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Submission from
The United Church of Canada
to the
Nuclear Waste Management Organization (NWMO)

Submission 3.
United Church Comments on NWMO Discussion Document
Understanding the Choices and Related Reports

Part 1. Response to NWMO Questions:
Is the assessment framework comprehensive and balanced?
Are there gaps, and if so, what do we need to add?

March 2005

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INTRODUCTION

The United Church of Canada (UCC) has had policy, and educational and advocacy involvements over twenty-five years arising out of the Church's concern about issues related to nuclear power including high-level nuclear wastes. That history is presented briefly in UCC Submission 1 to Nuclear Waste Management Organization (NWMO), together with basic components of the world view and the ethical principles that underpin the United Church engagements in these issues. Further commentary on the ethical lens of the United Church is presented in UCC Submission 2. to NWMO.

The United Church's reflection on the work of NWMO and the material in the various NWMO documents and postings on the NWMO website is centered in the ethical principles of the *One Earth Community* (OEC)(UCC, 1992) and the *Earth Charter* [EC](Earth Council, 2000). Based on the policies of the United Church, an ethical response to the problem of nuclear fuel waste must:

1. reflect a responsibility to the Earth in its wholeness; (OEC principle 1.) [EC principles 1.a., b.; 2.a., b.]
- 2: be founded on a just international economic order which respects human rights, including assisting countries to meet energy needs with soft energy path approaches which emphasize energy efficiency, renewable resources and energy conservation; (OEC 2) [EC 3.a., b.; 11.a., b., c.; 12.a., b., c., d.]
- 3: promote change of lifestyle from high material consumption (OEC 3) [EC 9.a., b., c.]
- 4: promote humanity's understanding of its collective responsibility for environmental damage and repair and that environmental damage must stop (OEC 4) [EC 8.a., b., c.]
- 5: protect the rights of future generations (OEC 5) [EC 4.a., b.]
- 6: not threaten the sustaining capacity of the Earth (OEC 6) [EC 7.a., b., c., d., e., f.]
- 7: respect and protect the biodiversity of the Earth (OEC 7) [EC 5.a., b., c., d., e., f.; 15.a., b., c.]
- 8: not contribute to violent approaches to conflict resolution (OEC 8) [EC 16.a., b., c., d., e., f.]
- 9: ensure meaningful participation of individuals and groups in the decision-making processes (OEC 9) [EC 13.a., b., c., d., e., f.]
- 10: assure opportunities for learning and access to knowledge (OEC 10) [EC 14.a., b., c., d.]
- 11: be based on adequate environmental, social and cultural impact assessment (OEC 11) [EC 6.a., b., c., d., e.]
- 12: hold authorities and corporations responsible for their actions and ensure that Canada accepts its global responsibility to prevent environmental damage. (OEC 12) [EC 10.a., b., c., d.]

Consistent with past reflections (UCC 1996, UCC 2000), the United Church sees the nuclear waste issue as inseparable from some fundamental concerns as discussed in our Submission 1. to NWMO (UCC 2004). This, the United Church's third submission to the NWMO consists of a more detailed analysis of and response to the NWMO Discussion Document 2 *Understanding the Choices* and related reports.

The United Church submissions to the NWMO have been mandated and endorsed by the Justice, Peace and Creation Advisory Group of the Justice, Global and Ecumenical Relations Unit within the General Council of the United Church of Canada. There is a diversity of views in society and in the Church about these issues and the perspectives reflected in this submission will not be shared by all United Church of Canada members. They are faithful to current United Church policy (i.e. UCC 1996 and UCC 2000) which identifies many concerns about nuclear power and the resulting wastes.

The principle writers of the material were Shirley Farlinger, Bob K. Fillier, Lisa Gue, David Hallman and Mary Lou Harley.

