# POTENTIAL FUNDING APPROACHES FOR ORPHANED/ABANDONED MINES IN CANADA

## FINAL REPORT

**Prepared for the:**

**NATIONAL ORPHANED/ABANDONED MINES INITIATIVE ADVISORY COMMITTEE**

**Prepared by:**

**JOSEPH F. CASTRILLI, B.A., LL.B., LL.M.**
**OF THE ONTARIO AND BRITISH COLUMBIA BARS**

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**FUNDING APPROACHES TASK GROUP**
**NATIONAL ORPHANED/ABANDONED MINES INITIATIVE**

**by**

**JOSEPH F. CASTRILLI, B.A., LL.B., LL.M.**
**BARRISTER & SOLICITOR**
**OF THE ONTARIO AND BRITISH COLUMBIA BARS**

**and**

**C.N. WATSON AND ASSOCIATES LTD.,**
**ECONOMISTS**

**OCTOBER 2003**

## DISCLAIMER

The purpose of this document is to provide the reader with an understanding of the various funding approaches that could be considered for the purpose of cleaning up or managing liabilities related to orphaned and abandoned mines across Canada. The information provided is based on the opinions of the author, and should not be construed as endorsement in whole or in part by the various reviewers or by the partners in the National Orphaned/Abandoned Mines Initiative (the Government of Canada, Provincial and Territorial Governments, the Mining Association of Canada, contributing mining companies and mining associations, the Assembly of First Nations and participating non-governmental organizations).

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# POTENTIAL FUNDING APPROACHES FOR ORPHANED/ABANDONED MINES IN CANADA[+]

by

Joseph F. Castrilli[*]
and
C.N. Watson and Associates Ltd.[**]

## TABLE OF CONTENTS



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[+] This report was prepared for the Funding Models Task Group, National Orphaned/Abandoned Mines Initiative ("NOAMI"). Findings, conclusions, and recommendations expressed here are those of the authors and not necessarily those of the Task Group, NOAMI, or those surveyed for this project. This report is accurate to July 2003.

[*] Barrister & Solicitor, Toronto, Ontario. Member of the Ontario and British Columbia Bars. LL.B. (Queen's University, 1984); LL.M. Environmental and Natural Resources Law (Northwestern School of Law of Lewis and Clark College, 1997).

[**] Economists, Mississauga, Ontario.

# I. EXECUTIVE SUMMARY

Orphaned or abandoned mines for which the owner cannot be found, or for which the owner is financially unable to carry out clean-up, pose environmental, health, safety, and economic problems to communities, industry, and governments in many countries including Canada. This report outlines a variety of funding approaches that could be considered for the purpose of cleaning up or managing liabilities related to orphaned and abandoned mines across Canada. The report evaluates advantages and disadvantages of each approach and recommends preferred option(s) for consideration by governments.

Part III of the report provides a brief background to the orphaned/abandoned mines problem. The report noted that there is no single definition for orphaned/abandoned mines. Generally, they may be described as sites requiring cleanup but for which responsible parties cannot be found because they have gone bankrupt, or left the jurisdiction, and, therefore site ownership has reverted to government. This part of the report summarized the environmental, social, and economic impacts of such sites and noted international as well as domestic examples of the problem. Finally, this part of the report noted that internationally the problem is regarded as requiring both financial and legal solutions.

Part IV considered a number of principles and criteria for evaluating funding approaches for cleanup of orphaned/abandoned mines in Canada based on past studies conducted for bodies such as the Canadian Council of Ministers of the Environment. The principles and criteria included: polluter/beneficiary pays; fairness; openness, accessibility, and participation; sustainable development; revenue-generating capacity; administrative ease; economic impacts; ability to address existing and future orphaned sites; ability to discourage future site contamination; public perception; and emergency response. These principles and criteria were evaluated on the basis of these background studies as well as on the basis of the views of respondents to survey questions prepared for this report. The authors concluded that, although application of a number of the principles, such as polluter pays, were controversial in the literature and amongst survey respondents, all of the principles with some modification to take into account the unique circumstances surrounding orphaned/abandoned mines, are appropriate for evaluating potential funding approaches.

Part V examined a number of economic and financial policy theories that should inform the adoption of a funding approach for orphaned/abandoned mine cleanup. This part of the report noted that the problem of controlling external costs is more difficult to resolve in the context of orphaned/abandoned mines because the parties responsible for the problem are no longer financially viable, cannot be identified or located, no longer exist, or have died. Accordingly, applying regulatory, tax, subsidy or other measures to influence their conduct in reducing external costs is not possible. Moreover, these sites, often located on Crown land, revert to Crown ownership. Nonetheless, the external environmental, social, economic, and cultural costs of this past conduct remain to be resolved. In the circumstances of orphaned/abandoned mines the funding approaches are

comparatively simple to state, though more difficult and controversial to apply in practice. They include:

- Governments (federal, provincial, or federal-provincial) could pay for the rehabilitation of these sites out of general revenue;
- The present mining industry could contribute to a fund that can pay for rehabilitation of orphaned/abandoned mines;
- Governments could provide incentives (e.g. tax deductions, liability exemptions, etc.) for existing mining companies to rehabilitate orphaned/abandoned mines in a generic or site-specific partnership;
- Governments could, without imposing new taxes or fees on the mining industry, re-direct a portion of existing mining tax revenue, and reduce existing subsidies or incentives to the industry and apply both streams to orphaned/abandoned mine rehabilitation;
- Governments could use a combination of the above or related funding approaches.

The first approach makes all taxpayers responsible for financial resolution of the problem. The second approach makes the mining industry and, in some instances may make consumers of the products made by the industry responsible for financial resolution of the problem. The remaining approaches make both taxpayers and consumers responsible for financial resolution of the problem.

Several of the theoretical approaches to orphaned/abandoned mine funding identified in Part V have been employed in practice in a number of jurisdictions and were examined in detail in Part VI of the report. Part VI reviewed seventeen programs organized under five different categories of funding approaches that have been employed in practice in Canada, the United States, and the United Kingdom. Funding approaches examined included:

- Government funded programs from general revenues coming from a single level of government;
- Federal-provincial government funded cost sharing arrangements from general revenues;
- Levies on industrial production;
- Government-industry partnerships; and
- Non-profit organization trust funds.

The report found that there are advantages and disadvantages with each funding approach examined. However, no single approach appears likely to constitute a complete solution to the cleanup of orphaned/abandoned mines in Canada.

Part VII of the report briefly examined certain administrative and management issues surrounding orphaned/abandoned mine funding. There are a variety of entities that could administer funding for a program of orphaned/abandoned mine cleanup. Survey respondents were divided on which to choose. There did appear to be some consensus that whatever administering entity is chosen it will have to bring to the task the expertise that resides within mines and environment departments as well as industry because of the safety, environmental, and human health problems posed by orphaned/abandoned mines. Coupled with this was a concern expressed by several respondents that the decision-making processes employed by the entity should include public input, oversight, accountability, and be free from conflict of interest.

