandings
 - . More connections, cultural and otherwise
 - More opportunities to come together and share experiences, learn from each other
 - More nuanced conversations, opportunities for learning and critical thinking; . respecting and considering different lived experiences and ideas
 - More self-awareness and reflection on how our words and opinions impact others . Create a society of love
 - Being open to listen and learn

Collective mindset:

- Collective rather than individualistic: collective care
- Thinking about and caring for future generations .
- Working together to take care of the environment and the earth for the future . generations

Reflections and questions in relationship to ISRW:

- How would I feel if I was living in a community near a radioactive waste disposal site? How would this impact our lifestyles? How would it impact our access to nature? How would it impact us in the long run?
- · How do we choose where to put the radioactive waste, whose backyard will it end up in?
- ٠ Long-term management is very important. We need to think beyond our lifetimes. If there are no permanent solutions, we need to plan ahead.
- It is important to think about the possible impacts on other people and other communities (not just our own), as well as possible impacts on future generations.

Roundtable #2 | October 5, 2021

Q1. How does thinking about these timescales inform our decision-making today? Q2. What does responsibility and stewardship mean in the context of these time scales?

Thinking about the long-term timescales can be challenging and overwhelming. But it is valuable because this reminds us about our responsibility to the future. We need to

do more of this as part of our decision-making.

- Feeling a sense of responsibility to take care of the natural resources and respecting the natural wonders;
- Reminds of our role in society and ecosystem, of our responsibility to nature and others around us;
- Important to think about consequences of our actions;
- We need to make sure the world is still livable in 500 years;
- We need to incorporate long-term thinking into more decision-making. Many of our goals or decision-making timelines are still 5-10 years;
- Decisions we make today are very meaningful;
- It is important to see our decisions as having an impact in the future;
- It is helpful to focus on what we can do today a little bit at a time to make a difference for future generations.

Long-term thinking is an opportunity for a dialogue between Indigenous Knowledge and Western science.

- Indigenous knowledge systems include intergenerational responsibility and continuity
 of relational networks connecting past, present and future. It is important to recognize
 that the Seven Generations principle is not seven generations ahead we are a
 continuum of the generations, it is not on a time scale.
- Environmental science and Indigenous knowledge can work together; Indigenous knowledge has a long history of environmental observation and monitoring changes across scales.
- It is important to center Indigenous experiences, ways of knowing and ways of life.
- Please ensure when doing engagement and creating material that "Pan Aboriginalism" is avoided. Each Nation is very different and we should not be melded together.

The conversation also drew parallels between radioactive waste management and climate change as an issue where our actions today will have a long-term impact.

Q3. What is most important to get right today with the ISRW when thinking about impact/implications over long time periods?

It is important to have broad, diverse and comprehensive engagement, especially with communities that may be directly impacted. This will help us to make better decisions on this issue.

- Important to get a broad spectrum of opinions;
- Get input from those who are closely and directly impacted;
- Being attentive to communities that are impacted;
- Gathering input from Indigenous communities;
- Diverse knowledge and understanding all perspectives will help us to make smarter decisions;
- Getting different perspectives would be beneficial for creating efficient solutions;
- Getting the word out about the engagement process;
- Not rushing to a solution;

 Make sure to include all possible groups and address all environmental aspects; make sure no one and nothing falls through the cracks.

Focus on an ongoing relationship building with communities to ensure we can address emerging issues and to support intergenerational stewardship.

- Build relationships, trust and cooperation and maintain them on an ongoing basis especially when talking about long timeframes;
- Relationships help to address any future problems and and equip the future generations to deal with the projects;

Center environmental justice as part of the decision-making.

- We need to ensure environmental justice is at the forefront because of the history of environmental racism and the harm done to Indigenous communities; make sure it doesn't happen again;
- Understanding that for Indigenous communities there is a fear that there could be severe consequences if we don't do this right;
- Ensuring the safety of Indigenous peoples;
- Environmental justice is important, especially for Indigenous people. Putting the environment first is very important. We need to make space for the voice of the environment;
- Ensure that environmental law is respected.

Ensure accountability and transparency.

- Accountability: we might have the best intentions but we need to be accountable for our actions because we might still mess up, so how do we hold ourselves accountable if that happens;
- Accountability to the communities that may be affected;
- Hold NWMO accountable to the work they are doing;
- Transparency and openness about what is going on and what to expect;
- Maintaining transparency on an ongoing basis.

Provide education that would support participation in decision-making.

- Education about radioactive waste;
- Education about how to take care of the planet;
- Education about long-term thinking, cultivating a sense of stewardship.

Focus on reducing the amount of waste we create in the future.