FROM ASKING THE RIGHT QUESTIONS? TO UNDERSTANDING THE CHOICES

The challenge to NWMO staff to meet the legislated requirements in only three years has been heightened by the commitment of the NWMO President and her staff to engage Canadians in the process as they explore thinking strategies and alternative decision-making tools to try to evaluate the options for the long-term management of nuclear fuel waste. This sharing of thinking as well as outputs is welcomed and it is in the spirit of helping that thinking to continue to evolve that this critique of “*Understanding the Choices*” (NWMO 2004) and related documents is submitted.

SUMMARY RESPONSE TO NWMO QUESTIONS:

Is the assessment framework comprehensive and balanced? Are there gaps, and if so, what do we need to add?

In general, as discussed under **Influence of Inputs**, we suggest that each of the objectives needs to better reflect the influences of aspects of the overarching Key Questions: institutions and governance; engagement and participation in decision-making; Aboriginal knowledge and values; ethical considerations; and comprehensiveness of information, continuous learning and potential to make mid-course changes (NWMO 2003, 51-53).

For all the influence diagrams with “Risk” bubbles, there should be two feeders: “new risks” and “existing risks.” The impact of any management option on existing risks should be evaluated as well as the new risks associated with an option. When assessing different options for the decades of the first century of implementation, this may be of particular importance.

Fairness is used with different intentions within the material incorporated into the discussion document: fairness is a value, fairness is an ethical principle with a set of guiding criteria within the “Ethical and Social Framework” of the Roundtable on Ethics (2004) and Fairness is an objective in the assessment framework. Overall, Fairness was an unfortunate choice of label for this objective. The explicit inclusion of some ethical considerations under the Fairness objective, while the influences of ethical considerations on all the objectives are not presented, results in an assessment framework with a narrow treatment and weighting of the ethical considerations. We have discussed this flaw under **Ethical Considerations**.

With the Fairness objective as the only explicit presentation of the ethical considerations, the influence diagram does not adequately address the issues. Rather than listing adjustments to various influence bubbles, we offer for comparison the influence diagram presented in the Appendix, developed from the “Ethical and Social Framework” of the Roundtable on Ethics (2004).

To help to ensure that the evolving thinking does not lose sight of the overarching nature of ethics, the assessment framework should be revised to more transparently incorporate the influences of ethical considerations and social values. If NWMO does not want the embedding

of ethical considerations to be transparent in all of the objectives then the Fairness objective should be replaced by an influence diagram of an Ethical and Social Framework that the NWMO feels best frames the ethical considerations that are embedded.

Adaptability has a serious design flaw. The “need to take corrective action that addresses surprises” is included with the “ability to take corrective action that addresses surprises” within one influence bubble in the Adaptability objective. This influence bubble undermines the Adaptability objective; it is inconsistent with the general principle for the objective; and it reflects an altering of the intent of adaptability from what was presented in citizen values, the Ethical and Social Framework and the general discussion by NWMO. The need to be adaptable should not be in question in this objective. The possible impact of the assumption regarding robustness on the design of this objective has been discussed under **Assumptions**. In revising the Adaptability objective, “the need to take corrective action” must be removed from the “ability to take corrective action” influence bubble.

In the Public Health and Safety objective, an additional arrow is needed to include the influence of “Ability to respond to, correct, remove, mitigate” on “likelihood of impacted individual experiencing consequences.”

Under the Worker Health and Safety objective, a new bubble is needed to include emergency responders along transportation routes.

For the Environmental Integrity objective, the focus on impacts and consequences to “resources” as two of the three major influences sets a narrow, economic view. This hierarchy of major influences should be broadened to reflect concern for impacts and significance of potential consequences on biota and habitat as well as resources. On a minor note, “Watershed,” “Air shed,” and “Land” should feed into “Species” for the same reason that “Wetlands” does.