Part VII of the report also noted a key constitutional issue that may arise if the administering entity(ies) were departments from the federal and provincial levels of government or a special agency thereof. That is, the federal government because of its financial contribution would be entitled pursuant to the federal spending power of the Canadian Constitution to set national standards in connection with the program if it so desired. Finally, there appeared to be fairly unanimous opposition from survey respondents to relying on annual government line-item appropriations from general government revenues and fairly unanimous support for a dedicated orphaned/abandoned mine fund.

Part VIII of the report reviewed the role of legislation, if any, in the process of funding approaches for orphaned/abandoned mine cleanup. Continuation of a program of discretionary government funding from general revenues, earmarking a percentage of an existing revenue stream such as that arising from provincial mining tax laws, or reducing existing mining industry subsidies or incentives to pay for cleanups may not require any, or only minimal, legislative change. However, imposition of a levy on industrial production and establishment of a dedicated orphaned/abandoned mine fund would require somewhat more legislative and regulatory reform.

Based on the review the authors recommended a number of measures for the consideration of the Task Group. The full text of the recommendations appears in Part X of the Report.[++] A summary of the recommendations follows:

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++ Neither this summary nor the full text of the recommendations contained in Part X of the Report address what the percentage financial contribution should be from each of the funding approaches identified in recommendation 3, below. The reasons for this include that at the time of writing the Report the authors did not have information available on a number of matters that would greatly assist in such a determination. These matters include (1) an accurate estimate of the costs for cleanup of orphaned/abandoned mines in each jurisdiction in Canada; (2) the economic health of the mining industry for each jurisdiction in Canada; or (3) the timeframe that governments in each jurisdiction will want to use to achieve cleanup. While the authors recommend that the cleanup timeframe not exceed 2-3 decades, that is still a matter that governments will need to consider on a jurisdiction by jurisdiction basis.

1. Governments amend existing or enact new legislation adopting and implementing a funding regime for cleanup of orphaned/abandoned mines in their respective jurisdictions.

2. The funding regime should be designed to substantially eliminate the backlog of orphaned/abandoned mines in the jurisdiction in which the legislation is enacted within a reasonable timeframe.

3. Such legislative regimes should be based on a mix of all of the following funding approaches including:

   - Government funding from general revenues coming from a single level of government;

   - Federal-provincial (or federal-territorial) government funded cost sharing arrangements from general revenues, where appropriate;[+++]

   - Levies on mining industry production;

   - Government-industry partnerships;

   - Government re-direction of a portion of existing mining tax revenue, and reduction of existing incentives to the mining industry and application of both streams to orphaned/abandoned mine cleanup; and

   - Fund interest, fines and administrative penalties imposed on the mining industry, donations by individuals or others, etc.;

4. The legislative regime adopted in each jurisdiction also should include establishment of an Orphaned/Abandoned Mine Cleanup Fund ("OAMCF" or "Fund") into which general government revenue, industry levies, and other monies also are deposited on an annual basis.

5. The legislation should specify the minimum annual financial appropriation to be made by the government and the period over which that level of appropriation is to continue.

6. The legislation also should specify the annual levy or levy range to be imposed on each mining company, mining industry sector, or classes within a sector as a cost attributable to its activities in the jurisdiction and the period over which that level of contribution is to continue.

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[+++] It should be recognized that where federal financing occurs that level of government will be entitled to establish national standards, should it so desire, pursuant to the federal spending power of the Canadian Constitution.

7. The legislation should set out the basis for government-industry partnerships and what effect, if any, they will have on the annual levy noted in recommendation 6 and tax and incentive measures noted in recommendation 8.

8. The legislation should amend federal and provincial tax laws to specifically identify (1) the annual quantum of mining tax revenue being re-directed to the Fund, and (2) the annual quantum reduction of existing incentives to the mining industry being re-directed to the Fund.

9. The legislation should set out the specific purposes of the funding regime.

10. The legislation should specify the lands and water eligible for cleanup.

11. The legislation should specify the orphaned/abandoned mine cleanup priorities under which the funding regime will operate.

12. The legislation should identify the administering entity for the funding regime. The authors recommend that this entity be either a department of government or special government agency created by the legislation establishing the funding regime.

13. The legislation should authorize promulgation of rules and regulations addressing matters pertaining to administration of the funding regime.

14. In conjunction with establishment of a funding regime, the process of cleanup of orphaned/abandoned mines should be facilitated through measures designed to eliminate barriers and facilitate community involvement identified by previous studies commissioned by NOAMI.

## II. SOMMAIRE

Dans de nombreux pays, y compris le Canada, les mines orphelines et abandonnées dont il est impossible de trouver le propriétaire ou dont le propriétaire est incapable de financer la restauration représentent pour les collectivités, les entreprises et les gouvernements des problèmes en matière d'environnement, de santé, de sécurité et d'économie. On propose dans le présent rapport diverses méthodes de financement pour restaurer les mines orphelines et abandonnées du Canada ou pour gérer les responsabilités associées à cette restauration. On y évalue les avantages et désavantages de chaque option, et l'on y recommande des options à des fins d'examen par les gouvernements.

Dans la troisième partie du rapport, on donne un bref aperçu du problème des mines orphelines et abandonnées. On y souligne notamment qu'il n'existe pas une seule définition pour les mines orphelines et abandonnées. De façon générale, elles peuvent être définies comme des sites nécessitant une restauration, mais dont les parties responsables sont introuvables en raison d'une faillite ou d'un départ et dont, conséquemment, la propriété a été transférée au gouvernement. On résume aussi dans cette partie les retombées environnementales, sociales et économiques de ces sites, et l'on y donne des exemples de ce problème au pays et à l'étranger. Enfin, on indique qu'à l'échelle internationale, ce problème nécessite des solutions financières et juridiques.

Dans la quatrième partie, on examine un certain nombre des principes et des critères utilisés pour évaluer les méthodes de financement proposées pour la restauration des mines orphelines et abandonnées du Canada en se basant sur des études précédentes effectuées par des organismes tels que le Conseil canadien des ministres de l'environnement. Au nombre de ces principes et critères, mentionnons les suivants : pollueur et bénéficiaire payeurs; équité; transparence, accessibilité et participation; développement durable; capacité de générer des recettes; simplicité administrative; retombées économiques; possibilité d'application à des mines orphelines actuelles et futures; capacité d'éviter une future contamination du site; perception du public; et intervention en cas d'urgence. Ces principes et critères ont été évalués en fonction des études susmentionnées, ainsi qu'en fonction des réponses données par les participants à un sondage préparé aux fins du présent rapport. Les auteurs concluent que, bien que l'application d'un certain nombre de principes, tels que celui du pollueur payeur, est controversée dans les études et chez les participants au sondage, tous les principes, lorsqu'ils sont adaptés à la situation unique d'une mine orpheline ou abandonnée, sont pertinents pour l'évaluation des méthodes de financement proposées.