- Reducing the amount of radioactive waste we produce overtime.
- Explore other energy sources, not creating any new waste.

Roundtable #3 | October 19, 2021

Q. How do we best deal with Canada's Low and Intermediate Waste over the long-term?

- What type(s) of facilities should we use?
- Rolling stewardship vs disposal
- Should we centralize the waste in as few facilities as possible or should we build disposal facilities closer to where the waste is?

CONSIDERATIONS

- Long-term considerations
 - It is really hard to know what might happen in the timeframe between making the facilities and the 300+ years when they are complete - it was way different three hundred years in the past. What will 300 years forward look like?
 - Flexibility and adaptability of these plans is useful.
 - Building in checks and balances so if one thing fails, there is another to fall back on.
 - From Indigenous POV thinking of generations after us.
 - Integrating Indigenous knowledge. What are the steps that we need to take so that the future generations know how to deal with this?
 - Wondering where climate preparedness comes into this, as we're seeing with the recent experience in Nunavut. Something people didn't think about previously but is now an issue.
 - previously but is now an issue.
 There are still natural disasters that can happen and expose it to the outside above ground that's a risk.
 - What is happening if the climate is changing, or a terrorist attack or a war? We need to create additional research and make sure this is safe.
 - Important to continue innovating ways to manage.
- Unique conditions of Canada
 - Canada is such a huge country unlike many of the other countries we've been hearing examples from (Sweden, France etc.); how might the proposed facilities work here?
 - Consider the cold.
 - · Need to adapt from what smaller countries do.
 - There are different kinds of lands all across canada. It's very diverse. Can we have a standardized solution?
- · Minimize the impact on the land and environment
 - · Preference for the options that have the least impact on the earth.
 - I like the options where you can plant the grass and the trees because then you're not leaving concrete contaminants.
 - Care about not ruining ecological habitats.
 - · Preference for options that return it most to the natural state.
 - Care about the environmental stewardship and what will happen to the source of the water.
 - Like options where it comes back to the natural environment and more people paying attention to it.
 - Below ground seems to be better in terms of impact and disruption of the environment.

- If we store it near where we live, for example in Burnaby there is a big oil
 plant and it sticks out and interrupts the environment. I would put it further out
 but not too far so it doesn't impact the environment
- It should be put underground, somewhere from where it does not affect the surface.
- Going hundred and hundreds of meters below groundwater sources addresses some of my concerns about impact on the environment and communities. I know engineers probably look at what happens that low underground but good to hear it repeated.
 - Analogy of the DGR would be 2 CN Towers below ground.
- · Environmental monitoring is key
 - In order to determine the best management it depends on what sort of environmental monitoring is in place, especially for water and water quality. If there are no measures in place to actively monitor if anything is changing in the water, in the soil, and in the grass. Make sure there's monitoring in place.
- Locational considerations and unique communities
 - Choosing where those facilities should be. What would it look like if it was in a reserve? Will it provide jobs for the community as well? What measures would be put - if on a reserve - to be inclusive, communication with those living there, security measures etc.
 - Think about the land is it on a reserve or off the reserve? Do the people on the lands want the waste to be there? What are the geological factors?
 Locating further away from cities
 - Locating further away from cities 100 km radius)
 - Far from the cities would be best.
- Learning from precedents
 - The most important thing is if historically something like this had been done.
 Learning what other countries have done is Czech Republic it allows for case studies for the future.
- Education is key
 - We need to think about how we are going to educate people; this is very important because it is going to affect everybody.
 - The lack of education can be an issue. The roundtables are an important thing, but before this I did not know much about this issue. Concerned that without education there will not be much discussion around the subject.
 - Education is my top concern. How different opinions could affect everything. How are we going to come to a conclusion if there are different options? Who is dealing with this?
 - One participant worked at a landfill for a co-op: one thing that became very clear there was that a lot of people live their lives, throw their trash to the curb, and it "goes away" out of sight out of mind. Concerned that the same thing could happen here. Should do more than just put the waste away have a museum or the site opens once or twice a year for tours. Should recognize what has been done, not just put away and forget about it. I feel that it's not true that the waste "goes away" regardless of how we choose to dispose of it. Even if it's buried deep underground, it's still on Earth, here with us and the others we share this planet with, and so it continues to be our responsibility and may have future impacts on people and the planet.