Under “Economic Viability,” “financial surety” should be removed and “financial resources” and its influences should be re-organized as “expected financial resources” and “financial resource uncertainty,” parallel to the cost considerations. “Time over which resources will be required” should influence “cost uncertainty” and “expected costs,” instead of the financial resources group; and “time over which resource will be available” should be added to influences on financial resources. Uncertainty of investments should be added into “financial resource uncertainty.” The influence of inflation seems to be missing from the influence diagram. Also, “potential for major financial recession” should not influence financial resources directly, other than via ROI. The term “Continued Utility Revenue” introduces future production and must be rephrased, perhaps as “Projected Utility Revenue” to indicate revenue from projected production from present facilities, to be consistent with the assessment design assumptions. A “Trust Fund” feed into “expected financial resources” should appear on the influence diagram with its relationship to the “Guaranteed funding percent” and “Projected Utility Revenue.” The assessment team noted that “government guarantees would be necessary” (NWMO 2004, 70) therefore the role of government funding should appear as an influence.

SUMMARY of RECOMMENDATIONS RELEVANT TO THIS QUESTION:

Discussed Under **Influence of Inputs**

We suggest that NWMO be more transparent throughout its documentation about the influence that submissions and other inputs from the public have actually had and that NWMO present with clarity the process that has been used to ensure adequate and timely transfer of information between concurrent activities.

We suggest that the Key Questions and the Assessment Framework, as part of the decision-making tool box, should be sharpened to be useful to others as the recommendation moves forward. The original documents coupled with the revised tools will help to make transparent the influence of the many engagement inputs and the evolution in thinking toward the recommendation.

We ask that the NWMO revise the Key Questions and the relevant brief descriptive material, and consider the assessment objectives in the context of the revised questions as part of the revision of the assessment framework.

We ask that the assessment framework be revised to better reflect the way in which the five overarching Key Questions apply across the entire assessment methodology.

Discussed Under **Ethical Considerations**

We suggest NWMO consider development of an influence diagram representation of an ethical and social framework that reflects the input to this process, as a way to make transparent the kinds of considerations that are embedded in the thinking strategies as the assessment framework is applied. The ethical and social framework would identify the diversity of ethical and social considerations but would place no weighting on any influence. Given the number of influences, separate charts for procedural and substantive considerations would be practical.

We recommend that NWMO revise “A System Perspective of Factors Leading to Implementation of a Management Approach” (NWMO Assessment Team 2004, 21) to include ethical considerations and expand the influence of social values, and apply this revised perspective to the implementation considerations.

Discussed Under **Assumptions**

We ask the NWMO to include with its recommendation a statement about the need for a broad public discussion on Canadian energy policy and the future of nuclear energy, including export sales.

We ask the NWMO to include with its recommendation a statement identifying any use of the recommendation to promote nuclear power, including international sales, as an abuse of the process and misuse of the recommendation.

If NWMO holds that a superior management approach would be one that is robust, then this weighting should be applied in the assessment rather than within the framework design and

justification for this weighting must be presented together with clear evaluation of the losses in the objectives and the values, such as adaptability/flexibility as defined within the “Ethical and Social Framework” of the Roundtable on Ethics (2004) and the citizens’ values expressed in *Responsible Action* (CPRN 2004).

We ask the NWMO to ensure that in the next discussion document, the discussion of accessibility, assessment of the options and development of the implementation plans acknowledge the inherent hazards posed by the nuclear fuel waste and the concerns about uncertainties and limitations in projections of safety.

INFLUENCE OF INPUTS

The tight three-year timeline for NWMO has necessitated that many activities proceed concurrently, even though some have depended on the outcome of others that were still ongoing. In *Understanding the Choices* (NWMO 2004), there are summary remarks on the public response to *Asking the Right Questions?* (NWMO 2003). However, it is not clear what has been incorporated from the public submissions and the dialogues report (DPRA 2004). Lists of societal values, mention of the public response and inputs that were gathered, and statements of reassurance of inclusion are not meaningful unless it is apparent in the discussion document how these have had influence. Also, there are reports that had formative importance to the assessment framework development yet they were in preparation when the work of the assessment team was well underway. The language used in NWMO documents should avoid implication that material was foundational if in fact it was included later and how the information was included and what influence it had should be clear.