Dans la cinquième partie, on examine un certain nombre de théories stratégiques économiques et financières qui doivent documenter l'adoption d'une méthode de financement pour la restauration d'une mine orpheline ou abandonnée. On y souligne qu'il est plus difficile de régler le problème lorsqu'il s'agit d'une mine orpheline ou abandonnée, parce que les parties responsables de le faire n'ont aucune viabilité financière, ne peuvent être identifiées ou localisées, n'existent plus ou sont décédées. Il est donc impossible de mettre en œuvre des mesures réglementaires ou fiscales, d'offrir des subventions ou de prendre d'autres mesures pour les inciter à réduire les coûts externes. En outre, la propriété de ces sites, qui sont souvent situés sur des terres publiques, est transférée à la Couronne. Il n'en demeure pas moins que les coûts environnementaux, sociaux, économiques et culturels externes découlant des activités antérieures qui s'y sont déroulées doivent être réglés. Il est relativement simple de formuler des méthodes de financement pour la restauration des mines orphelines et abandonnées, mais leur application concrète est plus difficile et controversée. Voici certaines options proposées.

- Les gouvernements (fédéral, provinciaux ou fédéral-provincial) pourraient financer la restauration de ces sites à l'aide de leurs recettes générales.

- Les entreprises minières actuelles pourraient contribuer à un fonds qui servirait à financer la restauration des mines orphelines et abandonnées.

- Les gouvernements pourraient offrir des incitatifs (par exemple des déductions ou des exemptions fiscales, etc.) aux entreprises minières actuelles pour restaurer les mines orphelines et abandonnées dans le contexte d'un partenariat général ou particulier.

- Les gouvernements pourraient, sans imposer d'autres taxes ou frais à l'industrie minière, utiliser une partie de l'impôt minier actuel et des subventions ou incitatifs offerts à l'industrie pour financer la restauration des mines orphelines et abandonnées.

- Les gouvernements pourraient avoir recours à une combinaison des méthodes susmentionnées ou à des méthodes de financement connexes.

Selon la première méthode, ce sont les contribuables qui sont responsables de financer les activités de restauration. Selon la deuxième, les entreprises minières et, dans certains cas, les consommateurs des produits qu'elles fabriquent sont responsables de le faire. Selon les autres méthodes, les contribuables et les consommateurs sont responsables du financement.

Plusieurs des méthodes de financement proposées dans la cinquième partie pour la restauration des mines orphelines et abandonnées ont été mises en œuvre dans certains pays et sont examinées en détail dans la sixième partie du rapport. Dans cette dernière, on s'intéresse à 17 programmes, regroupés dans cinq catégories de méthodes de financement, qui ont été mis en œuvre au Canada, aux États-Unis et aux Royaume-Uni. Voici des exemples de ces méthodes de financement :

- financement à même les recettes générales provenant d'un seul palier de gouvernement;

- ententes de partage des coûts financées à même les recettes générales des gouvernements fédéral et provincial;

- prélèvement de droits sur la production de l'industrie minière;

- établissement de partenariats entre le gouvernement et l'industrie;

- recours aux fonds de fiducie d'organismes sans but lucratif.

Il est indiqué dans le rapport que chaque méthode de financement examinée comporte des avantages et des désavantages et qu'aucune ne constitue à elle seule une solution complète pour la restauration des mines orphelines et abandonnées du Canada.

Dans la septième partie, on examine brièvement certaines questions d'administration et de gestion liées au financement de la restauration des mines

orphelines et abandonnées. Diverses organisations pourraient administrer le financement du programme de restauration des mines orphelines et abandonnées. Les participants au sondage n'ont pas atteint un consensus au sujet de l'organisation la plus pertinente pour le faire, mais sont d'accord en général sur le fait que cette organisation devra avoir recours aux compétences des ministères chargés des mines et de l'environnement et à celles de l'industrie en raison des problèmes que posent les mines orphelines et abandonnées pour la sécurité, l'environnement et la santé humaine. En outre, plusieurs ont souligné que le processus décisionnel utilisé par cette organisation doit assurer la consultation du public, la surveillance, la responsabilisation et l'absence de conflits d'intérêts.

On fait également état dans cette partie d'un problème constitutionnel important qui pourrait survenir si l'organisation chargée de l'administration du programme de financement était un ministère ou un organisme spécial du gouvernement fédéral ou provincial. En effet, en raison de sa contribution financière, le gouvernement fédéral serait autorisé, conformément au pouvoir fédéral de dépenser prévu dans la Constitution canadienne, à établir des normes nationales pour le programme. Enfin, les participants au sondage s'opposent de façon assez unanime au recours aux crédits parlementaires annuels provenant des recettes générales du gouvernement et appuient de façon assez unanime la création d'un fonds consacré à la restauration des mines orphelines et abandonnées.

Dans la huitième partie du rapport, on examine le rôle de la législation, le cas échéant, dans le processus de financement pour la restauration des mines orphelines et abandonnées. La poursuite d'un programme de financement discrétionnaire à l'aide des recettes générales du gouvernement, prévoyant l'affectation d'un pourcentage des recettes actuelles découlant par exemple de l'impôt minier provincial, ou la réduction des subventions ou des incitatifs actuellement offerts à l'industrie minière pour payer les activités de restauration pourrait nécessiter que peu de changement législatif ou n'en nécessiter aucun. Cependant, le prélèvement de droits sur la production de l'industrie minière et la création d'un fonds pour la restauration des mines orphelines et abandonnées nécessiteraient une plus grande réforme législative et réglementaire.

En se basant sur cet examen, les auteurs ont soumis au groupe de travail un certain nombre de mesures à des fins d'examen. Le texte complet des recommandations est présenté dans la dixième partie du rapport[++]. Voici un résumé de ces recommandations.

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[++] Le pourcentage de la contribution financière associée à chacune des mesures de financement présentées dans la troisième recommandation n'est indiqué ni dans le résumé ni dans le texte complet des recommandations présentées dans la dixième partie du rapport, parce qu'au moment de la rédaction de celui-ci, les auteurs ne disposaient pas des renseignements qui les auraient aidés à établir ce pourcentage. Il s'agit notamment (1) de l'estimation exacte des coûts de la restauration des mines orphelines et abandonnées dans chaque province et territoire du Canada; (2) de la santé économique de l'industrie minière de chaque province ou territoire du Canada; et (3) du délai accordé par le gouvernement de chaque province ou territoire pour effectuer la restauration. Bien que les auteurs recommandent de limiter ce délai à deux ou trois décennies, cette question devra être examinée par chaque gouvernement.

1. Les gouvernements modifient les lois actuelles ou promulguent de nouvelles lois en vue d'adopter et de mettre en œuvre dans leur province ou territoire un régime de financement des activités de restauration des mines orphelines et abandonnées.