- Input supporting centralization:
 - Centralized facilities may be easier to manager logistically;
 - · Less land may be impacted, in terms of the environment and wildlife, visually and from any potential adverse effects;
 - Having fewer facilities may offer financial savings; and 0
 - 0 Transportation costs may be reduced depending on where the waste is coming from.
- Input supporting decentralization:
 - o It would be more fair to have more facilities, so we're not putting all of the burden on one area or community, especially in case of any accidents. More than one site seems to be better in terms of environmental justice.
 - 0 Canada has a history of putting damaging and harmful facilities near communities of colour or marginalized communities. Multiple sites would spread the burden.
 - More facilities may reduce risks from transporting the waste and reduce impact on roads.
 - It may make sense to create disposal facilities based on geographical location 0 to reduce transportation costs.
 - Locating facilities near where the waste is produced may reduce 0 transportation costs

 - I like the idea of waste management to be close to the site. The waste should be close to the facility. It could reduce the transportation 0
 - 0 issue. Avoiding it would be best.
- Concerns that the time and cost pressures would lead to the selection of less . effective option
 - The desire to reduce costs might encourage the use of lower quality storage 0 materials which could cause more spillage or leakage.
 - 0 The time pressures around construction and given the amount of waste we need to deal with may encourage choosing the most easily accessible and quickest option and not necessarily the best option.
 - Concern that people that focus on profits and expenses may dominate the 0 decision-making & implementation processes
- How might we integrate different worldviews in how we consider the options
 - Materials feel very technical. Even the layperson report still felt very technical and came from a hard science perspective. I didn't necessarily see the people or the souls of the people who will be impacted by the technical solution. ■ Ie shallow cavern, "how would the rock feel?", not including this

 - alternative perspective. I don't know if its being considered enough
- Concerns expressed around impact on those working in the facilities and ensuring . health and safety and workplace safety.

FEEDBACK ON THE SPECIFIC FACILITIES

- Shallow Rock Cavern
 - Self-sustainability of the shallow rock cavern interesting idea that it can sustain the waste by itself without additional compartments/materials. Would be interested in learning more about
 - why it is or wouldn't be a priority.
 - Digs into mother earth but leaning more towards shallow rock cavern because won't be as visually obstructive and better for the

20

environment and animals. Better to hide the waste - but minimally. Shallow rock cavern is preferred.

- Engineered containment mound:
 - Perception that it returns land to most to the natural state and least harmful to the environment.
 - Might not harm the environment as much.
 - It seems to prioritize environmental protection. It doesn't seem to impact communities that are nearby.
- Rolling Stewardship
 - seemed more like it was putting it away into the future and it might fall off as a priority if we do that. Risk associated with that.
 - I read a couple of times about the last one. At first it seems nice but the concern I have is that it is just going to be left here and there will be environmental damage that communities will be left with. I especially speak about Indigenous communities and there are a lot of problems causing harm.
 - Don't like it very much because it is based on the assumption that we will do this for the future.
 - Rolling stewardship putting off the problem based on the assumption that there is a solution in the future. Will take so much money, manpower that it'll be better to use those resources to find a way to properly dispose of the waste. Whereas the disposal is more important.
 - No rolling stewardship.
 - Should not be an option. Disposing will be better. If there is a way to dispose - that should always be the option taken.
 - Rolling stewardship also makes sense for me.
 - I do think that going forward is not a very good idea to dispose. Rolling stewardship is the best idea until this waste can be reused.
 - Disposal does not solve the problem, just putting it on the side. Rolling stewardship is the best idea.
 - Instead of "burdening future generations" rolling stewardship was more realistic in that it wasn't pretending that the waste could just "go away" and be out of sight out of mind - at the end of the day it's still on Earth whether it's buried deep down or not, so it could be more of a reminder of the consequences of our choices as society and encouragement to reduce waste to not have to continue to deal with these problems at all.
 - I am in favour of rolling stewardship, this is the care-taking approach
- Concrete vault:
 - for concrete vault still on the surface. Takes away from animals, environment.
- Deep bore hole (intermediate waste):
 - The cement holes risk for pollution and contamination like a landfill. May affect the environment. Also - the deep bore hole - does not matter how long - it'll take a long time for any adverse effects to come up.
- DGR
 - To choose that because it is very deep underground. Lots more safety
 precautions taken. More trust towards that. Thinking big and long term

- we don't know how large the waste will be (size).

- One of the presentations is called the water presentation. It is an example of a uranium mine where the proposed deep geological is using copper and rock. So deep geological depository makes sense.
- Having a facility that can be deep geologically is a better idea, the material is safer and far away from society.

Q2. Who should be responsible for implementing the strategy?