Recommendation:

We suggest that NWMO be more transparent throughout its documentation about the influence that submissions and other inputs from the public have actually had and that NWMO present with clarity the process that has been used to ensure adequate and timely transfer of information between concurrent activities.

NWMO TREATMENT OF KEY QUESTIONS

In response to *Asking the Right Questions?* (NWMO 2003), there were revisions and additional material suggested for the Key Questions. Some of the considerations and comments are noted in *Understanding the Choices* (NWMO 2004, 31-32) yet this second discussion document restates the Key Questions unchanged from the first discussion document and without further development. To demonstrate the need for revision of the Key Questions in response to the input from the engagements and the need to revise the assessment framework to reflect the overarching Key Questions, two of the Key Questions, #4 (Ethical Considerations) and #3 (Aboriginal Values) are discussed below.

KEY QUESTION #4

As presently stated, Key Question 4 on Ethical Considerations asks the question *only* of the *process* for selecting, assessing and implementing the management approach. It needs to ask also whether the management approach adequately addresses the important ethical considerations and social values. Input from the Roundtable on Ethics and the comments to the Regional and National Dialogues on substantive ethics support rewording this Key Question to address substantive aspects as well as processes. Further, as presently stated, Key Question 4 sets a narrow ethical framework within the question: “that it be fair and equitable to our generation and future generations” (NWMO, August 2004). This limited view of the ethical dimensions appears in the assessment framework in that ethical considerations are presented in the objective Fairness without presentation in the other objectives. The broad, overarching influence of ethical considerations across all objectives that general comments on embedded

ethics imply may have influenced the thinking of the assessment team but this is not transparent.

The assessment team identifies “the ethical dimensions of a given approach” as one of the drivers of public acceptance (NWMO Assessment Team 2004, 13) but it is not apparent how the ethical dimensions are to be determined or included: this aspect is missing from Key Question 4; it was noted as missing during the National Dialogues on *Asking the Right Questions?*, and it is missing from preliminary assessments. There is no thorough discussion of ethical dimensions of each approach in *Understanding the Choices* (NWMO 2004).

KEY QUESTION #3

The material in *Understanding the Choices* (NWMO 2004) and the assessment framework in particular do not reflect consideration of Key Question 3 on Aboriginal Values. With respect to Table E-2 (NWMO 2004,10), Aboriginal views may use words that are the same or similar to value labels in a list but words without context are misleading. There is much work to do to present Aboriginal worldviews and to help Canadians to understand Aboriginal meanings and applications of these values. Further, the assessment framework fails to present the broad way in which Aboriginal knowledge and experience are to inform the direction and influence the development of the management approach. We uphold the concern expressed by the Assembly of First Nations in “First Nations Nuclear Fuel Waste Dialogue Working Group Meeting #1 Report” (2004):

“First Nations have extensive knowledge about their traditional territories and have had considerable experiences with the nuclear industry, placing them in a unique position to guide the discourse on nuclear fuel waste management.... By characterizing Aboriginal knowledge as “perspectives” and “values”, rather than knowledge it undermines the validity and importance of Aboriginal involvement. Document 1 is lacking in that there is no concrete mechanism for inclusion of First Nations knowledge.” (5)

Recommendation:

We suggest that the Key Questions and the Assessment Framework, as part of the decision-making tool box, should be sharpened to be useful to others as the recommendation moves forward. The original documents coupled with the revised tools will help to make transparent the influence of the many engagement inputs and the evolution in thinking toward the recommendation.

We suggest that the NWMO revise the Key Questions and the relevant brief descriptive material, and consider the assessment objectives in the context of the revised questions as part of the revision of the assessment framework.