2. La méthode de financement devrait permettre d'éliminer en grande partie, dans un délai raisonnable, le retard accumulé dans les activités de restauration des mines orphelines et abandonnées situées dans la province ou le territoire où la loi est promulguée.

3. La législation doit être basée sur le recours à une combinaison des méthodes de financement suivantes :

- financement à même les recettes générales provenant d'un seul palier de gouvernement;

- ententes de partage des coûts financées à même les recettes générales par les gouvernements fédéral et provincial (ou fédéral et territorial), le cas échéant[+++];

- prélèvement de droits sur la production de l'industrie minière;

- établissement de partenariats entre le gouvernement et l'industrie;

- utilisation d'une partie des recettes gouvernementales tirées de l'impôt minier existant et d'une partie des incitatifs offerts à l'industrie minière pour restaurer les mines orphelines et abandonnées;

- imposition d'intérêts sur les fonds, d'amendes et de sanctions administratives à l'industrie minière; dons provenant de particuliers ou d'autres parties, etc.;

4. La législation adoptée dans chaque province ou territoire doit aussi prévoir la création d'un fonds de nettoyage des mines orphelines et abandonnées (FNMOA ou «Fonds de nettoyage »), dans lequel sont versés annuellement une partie des recettes générales du gouvernement, les droits prélevés auprès de l'industrie et d'autres sommes.

5. La législation doit préciser l'affectation financière annuelle minimale du gouvernement et la période à laquelle s'applique cette affectation.

6. La législation doit aussi stipuler que le droit annuel ou la gamme de droits prélevé auprès de chaque société minière, de chaque secteur de l'industrie minière ou de chaque catégorie d'un secteur doit être considéré comme le coût attribuable aux activités réalisées dans la province ou sur le territoire, ainsi que la période à laquelle s'applique cette contribution.

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[+++] Il est important de savoir que lorsque le gouvernement fédéral fournit des fonds, il est autorisé à établir des normes nationales conformément au pouvoir fédéral de dépenser prévu dans la Constitution canadienne.

7. La législation doit aussi préciser les fondements des partenariats qui seront établis entre le gouvernement et l'industrie et les effets de ces partenariats sur le droit annuel indiqué à la sixième recommandation, ainsi que sur les mesures fiscales et les incitatifs indiqués à la huitième recommandation.

8. La législation doit permettre de modifier les lois fiscales fédérales et provinciales de façon à préciser (1) le montant annuel des recettes tirées de l'impôt minier qui est versé chaque année dans le Fonds de nettoyage et (2) le montant annuel qui provient de la réduction des incitatifs offerts à l'industrie minière et qui est versé chaque année dans le Fonds de nettoyage.

9. La législation doit préciser les objectifs particuliers de la méthode de financement.

10. La législation doit préciser les terres et les eaux admissibles aux activités de restauration.

11. La législation doit préciser les priorités en matière de restauration des mines orphelines et abandonnées qui régiront le régime de financement.

12. La législation doit préciser l'organisation qui sera chargée d'administrer le régime de financement. Les auteurs recommandent que cette organisation soit un ministère ou un organisme gouvernemental spécial créé en vertu de la loi qui établira le régime de financement.

13. La loi doit autoriser la promulgation de règles et de règlements portant sur des questions liées à l'administration du régime de financement.

14. Parallèlement à l'établissement du régime de financement, il faut faciliter le processus de restauration des mines orphelines et abandonnées par la mise en œuvre de mesures visant à éliminer les obstacles législatifs et institutionnels et à favoriser la participation de la collectivité, énoncées dans les études précédentes commandées aux fins de l'INMOA.

## III. INTRODUCTION

Orphaned or abandoned mines for which the owner cannot be found, or for which the owner is financially unable to carry out clean-up, pose environmental, health, safety, and economic problems to communities, industry, and governments in many countries including Canada.[1]

[1] J.F. Castrilli, *Barriers to Collaboration: Orphaned/Abandoned Mines in Canada* (Ottawa: NOAMI, 2002) at 2.

In June 2001, a multi-stakeholder workshop was held in Winnipeg to review the issue of orphaned/abandoned mines. A September 2001 Mines Ministers Conference resulted in an Action Plan and establishment of a national multi-stakeholder advisory committee on Orphaned/Abandoned Mines. The Advisory Committee has created four Task Groups, of which one, the Funding Models Task Group, is designed to address the issue of potential funding approaches for orphaned/abandoned mines in Canada. The responsibility of the Funding Models Task Group is:

> "to identify and recommend options for potential funding models and mechanisms including the financial participation of industry, federal, provincial, and territorial governments, and any other partners."

The objective of the Funding Models Task Group, and upon which it must report to the Mines Ministers Conference in September 2003, is:

> "to identify funding approaches and document preferred options which could be adapted to the needs of each jurisdiction to fund the remediation of orphaned/abandoned mine sites across Canada."

The purpose of this report is to outline a variety of potential funding approaches that could be considered for the purpose of cleaning up or managing liabilities related to orphaned and abandoned mines across Canada. The report evaluates advantages and disadvantages of each approach and recommends preferred option(s) for consideration by the Mines Ministers.

In this regard, Part III of the report provides a brief background to the orphaned/abandoned mines problem. Part IV considers a number of principles and criteria for evaluating funding approaches for cleanup of orphaned/abandoned mines in Canada. Part V goes into greater depth on a number of economic policy theories that should inform the adoption of a funding approach to orphaned/abandoned mine cleanup. Part VI examines selected existing and proposed legislative and non-legislative funding approaches in Canada, the United States, and the United Kingdom. Part VII briefly examines certain administrative and management issues surrounding orphaned/abandoned mine funding. Part VIII reviews the role of legislation, if any, in the process of funding orphaned/abandoned mine cleanup approaches. Part IX of the report summarizes key findings and conclusions. Part X of the report sets out the recommendations of the authors. Part XI (Appendix A) contains survey questions that were asked of a cross-section of government, industry, and non-government organization representatives regarding funding approaches for cleanup of orphaned/abandoned mines. Part XII (Appendix B) lists the representatives that received the survey questions. Part XIII (Appendix C - Table 1) provides a table that summarizes the advantages and disadvantages of the funding approaches examined in the report. Part XIV (Appendix D - Table 2) provides a summary of the net income (or losses) of the mining industry in Ontario for the period 1992 - 2001.