Ensure ongoing engagement:

Important elements of engagement

- Feedback loops are important with engagement. Important to continue listening and being open to changes
- Collaboration between the public and experts is a must. Solicit input from experts and dialogue with Indigenous communities when creating and implementing sites
- Depending on the demographics of the local community, outreach in different languages might be super important. During one of my environmental studies courses, we watched a film about a pipeline being built, and the local Korean diaspora didn't even know it was happening, in part due to language barriers. So doing things like putting information in various languages, maybe speaking to local non-English language news/media sources and having these considerations and going the extra mile to make sure to not let newcomer/Immigrant/English as a second language communities fall through the cracks is really important.
- Ongoing engagement after the fact ie: whatever strategy is chosen, there be periodic monitoring etc of the site and that the community is updated/educated about it and/or it being remediated into environmentally beneficial land such as a nature reserve.
- Types of engagement activities:
 - Roundtables are impactful. Having interested communities (stakeholders) have a large say in decision making- a real say. General public - those especially affected - have conversations and also have a say and be consulted.
 - Town Hall meetings / online open transparent communication and open dialogues to keep the community informed as to what is happening, especially those affected.
 - Round tables are great at getting different perspectives and gathering information and opinions.
 - When there are many stakeholders at the table how can we prioritize/ what does compromise look like?
- Engage widely
 - If you consume the power you should have a part in the implementation of where the waste goes. It really should be everybody

contributing. Working with experts who are knowledgeable about waste consumption.

- Identify the stakeholders involved. The harsh reality is if the company is in charge of disposal - they will prioritize themselves. But when dialogue is facilitated with public and Indigenous communities- there should be a mediator between to help communicate. Take input from all perspectives - Indigenous communities, surrounding municipalities in how everything is going to be implemented.
- It is important to listen to youth.
- We should listen to the Indigenous people and what they consider to be important. Making sure that people's voices are heard.
- Implementation responsibility
 - Multiple actors
 - Probably best for a strategy like this to have multiple actors. In collaboration with the waste producers, the federal government. Blending the strategy and have multiple stakeholders involved
 - considering that if more people were to implement a solution about waste management it would be a more sustainable law.
 - More organizations would mean more checks and balances.
 - It should be a mix between the Government and the private sector.
 - Government:
 - Should involve federal AND local govt. They know the territory and what people want better than the federal government. They work together so can collaborate with other groups of people too
 - The Canadian Nuclear Safety Commission should take the lead on packaging and storing - they should play a huge role in making sure that the waste is managed and stored correctly.
 - We need to educate people, but the people in charge should be the ones who deal with the waste, but also the Canadian Government in a way that is fair to everyone.
 - Also the government should be a part of this, because of the power that they have. They can influence the public. The ones that are producing the waste.
 - NWMO (x2)
 - The power producers are paying for research, so the government should pitch in.
 - Community participation
 - Beneficial to have local community people and Indigenous peoples shown the site every few weeks, or at certain stages of construction so they are aware of what is happening in their own backyard and can identify any additional concerns as it is happening.
 - Collaborate with Indigenous communities on monitoring; support self-determination and self-governance by working with existing Indigenous-led groups that have capacity (eg. MNO program) or help build capacity where it doesn't exist.

- I would want to ensure the Metis communities are playing a role in implementing the strategy and leading the engagement with the communities.
- It's not just about who should be responsible but who should be involved; surrounding communities should be involved as to what happens in their backyard.
- Centered also around/ Indigenous communities leading the conversation BC they are stewards of the land for thousands of years. Indigenous communities know how to take care of the land and respect the land.
- Some roles should be included for future generations, but that implementation should be at the community level also. Indigenous people. Stewardship for land part of the implementation.
- People from the community that want to make a difference. Allowing the community to be a part of this.
- When it comes to safety and communities and road infrastructure it's a complicated discussion that needs to happen
- Polluters
 - Companies are already obligated for financial responsibility. While a financial responsibility is a burden they shouldn't be just throwing money at it. They should be responsible for doing it themselves because they cause the problem. We don't see them taking responsibility.
 - Companies should be responsible for the implementation.
 - Companies or corporations should be responsible; they should clean up and dispose of the waste in the proper way.
 - Companies should factor cost into the decision-making process. bear financial cost.
 - In terms of disposing waste the companies themselves do. Do companies have to get input from organizations on how to dispose or do companies have full independence / say in how to dispose of their waste?
 - The ones that should be responsible should be the ones who are using the energy that is being produced by the nuclear power plant.
 - The cost should land on the ones who generate the waste and consumers that help generate the waste.
 - The people who are using the most amount of nuclear energy. Based on how much they are producing.
 - Fan of the polluter pays method.
 - There needs to be a separation of the governing body and producers of nuclear waste, it is my opinion that the relationship is too close.
- Considerations:
 - how are you restoring areas, making these safe but repurposed spaces (education, remediation etc) so that it is still a beneficial place to make up for some of the harm that may be caused by some of the disruption of some of the construction