ASSESSMENT TEAM TREATMENT OF KEY QUESTIONS

Discussions of the Key Questions during the public dialogues favoured retaining Key Questions 1, 2, 3, 4, 5 as overarching. However, the assessment team did not apply this weighting. In *Assessing the Options* (NWMO Assessment Team 2004, 68), point 1 states that the Team used only parts of Key Question 1 and only parts of Key Question 5 as overarching and although it

states that Key Questions 3 and 4 were applied as overarching, review of the influence diagram development for the objectives indicates little influence of Key Question 3, and Key Question 4 is mainly limited to the objective Fairness. The questions that are seen as overarching direct the thinking on the influences for an objective, so the influence diagrams should be reviewed with an eye to identify aspects of the five overarching Key Questions that should be added under each objective.

Recommendation

The assessment framework should be revised to better reflect the way in which the five overarching Key Questions apply across the entire assessment methodology.

ETHICAL CONSIDERATIONS

NWMO recognizes that the ethical and value considerations need to be discussed openly. In *Asking the Right Questions?*, it was stated that ethics would be applied to the entire study and that ethical and value considerations would be embedded in all aspects (NWMO 2003, 47); however, that document did not identify the ethical and value considerations it embedded nor discuss the ethics which should be applied to the entire study.

Understanding the Choices lists some values and ethical principles (NWMO 2004, 10) but the focus in the assessment framework is on one criterion, 'Fairness,' from the original Key Question 4. In each of the other assessment objectives, ethics are said to be embedded but they are embedded in a way that hides them from discussion rather than revealing where or how the many values have been considered and weighted, which principles have been applied and how they have informed the thinking. Yet, the assessment framework is supposed to systematically integrate social and ethical dimensions and the Act requires the comparison of the approaches, taking into account the ethical and social considerations.

To address this gap, we suggest revision of the influence diagrams for each of the objectives to include the ethical and social considerations that are influential. Time constraint may make that impractical. An alternative would be to rebuild the Fairness objective to address the substantive and procedural ethical dimensions; the "Ethical and Social Framework" from the Roundtable on Ethics (2004) offers the grounding to begin to rebuild this influence diagram.

The Roundtable on Ethics recommends six principles and presents a series of questions and a short discussion as a start to an ethical and social framework. (NWMO Roundtable on Ethics 2004). The example influence diagram given in the Appendix is based on this material. Adjustments to this diagram are needed to integrate additional input on values and principles, but it is a demonstration that an ethical and social framework is consistent with the assessment methodology and can be presented in the influence diagram format. Development of the assessment tool from the Ethical and Social Framework makes the foundation explicit by allowing the terms and questions within the written framework to set the context for the

interpretation of the influence diagram.

The NWMO will need to consider additional input toward developing the ethical and social framework which will guide the present work through this recommendation phase and which will allow participants to constructively engage in on-going open discussions. To support development of an evolving ethical and social framework, the United Church of Canada has previously submitted to the NWMO specific considerations on ethical principles and their application (UCC 2004; UCC 2005).

Recommendation:

We suggest NWMO consider development of an influence diagram representation of the Ethical and Social Framework that reflects the input to this process, as a way to make transparent the kinds of considerations that are embedded in the thinking strategies as the assessment framework is applied. The ethical and social framework would identify the diversity of ethical and social considerations but would place no weighting on any influence. Given the number of influences, separate charts for procedural and substantive considerations would be practical.

ASSESSMENT FRAMEWORK: SYSTEM PERSPECTIVE

The foundations of the assessments in NWMO *Understanding the Choices* (NWMO 2004) are in *Assessing the Options* (NWMO Assessment Team 2004). In Figure 2-2: “A System Perspective of Factors Leading to Implementation of a Management Approach” (NWMO Assessment Team 2004, 21), the factors are laid out in four fields: Political and Economic Landscape; Public Acceptance; Host Community; Alternative Approaches.

In this scheme, it is evident that the quantity of waste to be managed must be a known factor: “Total used nuclear fuel to be managed” in the ‘Alternative Approaches’ field is indicated as directly affecting cost; security; safety for humans and ecosystems, with security and safety affecting perceived risk and public acceptance (NWMO Assessment Team 2004, 21). The United Church of Canada Submission 1 to NWMO (2004) addresses our concerns about the quantity of waste, the bounding of the issue and the future of nuclear power in Canada.