## IV. BACKGROUND TO THE ORPHANED/ABANDONED MINES PROBLEM

The United Nations Environment Program has described abandoned mine sites as one of the major outstanding environmental problems related to mining:

> "It is a legacy of centuries old practices and of inadequate, insufficient or non-existent mine closure. The potential costs of rehabilitation, the lack of clearly assigned (or assumed) responsibility, the absence of criteria and standards of rehabilitation and other factors have delayed action by all parties - industry, governments, and communities."[2]

According to UNEP, there is no single definition of an "abandoned mine." Some sites are "owned" by someone, though the owners are not necessarily financially able to undertake rehabilitation. Others sites are truly "orphaned" in the sense that there is no known or living owner. In either circumstance, government may find itself responsible for cleanup.[3] Accordingly, there are a number of different definitions for abandoned mines in the literature. An abandoned mine has been defined as:

- A mine site that has not been properly cleaned up and closed down and whose ownership has reverted to government because the owner has gone out of business.[4]

- A closed mine whose ownership has reverted to the Crown, either because the owner has gone out of business, or as is the case with some historic properties, because no owner can be found. It also is a site where the owner has ceased or indefinitely suspended advanced exploration, mining, or mine production without rehabilitating the site.[5]

- A mine for which the party or parties responsible for contamination cannot be found or are unwilling or financially unable to carry out necessary remedial measures within a satisfactory time frame.[6]

- A site for which responsible parties cannot be found because they have gone bankrupt, left the jurisdiction, or are unwilling to accept responsibility and, therefore, the government may have to assume the cleanup costs.[7]

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[2] United Nations Environment Programme, *Abandoned Mines - Problems, Issues and Policy Challenges for Decision Makers: Summary Report* (2001) at 14 [hereinafter UNEP 2001].
[3] *Ibid.* at 15.
[4] Commissioner of the Environment and Sustainable Development, *Abandoned Mines in the North: Report to the House of Commons* (Ottawa: CESD, 2002) at 3 [hereinafter CESD I].
[5] Mining Association of Canada, *Orphaned/Abandoned Mines in Canada: Fact Sheet* (Ottawa: MAC, 2001) at 1.
[6] S. Moodie, "Financial Options for the Remediation of Mine Sites: A Preliminary Study," in *Proceedings of the Orphaned/Abandoned Mines Workshop* (Winnipeg: 2001) at 1.
[7] Auditor General of British Columbia, *2002/2003 Report # 5: Managing Contaminated Sites on Provincial Lands* (Victoria: AGBC, 2002) at 12-13 [hereinafter AGBC].

According to UNEP, the case for rehabilitation of abandoned mine sites is the same as that for active mines, but the assignment of responsibilities is different. For abandoned mines it lies with non-identifiable (or financially non-viable) persons and thus has led to non-action.[8]

The abandoned mine problem, according to UNEP, also is global in scope:

- Large areas of dryland forest in Australia that were mined during the goldrush of the 1860s still have not recovered;
- Acid drainage from abandoned mines in the United Kingdom has severely contaminated streams;
- The collapse of an abandoned mine dumpsite swept away a local school in Wales;
- A large number of major abandoned mines are listed under the "Superfund" program in the United States because of extensive contamination from materials and exposed ore bodies left behind;
- Abandoned pits and shafts over a large area of uncontrolled past mining in West African countries poses serious public safety risks to people in the area;
- An extended history of gold mining has left many square kilometres of land around Johannesburg, South Africa, covered with tailings dumps. Dust from some dumps may be adversely affecting the health of residents in nearby townships.[9]

Similar problems have been identified recently in Canada. In 2002, the Commissioner of the Environment and Sustainable Development reported that:

> "Hundreds of thousands of tons of highly toxic chemicals such as arsenic and cyanide are found at northern abandoned mine sites. These chemicals, the result of past mining operations, have accumulated to hazardous levels. Indian and Northern Affairs Canada estimates that the cleanup and closure of these complex contaminated sites will cost Canadian taxpayers at least $555 million. In many cases, long-term site management will be needed because complete and definitive cleanup will not be possible."[10]

A similar problem appears to be unfolding at the provincial level in Canada. In British Columbia, for example, the provincial Auditor General reported in 2002 that:

> "In British Columbia, [industrial activity including] mining practices going back decades have been carried out on public and private lands… Many of these operations have left a variety of contaminating substances - notably chemicals and metals - present in the soil, surface water and groundwater at numerous

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[8] United Nations Environment Programme, *Report on the International Round Table on Mining and the Environment* (1999) at 40 [hereinafter UNEP 1999].
[9] *Ibid.* at 40-41.
[10] CESD I, *supra* note 4 at 3.

> locations around the province. These contaminants can be present at levels that threaten the environment and human health….
>
> For example, run-off containing copper and iron compounds from an abandoned mine near Mount Washington on Vancouver Island has formed two colourful streams: one runs red with iron compounds and one runs blue with copper compounds. The compounds in the stream are affecting aquatic life….
>
> Clean-up of such sites can be costly….[11]

Orphaned or abandoned mines for which the owner cannot be found, or for which the owner is financially unable to carry out clean-up, therefore, pose environmental, health, safety, and economic problems to communities, industry, and governments in many countries including Canada.

In the view of UNEP, the fundamental issues in solving the orphaned/abandoned mine problem are financial and legal.[12] In Canada, as various provinces are in the process of assessing the status of abandoned mines in their jurisdiction,[13] or beginning the process of rehabilitation,[14] the issue of the source(s) of funding for remediation has become important. Should government assume direct responsibility for the cost of remediation of abandoned mine sites? Should the market contribute to an abandoned mine site remediation fund? Should there be contributions from both the public and private sectors and, if so, in what proportions and determined by what methods? A recent working paper on abandoned mines has put the matter as follows:

> "Funds are required for the rehabilitation of abandoned mine sites. The question when dealing with abandoned mines is: who provides these funds, what mechanisms exist in various jurisdictions to raise these funds and who is ultimately responsible for the rehabilitation work and the long-term care of the sites? In some cases governments are forced to take on the task of rehabilitating abandoned mines when there are no identifiable owners or if the owners have no funds to pay for rehabilitation. In some countries legislation may be designed to fund the rehabilitation of abandoned mines. The costs are affected by the lack of agreed upon criteria as to what conditions need to be remediated and what the goals of rehabilitation should be."[15]

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[11] AGBC, *supra* note 7 at 13-15.

[12] UNEP 2001, *supra* note 2 at 11.

[13] Saskatchewan Environment, News Release, "Assessing Northern Abandoned Mines" (September 18, 2001)(noting release of interim report on the health, safety, and environmental risks of abandoned mines in northern Saskatchewan). See also Saskatchewan Environment, News Release, "New Report on Abandoned Mines" (September 24, 2002) (noting that the province is more than half way through an abandoned mines assessment program for northern Saskatchewan).

[14] Manitoba Government, News Release, "Province to Begin Process of Rehabilitating Abandoned Mines in Northern Manitoba" (July 18, 2001). See also Ontario Ministry of Northern Development and Mines, *Abandoned Mines Rehabilitation Program* (Toronto: ONDM, 2002) (noting that in September 1999 the province announced a four-year $27 million program to rehabilitate lands that are former mine sites).

[15] International Institute for Environment and Development, Mining, Minerals and Sustainable Development - Mining for the Future - Appendix C: Abandoned Mines Working Paper (London: IIED, 2002) at C-14.

The purpose of this report is to attempt to answer some of these questions as they relate to possible funding approaches for cleanup of orphaned/abandoned mines.