- Implementation is all about the details; environmental protection and people protection and meaningful consultation with impacted communities.
- Accountability:
 - We don't know what happens until we're on the ground. How do we
 ensure accountability and prevent repeating past experience of (not
 having enough funding).
 - Accountability oversight during the implementation of the strategy oversight committee.
 - If it involves the government, then you'll be responsible if there is a
 problem and you can't walk away from it if there is a problem.
 - The oversight committee can implement accountability if there are any issues.
 - Other parties can help keep the government accountable.
 - Oversight or review committee or non profit watchdog to keep an eye on the process.
 - Make sure it's a non-partisan issue to avoid politically motivated decision-making.
- Transparency:
 - Number one priority is transparency and making sure that everyone is aware of the process. It is important to make sure that there is open communication on both sides.
 - Transparency is the most important, and holding yourself accountable. It is very important that the people's voices are heard. Youth should speak up. Their voices are important.
 - Transparency is essential.

25

	Youth Ro	oundtables on Integrated Strategy for Radioactive Waste Roundtable #1	
		September 21, 2021	£ 2 2 L
		6:00-8:00pm EST Zoom: https://us02web.zoom.us/j/82162079555	1 MM
	6:00pm	Welcome & Opening Prayer	T.
Alle	6:10pm	Getting to know each other	
	6:30pm	 Presentations + Q&A What is low and intermediate level radioactive waste? What does the Integrated Strategy for Radioactive Waste (ISRW) entail? 	
Î	7:05pm	Break	
M (A	7:10pm	 Break-out Group Discussion What do you love about your community and/or environment? What do you want the most for your community in the future? What are your hopes for how we relate to each other in the future? 	
	7:50pm	Closing Remarks & Closing Prayer	
	More info a	bout ISRW: <u>www.radwasteplanning.ca</u> <u>info@radwasteplanning.ca</u> @radwasteplan	10901

	Youth Ro	oundtables on Integrated Strategy for Radioactive Waste	
		Roundtable #2	
		October 5, 2021	- <u>& Å å å</u>
		0:00-8:00pm EST	
		Zoom: https://us02web.zoom.us/j/88399991968	
	6:00pm	Welcome & Opening Prayer	
	6:25pm	 Presentations + Q&A How is radioactive waste regulated? Learnings from bringing together Western science and Traditional Indigenous Knowledge 	Í Trá
	7:15pm	 Break-out Group Discussion How does thinking about timescales of 300+ years inform our decision-making today? What does responsibility and stewardship mean in the context of these time scales? What is most important to get right today with the Integrated Strategy for Radioactive Waste when thinking about impact/implications over such long time periods? 	
Sale C	7:55pm	Closing Remarks & Closing Prayer	
	More info al	bout ISRW: <u>www.radwasteplanning.ca</u> <u>info@radwasteplanning.ca</u> @radwasteplan	



Summary Report of NWMO Fall Youth Engagement Sessions

December 2021

Methodology and Format

The NWMO organized a series of Fall Youth Engagement Sessions related to the Integrated Strategy for Canada's Radioactive Waste (ISRW).

Four sessions were held virtually in October and November 2021. All sessions were held in English and were comprised of university classes as well as industry organizations with youth memberships (Organization of Canadian Nuclear Industries, North American Generation in Nuclear, University of New Brunswick and Ontario Tech University). In all, these sessions saw participation from almost 100 young people.



Figure 1 Example Facebook Post

The NWMO worked to identify youth groups of interest and facilitate the organization of these sessions. The Fall Youth Engagement Sessions were designed to provide a safe shared space for multiple voices to be heard and to connect participants in new and meaningful ways. The events were free of charge and open to any students or youth from the schools or organizations that were contacted. As it was important to encourage wide participation, the NWMO used various outreach and promotional tools, including owned social media as well as tailored emails to broaden its existing reach to relevant audiences in order to raise awareness of the Fall Youth Engagement Sessions and stimulate registration. In total, the NWMO reached out to 26 schools and youth organizations in regions of interest such as Ontario (Pickering, Port Hope, Clarington), Quebec, New Brunswick, and Saskatchewan. The NWMO also drafted posts for the project's owned social channels (Twitter (English), Twitter (French), Facebook (English), Facebook (French)) to promote the sessions.

The NWMO created a project branded presentation for these sessions that was used to inform participants and facilitate a discussion on Canada's low- and intermediate-level nuclear waste.