Also, social values and ethical considerations as factors and their influences on implementation of a management approach need revision. “Social Values,” placed in the Political and Economic field, are indicated as directly affecting: government policy; special interests; public perception of fairness; and public and Aboriginal participation and thereby affecting public acceptance. In the remaining two fields, social values are indicated as having an impact only through government policy. The impact of social values on perceived risk needs to be included and social values need to be connected to the willingness of a host community in this schematic. Ethical considerations are not included as a factor in any field in spite of claims to have “put a great emphasis on incorporating the social and ethical considerations” (NWMO Assessment Team 2004, 13). The team noted that public acceptance is “driven by public perception of fairness and the ethical dimensions of a given approach” (NWMO Assessment Team 2004, 21).

Recommendation:

We recommend that NWMO revise “A System Perspective of Factors Leading to Implementation of a Management Approach” (NWMO Assessment Team 2004, 21) to include ethical considerations and expand the influence of social values and apply this revised perspective to the implementation considerations.

ASSUMPTIONS

The assessment team states four fundamental assumptions which it accepted as key elements:

- \$ that an approach to long-term management of used nuclear fuel is needed;
- \$ that emphasis should be placed on social and ethical considerations;
- \$ that the volume of used nuclear fuel for this assessment should be limited to the projected inventory from the existing reactors
- \$ that “a superior management approach would be one that is robust for a long period of time.” (NWMO Assessment Team 2004, 14)

Comments have been made in the previous sections on some weaknesses within the framework with respect to adequate inclusion of social and ethical considerations and possible approaches toward evolving the thinking and strengthening the assessment framework have been suggested.

How the assessment of a management option is affected by the quantity of waste, time line of production, and characteristics of different fuels has been excluded from consideration within the assessment framework. The limiting of the quantity of waste to the total expected from present nuclear power facilities has been used not just for the preliminary assessment but it has been incorporated into the assessment framework design. There is no evidence that the producers of the waste intend to be limited to this quantity - to the contrary, life-extensions and reactor resurrections are being promoted by some utilities represented on NWMO’s Board and there are indications that the outcome of the NWMO process will be used to promote nuclear power. The shifting of goal posts is a hallmark of an unfair game. This situation gives rise to a number of concerns and ethical issues which we have presented in our first submission (UCC 2004).

Recommendations:

Again, we ask the NWMO to include with its recommendation a statement about the need for a broad public discussion on Canadian energy policy and the future of nuclear energy, including export sales.

We ask the NWMO to include with its recommendation a statement identifying any use of the recommendation to promote nuclear power, including international sales, as an abuse of the process and misuse of the recommendation.

ROBUSTNESS

The assumption that “a superior management approach would be one that is robust”(NWMO Assessment Team 2004, 14) appears to have affected several aspects of the thinking strategies in

the development of the framework. This assumption does not arise from the values and ethical principles presented or the Key Questions in *Understanding the Choices* (NWMO 2004). It is not presented with justification apart from the general recognition that it arose through the process that reflects the considered beliefs and judgments of the assessment team.

This pre-setting of robustness as the measure for a superior management approach warps the assessment framework and undermines the openness of the preliminary assessment. It is counter-productive to set as a fundamental assumption the key element regarding the weighting of the values, influences and objectives. The assessment framework needs adjustments to correct problems introduced with this assumption (see for example, the Adaptability objective). The outcomes of the preliminary assessment need to be reviewed with awareness of the role that this assumption on robustness has played.

Recommendation:

If NWMO holds that a superior management approach would be one that is robust, then this weighting should be applied in the assessment rather than within the framework design and justification for this weighting must be presented together with clear evaluation of the losses in the objectives and the values, such as adaptability/flexibility as defined within the “Ethical and Social Framework” of the Roundtable on Ethics (2004) and the citizens’ values expressed in *Responsible Action* (CPRN, 2004).