## V. PRINCIPLES AND CRITERIA FOR EVALUATING FUNDING APPROACHES FOR CLEANUP OF ORPHANED/ABANDONED MINES

This part of the report reviews a number of principles and criteria for evaluating funding approaches for cleanup of orphaned/abandoned mines in Canada. The review begins with a discussion of past studies that have examined various principles and criteria. It then examines each possible principle or criterion based on this background analysis as well as on the basis of the views of respondents to survey questions prepared for this report. The analysis in this part of the report concludes with a summary of the position of the authors on the applicability of the principles and criteria examined to the problem of funding approaches for orphaned/abandoned mine cleanup.

### A. Background: Canadian Council of Ministers of the Environment Report on Contaminated Site Liability

A decade ago a report prepared for the Canadian Council of Ministers of the Environment ("CCME") on contaminated site liability[16] was one of the first government-sponsored documents to address the problem of who should pay for orphaned/abandoned sites generally, including those associated with past mining activity:

> "Contaminated site liability is an issue causing difficulty in our attempts to achieve a sustainable environment and a sustainable economy. Contaminated sites must be properly managed, but who should pay? In some cases, the responsible person is clearly determined. In other cases, the responsible person or persons may be more difficult to identify or to locate. Further complications result when responsible persons are unable to pay….
>
> …Many contaminated site problems are associated with industrial activity in the past, such as abandoned mining and milling operations….Long forgotten activities of the past can come back suddenly to create an environmental problem when least expected….The private sector wants to minimize costs to maintain commercial viability, and governments want to ensure that the general taxpayer is not burdened with costs associated with poor environmental practices of the past.…[17]

As part of the CCME report, a number of principles for imposing liability for contaminated sites were developed. These include polluter/beneficiary pays; fairness; openness, accessibility, and participation; and sustainable development.[18] Whether and, if

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[16] Canadian Council of Ministers of the Environment, *Contaminated Site Liability*, by the Task Group on Contaminated Site Liability (Winnipeg: CCME, 1993) [hereinafter CCME Task Group Report].
[17] *Ibid.* at 1.
[18] *Ibid.* at 2-4. For definitions of these principles see Part IV.D.1-4, below.

so, to what extent, CCME intended these principles to be applied in the context of "orphan sites" is not entirely clear. The report noted that "where a site is an 'orphan site', remediation may involve large expenditures of general revenue funds,"[19] suggesting that CCME may not have regarded one or more of the above principles as applicable in the context of orphaned/abandoned sites. On the other hand, the report also noted that "alternative means of raising such resources need to be addressed," and suggested examining the "establishment of a cleanup fund(s)." Recognizing that the "issue of providing sufficient funds to deal with contaminated sites where responsible persons cannot be held accountable is complex," the report urged further "in-depth examination"[20] of experience in Canada[21] and the United States.[22]

## B. Subsequent Reports for CCME and Others

Subsequent to the report of the CCME Task Group, a further report for CCME was prepared focusing specifically on funding and administrative options for the remediation of orphan contaminated sites.[23] Part of the purpose of the KPMG report was to evaluate "how, if at all," the principles identified in the CCME Task Group report "should be applied to the related, but quite different, issue of orphan contaminated sites."[24] In general, the KPMG report applied all of the CCME principles, though it urged CCME to decide how it would, in particular, apply the polluter pays principle to orphan contaminated sites.[25] In addition to evaluating the principles identified by the Task Group,[26] KPMG added a number of additional principles or criteria. These included: revenue-generating capacity; administrative ease; economic impacts; ability to address existing and future orphaned sites; ability to discourage future site contamination; and public perception.[27] The KPMG report then applied this expanded group of principles/criteria to a number of funding options and sources of contamination (not just past mining activity) identified in that study.

In 2001, a report was prepared for MiningWatch Canada, a non-government organization, focusing exclusively on financial options for remediation of mine sites.[28] This report applied the CCME Task Group principles and added emergency response as a further principle that should be applied to evaluate potential funding options.[29]

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[19] *Ibid*. at 10.
[20] *Ibid*. at 11.
[21] *Ibid.* Referring to the National Contaminated Sites Remediation Program. For further discussion see Part VI.B.2, below.
[22] *Ibid.* Referring to Superfund. For further discussion see Part VI.C.2.b, below.
[23] Canadian Council of Ministers of the Environment, *Funding and Administrative Options for the Remediation of Orphan Contaminated Sites*, by KPMG Environmental Services Inc. (Winnipeg: CCME, 1993) [hereinafter CCME-KPMG].
[24] *Ibid*. at iii.
[25] *Ibid*. at 15.
[26] For discussion see Part IV.D.1-4, below.
[27] For definition of these principles see Part IV.D.5-10, below.
[28] MiningWatch Canada, *Financial Options for the Remediation of Mine Sites: A Preliminary Study*, by CCSG Associates (Ottawa: MWC, 2001) [hereinafter MWC-CCSG].
[29] *Ibid*. at 6-7. For definition of this principle see Part IV.D.11, below.

## C. Views of Respondents for this Study

For the purposes of the current study, the authors began with the assumption that the principles and criteria identified in previous reports noted above should be considered as possible benchmarks for assessing funding approaches for orphaned/abandoned mines. However, as part of the current study, the authors canvassed government, industry, and non-governmental organization representatives on their views respecting the application of the above principles and criteria to the problem. Accordingly, survey questions were prepared[30] and sent to those identified below.[31] The survey attracted a 33 per cent response rate, (48 per cent if those providing some information pertinent to the study, though not actually responding to survey questions, are included). The views of respondents, as well as the views contained in the earlier reports, are reflected in the discussion that follows. However, final views, findings, conclusions, and recommendations contained in this report remain those of the authors.

## D. Principles and Criteria

### 1. Polluter/Beneficiary Pays

In general, earlier reports regarded the principles of polluter pays and beneficiary pays as being closely connected.[32] Accordingly, they are discussed together in this report.

#### *a. Polluter Pays*

Polluter pays refers to the principle that the polluter should bear, or internalize, the cost of pollution. The principle was articulated by the United Nations Conference on Environment and Development[33] and has been adopted by the CCME.[34] The World

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[30] See Part XI (Appendix A), below.

[31] See Part XII (Appendix B), below.

[32] CCME-KPMG, *supra* note 23 at 15-16 (noting that polluter pays is closely linked to fairness and fairness is tied to the concept of beneficiary pays). See also MWC-CCSG, *supra* note 28 at 6 (noting that for mine sites polluter pays and beneficiary pays will often be synonymous).

[33] United Nations General Assembly, *Report of the United Nations Conference on Environment and Development*, UNGAOR, A/CONF.151/26 (Vol. I) (1992) [hereinafter Rio Conference) (Principle 16 - national authorities should endeavour to promote internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment).