The <u>English presentation</u> and French presentation (based on the Community Engagement Session presentation and tailored for each group) can be found on the <u>RadWastePlanning</u> website. The NWMO drafted an engagement guide (script) that was used in tandem with the presentation. The guide included informative context-setting from the NWMO, insightful, thought-provoking questions, as well as an opportunity for open dialogue and conversation. The NWMO worked with each group and class to tailor the engagement session, taking into account considerations such as allotted classroom time and varied knowledge level. Finally, the NWMO prepared a report outlining what was heard during the sessions on an Integrated Strategy for Canada's Radioactive Waste.

Before addressing the topics for discussion, the engagement sessions started with an opening context-setting presentation from Karine Glenn, Strategic Project Director for the NWMO, which covered the following:

- 1) Information on radioactive waste such as:
 - a) Information on the different levels of radioactive waste
 - b) How other countries are managing their radioactive waste
 - c) How waste is currently regulated in Canada
 - d) How was is transported
 - e) How waste is managed now and how it could be managed over the long-term
- 2) Information on the ISRW project such as:
 - a) Gaps in existing plans (e.g., low- and intermediate-level radioactive waste)
 - b) Timeline of the project including key milestones and deliverables (from Fall 2020 to Winter 2021/2022)
 - c) The Strategy's guiding principles, including: 1) safety as an overarching principle, 2) security must be ensured, 3) environment is protected, 4) informed by the best available knowledge, 5) meets or exceeds regulatory requirements, 6) be transparent and inform and engage the public, 7) respect Indigenous rights and treaties, 8) make use of existing projects, and 9) fiscally responsible.

Throughout the presentation, participants had the opportunity to watch several informative videos that helped re-emphasize information on Canada's radioactive waste as well as the purpose of the ISRW project.

Following the context-setting presentation, participants were asked to participate in a top-of-mind icebreaker exercise where they were asked to share what comes to mind when they think about the future of Canada's radioactive waste. Following the icebreaker, participants were invited to take part in a discussion on three key topics that would help inform the development of an Integrated Strategy for Canada's Radioactive Waste:

- 1. The first focused on identifying what is most important to get right when developing an Integrated Strategy for Canada's Radioactive Waste.
- 2. The second focused on how we best deal with Canada's low- and intermediatelevel waste over the long-term (considered separately).
- 3. The third focused on who should be responsible for implementing the strategy.

These discussion topics helped identify key considerations that young people view as being necessary to include in a strategy.

Finally, participants were provided with ways to further be involved in the strategy development process, such as, registering for updates through the project's <u>radwasteplanning.ca</u> website, partaking in the project's online survey and visiting the <u>learn more page</u> on the project's website.

Results and Responses

Top of Mind – Radioactive Waste

When participants were asked what comes to mind when thinking about the future of Canada's radioactive waste, several priority areas were highlighted.

Safety

It was noted across sessions that participants viewed safety as a key priority, not only in the short-term, but thinking ahead for the long-term management of Canada's radioactive waste. Participants spoke about safety with respect to water, land usage, as well as people and the environment.

Education **n**

Participants also noted the importance of education to highlight the benefits of nuclear energy as well as provide additional information on nuclear waste, hazards and safety. It was noted that further education could help destigmatize *nuclear* and help increase public awareness.

"When we discuss waste issue with the public, it would be great to start off with the benefits of nuclear energy and why we need it." -Youth Engagement Session Participant

International best practices

Participants also mentioned the benefits of considering international best practices when thinking about the development of Canada's Integrated Strategy for Radioactive Waste. It was highlighted that looking to other countries helps provide Canada with more data and expertise.

Emerging technology

Another theme that was discussed was emerging technology in radioactive waste. Some examples shared included the future of technology to speed up the decay of waste and emerging technology to recycle radioactive waste.

Discussion Topic #1: What's most important to get right?

When asked what's most important to get right when developing an Integrated Strategy for Canada's Radioactive Waste, participants emphasized the importance of continued community engagement, education and awareness and safety for a successful strategy.

Education + continue community engagement

Similar to the *top-of-mind* icebreaker exercise, education was a recurring priority area for participants. They emphasized the importance of providing key information such as how much work goes into the planning and development stage of building disposal sites, supportive science and evidence-based research, as well as transparency around the process and roles involved (e.g., role of waste creators and waste owners).

Overall, it was recommended a holistic approach be taken to inform the public and help increase awareness and public acceptance. Participants mentioned that engagement with communities of interest and Indigenous communities is important to a shared understanding of the project.

Safety

Safety emerged as a key priority area from participants across sessions. When participants spoke about the importance of safety, they provided examples such as the safety of proper engineering standards and the safety of isolating the radioactive waste and storing the waste for its entire lifetime.

Discussion Topic #2.1: How do we best deal with Canada's Low-Level Waste over the long-term?