Also, the assumption on robustness affects the perspective on the need for and purpose of accessibility. The language carries a sense that if the most robust option available today is selected then long-term safety will be assured, as though there were an option available to the current generation that is capable of “resolving the problem once-and-for-all” and we are holding back on this choice because of a “desire not to overly constrain future generations” by our choice (NWMO Assessment Team 2004, 81). This misrepresents the choice before us. In fact, the current limits to our knowledge do not allow us to predict with any accuracy either future events and conditions or the performance of management approaches, over the length of time that nuclear waste remains dangerous. The potential unforeseen need for corrective action is a most important reason for accessibility.

The issue of accessibility is presented as “a trade-off between building-in inviolable physical barriers versus not precluding access for potentially positive uses”(NWMO Assessment Team 2004, 47) and maximizing safety and security versus providing “for retrieval if the wastes could be used in the future”(NWMO Assessment Team 2004, 65). This focus on retrieval for positive uses reflects an over-confidence in the safety ensured by a management option judged to be superior because of robustness. One of the principal reasons for accessibility and retrievability of the nuclear fuel waste and continued monitoring over the long term is the level of uncertainty in projections of safety over the long term coupled with the potential of harm inherent in the hazardous nature of the waste. This concern is treated dismissively as skepticism: “Accessibility has also been rationalized based on scepticism that high safety standards can be applied over the very long timescales for used nuclear fuel management” (NWMO Assessment Team 2004, 47).

More weight should be given to the uncertainties inherent in performance projections, given our extremely limited experience relative to the length of time used nuclear fuel needs to be managed.

There is mention of another reason for accessibility to the nuclear fuel waste, which was stated with respect to “a way of eliminating its toxicity”(NWMO Assessment Team 2004, 46). It has not been suggested that the toxicity of the waste could be eliminated but there have been calls for research into methods for the rapid reduction of the radioactivity of the waste without adding to negative environmental impacts or nuclear weapons proliferation risks (UCC, 2004). The need for this research arises from a sense of responsibility for producing the nuclear fuel waste and an awareness of the limitations of our ability to isolate this waste, the hazardous nature of which will change with time but will continue to be so toxic that even after a million years it must be isolated from the environment

Recommendation

The NWMO should ensure that in the next discussion document, the discussion of accessibility, assessment of the options and development of the implementation plans acknowledge the inherent hazards posed by the nuclear fuel waste and the concerns about uncertainties and limitations in projections of safety.

USEFULNESS

An assessment framework can serve as a tool for dialogue and, when adequate input is provided for each of the influences, a tool for decision-making. Bubble diagram can aid in identifying the influences and showing their connections on an aspect of the decision; however, the weighting of the influences is a critical aspect that is not set out by hierarchy within the influences diagrams. Therefore, it is imperative that adequate input for each influence is provided and that weightings of influences are made transparent when the assessment framework is used as a tool toward decision-making.

As a tool for the public, the complexity of the framework is confusing. It takes some time and effort to become familiar with the order within the webbed presentation format which discourages the reader from examining the detail or attempting to use the influence charts in *Understanding the Choices* (NWMO 2004). With a facilitator and enlarged versions of the influence charts, the assessment framework can bring a broad range of influences into consideration and focus a group discussion. Adequate inputs for the various influences and weightings for the influences remain critical points that need to be addressed.

Modification of this assessment framework in response to comments received through dialogues and submissions could produce a useful tool to provide a context for discussions of the recommendation, a potential decision, and its implementation because the difficult choices and trade-offs will not end with the submission of the recommendation on the management approach.

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APPENDIX

An Example of an Influence Diagram, consistent with the Assessment Framework, of Ethical and Social Framework Considerations based on the “Ethical and Social Framework” of the Roundtable on Ethics (www.nwmo.ca)

Additional inputs from other NWMO Background Documents (such as Timmerman 2003, Shrader-Frechette 2003) and Submissions to NWMO (such as UCC 2004) would need to be made but have not been done for this example.