[34] Canadian Council of Ministers of the Environment, *Canada-Wide Accord on Environmental Harmonization* (Winnipeg: CCME, 1998) (governments agree that their environmental management activities will reflect the following principles: Principle 1 - those who generate pollution and waste should bear the cost of prevention, containment, cleanup or abatement - polluter pays principle).

Commission on Environment and Development earlier expressed the antecedents of the principle.[35]

The KPMG report characterized the polluter pays principle as a central consideration with respect to the issue of orphan sites.[36] However, the KPMG report assumed that:

> "since a strict definition of 'polluter pays' cannot be applied to orphan sites…a more general concept of 'polluter pays' must be substituted if the principle is to be adhered to. This broader concept can be applied to an orphan funding option by attempting to link the payment of funds to a group or groups with a higher likelihood of being responsible. This may involve aggregations based on industry sector or a variety of other risk related factors."[37]

The MWC report adopted this view as well.[38]

The views of respondents to our survey questions were divided on this issue. Some respondents were of the view that the polluter pays principle cannot feasibly be applied to orphaned/abandoned mines because, by definition, the polluter has disappeared or is incapable of paying. In their view the current members of the mining sector should not be responsible for the environmental liabilities of former companies. Accordingly, respondents holding this view suggested that polluter pays could not be a stand-alone basis for imposing on current members of the mining industry an obligation to financially contribute to cleanup of past problems.[39]

Other respondents took a different position. These respondents were of the view that polluter pays (cost internalization) was the key principle that should guide evaluation of possible future funding approaches for cleanup of orphaned/abandoned mines and that the mining industry as a whole bears that responsibility.[40]

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[35] World Commission on Environment and Development, Our Common Future (Oxford: Oxford University Press, 1987) at 220-221 (noting that there are only two ways that the environmental costs of economic activity can be paid. The costs can be externalized - transferred to various segments of the community in the form of damage costs to human health, property, and ecosystems - or internalized - paid by the enterprise. Where costs are internalized the enterprise may (1) invest in measures to prevent the damage and, if the market for its product allows, pass the costs along to the consumer, (2) invest in measures to restore unavoidable damage, such as rehabilitating land after mining, or (3) compensate victims of health and property damage. In these later cases the costs may be passed onto the consumer as well).

[36] CCME-KPMG, *supra* note 23 at 16.

[37] *Ibid*. at 15.

[38] MWC-CCSG, *supra* note 28 at 6.

[39] These respondents did suggest that existing mining companies might consider shouldering part of the cleanup burden to enhance the industry's overall image or in return for some other direct or indirect financial incentive, such as an income tax deduction.

[40] These respondents suggested that existing direct and tax-based supports to the mining industry could be diverted to fund remediation of orphaned/abandoned mines.

Clearly, the positions of respondents are strongly divergent on the applicability of polluter pays as a principle or criterion for evaluating funding approaches for orphaned/abandoned mines. From the standpoint of a strict interpretation of the meaning of the phrase "polluter pays" the principle has no applicability to orphan sites that, by definition, have no responsible and/or financially viable owner.[41] However, from a practical policy standpoint governments should not be precluded from considering a more generalized notion of polluter pays in evaluating possible funding approaches for orphaned/abandoned mines.[42] Indeed, the experience both in Canada and the United States, discussed below, makes it evident that a generalized version of the polluter pays principle has been applied in a number of jurisdictions for many years.[43] Accordingly, the authors agree with the KPMG report that, using a more generalized approach that takes into account the unique situation posed by orphan sites, the polluter pays principle has a role to play in evaluating funding approaches.

### *b. Beneficiary Pays*

Beneficiary pays refers to the principle that those that benefit from an activity that caused the problem and those that benefit from the cleanup should not be unfairly enriched. Beneficiary in this context, therefore, includes a (1) past beneficiary of polluting activities, and (2) current beneficiary of site remediation.[44] Both the KPMG[45] and MWC[46] reports viewed this principle as closely related to the polluter pays principle and applicable for the purpose of evaluating funding approaches for orphan sites.

Respondents to our survey agreed that the beneficiary pays principle was applicable for the purpose of evaluating funding approaches for orphaned/abandoned mines. However, they disagreed on who was the beneficiary. Some respondents viewed the beneficiary as the state in terms of jobs, taxes, export revenue, and wealth created. On this basis, these respondents were of the view that the public should expect to bear a major part of the costs of cleanup. Other respondents suggested that the mining industry in general had been the main beneficiary of past mining activity, not the public.

The authors agree with KPMG that the beneficiary pays principle has a role to play in the evaluation of funding approaches for orphaned/abandoned mines. It is a principle that may be interpreted and applied broadly or narrowly in evaluating various funding approaches.

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[41] CESD I, *supra* note 4 at 17 (noting that it is impossible to apply the polluter pays principle after a mining company has declared bankruptcy).

[42] *Ibid*. (noting that although specific mining companies have created the environmental problems at northern abandoned mines, the whole industry bears the impact of the negative social and environmental legacy arising from these mines. The sites provide negative publicity for the industry, which is a major obstacle to building trust with local populations. Accordingly, it clearly would be in the interest of the industry to contribute to solutions).

[43] See Part VI.C, below.

[44] CCME Task Group Report, *supra* note 16 at 4.

[45] CCME-KPMG, *supra* note 23 at 16.

[46] MWC-CCSG, *supra* note 28 at 6-7.

## 2. Fairness

Fairness refers to notions of certainty of process, effectiveness, efficiency, clarity, consistency, and timeliness in achieving environmental objectives. Fairness also relates to the polluter pays and beneficiary pays principles.[47]

Respondents to the survey expressed a variety of views on the applicability of this principle as a guide for evaluating funding approaches. Some agreed it was applicable. Some agreed it was applicable but a subjective, if not fuzzy, concept. Some noted that certainly the final mix of policies had to be fair if the funding approach was to survive a change in government and therefore fairness should be a benchmark of evaluation. Other respondents were of the view that fairness would be a useful guide for evaluating funding approaches as long as it focused on the polluter pays principle and not on sharing costs "between beneficiaries and the public."

The authors suggest that fairness, as defined by the CCME Task Group, should be a guide for evaluating funding approaches for orphaned/abandoned mines.

## 3. Sustainable Development Goals

Sustainable development goals refer to integration of environmental, human health, and economic concerns.[48] The KPMG report regarded sustainable development goals as providing the overall framework in which an orphan site cleanup program should be developed.[49] The MWC report supported this view.[50]

In general, but with one exception, the respondents to the survey agreed that sustainable development goals should act as a guide in evaluation of potential funding approaches. The authors agree as well.

## 4. Openness, Accessibility, Participation

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[47] CCME Task Group Report, *supra* note 16 at 3. See also P. Reid, Ontario Mining Association, "Funding and Rehabilitation of Abandoned Mines" (Proceedings of the Orphaned/Abandoned Mines Workshop, Winnipeg, Manitoba, 26 June 2001) at 14, online: Government of Manitoba <http://www.gov.mb/ca/itm/mrd> (date accessed: 10 February 2003) (noting unfairness in imposing cleanup costs on present-day mining companies that did not create problem, and benefits government and society acquired from products and economic activity resulting from mining activity).