When asked how to best deal with Canada's low-level waste over the long-term, participants emphasized the importance of cost when developing a strategy, as well as considering transportation risks.

Cost versus safety

Participants mentioned that the management of Canada's low-level radioactive waste should be cost-effective. Participants discussed trade-offs between safety and cost in light of the low risks posed by low-level waste, with some saying that cost should be seen as a priority given the lower risk.

"LLW is significant, but less risky, the solution should be driven by cost. What is cheaper, transportation or building more facilities. Cost is the priority. — The threat of LLW should be managed by cost. The risk here is low, so safety is not a large concern, so the focus here should be the cost." -Youth Engagement Session Participant

Consider transportation risks

There was some debate among engagement session participants on whether one facility or multiple facilities would be the ideal solution for the long-term management of Canada's low-level radioactive waste in the long-term. Some participants considered the idea of having multiple facilities to help reduce risk during transportation of waste. It was noted that there were concerns that transportation would be too costly or take too long with only one facility. Other participants favoured having one centralized facility, saying that building multiple may have environmental impacts and having one will keep surveillance and waste management simpler.

"I think there are benefits of having one as well as having many. I think just having one keeps things simpler in terms of surveillance, especially 100's of years in the future. With many, I think there are benefits of less travel time / distance with the waste in a safety point of view." -Youth Engagement Session Participant

Discussion Topic #2.2: How do we best deal with Canada's Intermediate-Level *Waste over the long-term?*

When asked how to best deal with Canada's intermediate-level waste over the longterm, participants shared several ideas including emplacement in a deep geological repository, co-locating waste and rolling stewardship.

Deep geological repository

Some participants expressed support for intermediate-level waste to be placed in a deep geological repository and mentioned that a deep geological repository is considered best practice.

Co-locating

The idea of co-locating different levels of waste was also shared by participants. Some participants were supportive of co-locating waste as long as the science supports this solution. There was support for both the co-location of intermediate- and high-level waste and intermediate- and low-level waste.

Rolling stewardship

Rolling stewardship was also mentioned by some participants as an option that would provide benefits such as job creation. Some participants questioned how rolling stewardship would work with intermediate-level waste. It was explained that rolling stewardship would mean building surface facilities and repackaging the waste. It was further explained that rolling stewardship assumes a societal structure that will be able to maintain oversight long-term.

Discussion Topic #3: Who should be responsible for implementing the strategy?

When thinking about an Integrated Strategy for Canada's Radioactive Waste, participants had mixed opinions as to who should be responsible for implementing the strategy.

Waste owners versus separate non-biased entity

Some participants noted that waste owners should be responsible, whereas others mentioned it should be a separate third-party entity like the NWMO. Some participants explained that waste owners understand the type of waste they are producing, and therefore, might be best positioned to implement the strategy.

"Waste owners know what they are producing best; therefore, they can more than likely figure out how to deal with it."

- Youth Engagement Session Participant

Government body

A few other participants explained that a governmental body should organize and implement the strategy. For example, the idea of having waste owners be responsible under supervision from a government entity was shared.

Question and answer period

Participants were also welcomed to provide further input and ask any additional questions throughout the session. Some questions asked by participants were focused on Adaptive Phased Management, a separate NWMO project dealing with planning for the long-term management of Canada's high-level waste. Others were follow-up questions to the information presented and discussions that were had.

Examples of questions include:

- 1. Is there a timeline pressure on making this decision?
- 2. What is the feedback when engaging with the public on this topic? What are some of the major concerns they've raised and how do you intend to get feedback from communities that are not directly impacted by the waste sites?

- 3. Are there any other non-nuclear hazards or issues to consider, or is the NWMO focused on more radiological hazards?
- 4. With the rise of renewable energy, wouldn't phasing out nuclear energy be a better plan?
- 5. What are the key considerations in the early design process of low- and intermediate-level storage and disposal facilities?
- 6. Is there any Indigenous representation in your group and is there constant engagement?

The NMWO representative, Karine Glenn, responded to as many questions as she could in the allotted session time and encouraged those who did not get to ask their questions to reach out to her or the Rad Waste Planning Team (<u>info@radwasteplanning.ca</u>).

Overall, participants across sessions were very pleased with the engagement and thanked the NMWO for an informative presentation and discussion.

"Excellent discussion – thank you everyone for participating and thank you NWMO for hosting this workshop." - Youth Engagement Session Participant

Glossary of Terms (Nuclear Waste Management)

Bulk Material: Material that is granular in nature, such as soil, demolished concrete, or construction/demolition waste.

Concrete Vault: <u>Concrete vaults</u> are a type of engineered near surface disposal facility widely used around the world for the disposal of low-level radioactive waste (LLW). Concrete vaults look like large concrete boxes and a repository would be made up of a series of these. Each one would have its own drainage system and an 'earthen cover system' engineered from multiple layers of soil and with grass or other plants growing on top. This disposal method can be used in a wide variety of soil conditions. It is also modular in its design, which means that additional vaults can be added to increase its capacity as needed.

Deep Borehole: <u>Deep borehole</u> disposal is an emerging technology for waste that requires isolation for more than a few hundred years. It may be suitable for the disposal of small volumes of intermediate-level waste (ILW). The series of narrow boreholes are created to a depth of about 500 to 1000 metres into which waste packages would be lowered, creating a stack deep underground.

Deep Geological Repository (DGR): A <u>deep geological repository</u> typically consists of a network of underground tunnels and placement rooms for radioactive waste constructed several hundred meters below the surface. Repositories are designed to use a system of multiple barriers: engineered barriers such as waste containers and natural barriers like the rock itself work together to contain the waste and isolate it from people and the environment.

Disposal: The placement of radioactive waste without the intention of retrieval.

Engineered Containment Mound (ECM): <u>Engineered containment mounds</u> are a type of engineered near surface disposal facility that sees waste packages placed on a waterproof base and then covered over with thick layers of natural materials such as clay and soil. Layers of synthetic materials such as high-density polyethylene are also incorporated to prevent release of radiation to the environment. These facilities usually have wastewater collection and treatment systems as well. ECM is suitable for low-level waste which will not reduce in volume or compact over time.

High-Level Waste (HLW): High-level radioactive waste is primarily used nuclear fuel and/or is waste that generates significant heat via radioactive decay. HLW is associated with penetrating radiation, thus shielding is required. HLW also contains significant quantities of long-lived radionuclides necessitating long-term isolation. Placement in deep, stable geological formations at depths of several hundred metres or more below the surface is recommended for the long-term management of HLW.

Intermediate-Level Waste (ILW): Intermediate-level radioactive waste is generated primarily from power plants, prototype and research reactors, test facilities, and

radioisotope manufacturers and users. ILW generally contains long-lived radionuclides in concentrations that require isolation and containment for periods greater than several hundred years. ILW needs no provision, or only limited provision, for heat dissipation during its storage and disposal. Due to its long-lived radionuclides, ILW generally requires a higher level of containment and isolation than can be provided in near surface repositories. Waste in this class may require disposal at greater intermediate depths of the order of tens of metres to a few hundred metres or more.

Long-Term Management: The long-term management of radioactive nuclear waste by means of storage or disposal.

Low-Level Waste (LLW): Low-level radioactive waste comes from operating reactors and from medical, academic, industrial, and other commercial uses of radioactive materials. LLW contains material with radionuclide content above established clearance levels and exemption quantities (set out in the *Nuclear Substances and Radiation Devices Regulations*), but generally has limited amounts of long-lived activity. LLW requires isolation and containment for periods of up to a few hundred years. An engineered near surface disposal facility is typically appropriate for LLW.

Radionuclide: A material with an unstable atomic nucleus that spontaneously decays or disintegrates, producing radiation. Nuclei are distinguished by their mass and atomic number.

Rolling Stewardship: <u>Rolling stewardship</u> is an approach to managing radioactive materials for which there is no disposal solution in the near term. Under rolling stewardship, the radioactive waste is stored on the surface where human controls can safely contain, isolate, monitor, and secure it for many generations indefinitely i.e., roll the radioactive waste forward from generation to generation (a succession of stewards). This concept assumes that technology will eventually resolve the problem for the long-term management of the waste, potentially by destroying or neutralizing it.

Shallow Rock Cavern: The <u>shallow rock cavern</u> is an engineered near surface disposal method sometimes used for the disposal of low-level waste, or low- and intermediate-level waste (LLW or L&ILW). A series of rock caverns are excavated at a nominal depth of 50 to 100 meters below the surface in low permeability rock. They are accessed from the surface by a small system of ramps and tunnels

Small Modular Reactors (SMR): SMRs are advanced reactors that produce electricity of up to 300 MW(e) per module, which is less than current power generation reactors.

Waste: In the context of the What We Heard report, waste is assumed to be a radioactive waste unless specified otherwise (e.g., non-nuclear waste).

Waste Owner: The radioactive waste owner is the organization currently responsible for the radioactive waste.

For more information contact:

info@radwasteplanning.ca

Nuclear Waste Management Organization 22 St. Clair Avenue East, Fourth Floor, Toronto, ON M4T 2S3, Canada

Telephone: 416-934-9814 Toll-free: 1-866-249-6966 Fax: 416-934-9526