[48] CCME Task Group Report, *supra* note 16 at 4. The term sustainable development was defined by the World Commission on Environment and Development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." World Commission on Environment and Development, Our Common Future (Oxford: Oxford University Press, 1987) at 43.

[49] CCME-KPMG, *supra* note 23 at 16.

[50] MWC-CCSG, *supra* note 28 at 7.

Openness, accessibility, and participation refer to notions of accessibility of information and opportunity for public input.[51] KPMG regarded the development and administration of orphan site funding as requiring transparency and opportunity for public input and scrutiny.[52]

Most respondents to the survey agreed that these principles should act as a guide in evaluating potential funding approaches. One respondent expressed some reservation as to the extent these principles could be adhered to in emergency circumstances.

In general, the authors agree that these principles should be used to evaluate potential funding approaches.

## 5. Revenue Generating Capacity

Revenue generating capacity, a criterion proposed by KPMG, refers to the ability of a funding approach to raise adequate funding commensurate with the scale of the orphaned/abandoned mine problem in the jurisdiction being examined.[53]

Generally, respondents to the survey agreed that the capacity to generate revenue is a principle or criterion that should guide evaluation of possible funding approaches for cleanup of orphaned/abandoned mines. However, their views diverged on who should be the source of the revenue. This divergence paralleled the split discussed above regarding the polluter pays principle.

The authors agree with KPMG that the capacity to generate revenue is a principle or criterion that should guide evaluation of funding approaches for cleanup of orphaned/abandoned mines.

## 6. Administrative Ease

Administrative ease refers to the ease of generation of revenue, its collection, and application of funding raised to orphaned/abandoned mine cleanup.[54]

In general, respondents agreed that this principle or criterion had a role to play in evaluation of funding approaches to ensure good management of funds obtained. The authors agree that this principle has a role to play in evaluation of funding approaches.

## 7. Economic Impacts

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[51] CCME Task Group Report, *supra* note 16 at 3.
[52] CCME-KPMG, *supra* note 23 at 17.
[53] *Ibid.*
[54] *Ibid.*

Economic impacts refers to demands, for example, on a mining company contributing to a fund for orphaned/abandoned mine cleanup and also remaining directly responsible for its own active mining sites.[55] Economic impacts also may refer to financial demands on the public treasury.

Respondents appeared to agree that economic impacts had a role to play in evaluating funding approaches. However, they appeared to agree for different and potentially conflicting reasons. Some respondents viewed economic impacts as a benchmark that would already be considered in the context of sustainable development and, therefore, did not require independent consideration a second time. Other respondents viewed economic impacts as an acceptable criterion as long as it focused on cost internalization and took into account the fact that the "mining sector already is heavily subsidized." Still other respondents were of the view that economic impacts was an appropriate criterion that was necessary to ensure that if industry were contributing funding it did not occur in such a way as to "impair the competitiveness of Canadian producers."

The authors are of the view that economic impact in its broadest sense is an appropriate principle or criterion to apply in evaluating potential funding approaches for orphaned/abandoned mines.

## 8. Ability to Address Existing and Future Orphaned/Abandoned Mines

The ability to address existing and future contaminated sites was a criterion, proposed by KPMG,[56] as applicable to assessing possible funding approaches. As discussed here it refers to two categories of orphaned/abandoned mines. First, it refers to existing orphaned/abandoned mines; that is, those in existence at the time of the commencement of an orphaned/abandoned mine cleanup program. Second, it refers to future orphaned/abandoned mines; that is, those that become orphaned/abandoned after the coming into force of an orphaned/abandoned mine cleanup program.

Respondents to the survey generally supported this criterion as applicable to evaluating potential funding approaches. The authors agree.

## 9. Discourage Future Site Abandonment

The ability to discourage future site contamination also was proposed by KPMG as applicable to assessing possible funding approaches.[57] As discussed here it refers to the role, if any, that a program directed to cleanup of orphaned/abandoned mines can have on discouraging creation of such future sites.

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[55] *Ibid.* at 18.
[56] *Ibid.*
[57] *Ibid.*

In general, but with some exceptions, respondents to the survey agreed that this principle or criterion also should guide evaluation of future funding approaches for orphaned/abandoned mines. One respondent was unsure that a funding approach for orphaned/abandoned mines would have this effect. In fact, this respondent raised the possibility that the existence of such a regime might have the opposite effect if an operator could persuade a regulator that its security deposit could be reduced because of the existence of an orphaned/abandoned mine funding regime acting as a failsafe mechanism.

On balance, the authors are of the view that this principle or criterion has a role in evaluating future funding approaches for orphaned/abandoned mines.

## 10. Public Perception

Public perception refers to public reaction to funding decisions and approaches.[58]

Respondents to the survey had a mixed reaction to using public perception as a basis for evaluating potential funding approaches for orphaned/abandoned mines. Some respondents viewed this criterion as very important for sustainable mining, regarding it as both an incentive to have an orphaned/abandoned mine program in order to improve public opinion and a benefit of such a program. Other respondents either did not support public perception as an appropriate criterion or were uncertain about its application in practice.

On balance, the authors agree with KPMG that public perception is an appropriate yardstick against which to measure potential funding approaches for orphaned/abandoned mines.

## 11. Emergency Response

Emergency response refers to the ability of a funding approach to respond to emergency situations at orphaned/abandoned mines.[59]

In general, respondents to the survey regarded this principle as important. However, one respondent suggested that this criterion might be more important to government than industry if the effect was to increase the liabilities of the fund accordingly. Some respondents were of the view that emergency response capability was of somewhat lesser importance in evaluating funding approaches as governments generally already have such authority under existing legislation.

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[58] *Ibid*. at 19.
[59] MWC-CCSG, *supra* note 28 at 7.

On balance, the authors are of the view that emergency response is an appropriate yardstick against which to measure potential funding approaches for cleanup of orphaned/abandoned mines.

### E. Summary

Arising from the foregoing analysis, the authors conclude that all of the principles or criteria discussed above, some in modified form, are appropriate for evaluating potential funding approaches for cleanup of orphaned/abandoned mines in Canada. Respondents to the survey also were given the opportunity to recommend additional principles but none were suggested.

## VI. FUNDING APPROACHES: ECONOMIC AND FINANCIAL POLICY THEORIES

Economists long have noted that when private markets do not function efficiently the result can be the creation of spillover or external effects. When a company emits air pollutants over a community, the residents in the community are the objects of spillover costs in terms of potential nuisance, health, and environment effects. In the normal course, governments can control external costs through regulatory, tax, subsidy or, more recently, market trading measures.[60]

The problem of controlling external costs is more difficult to resolve in the context of orphaned/abandoned mines because the parties responsible for the problem are no longer financially viable, cannot be identified or located, no longer exist, or have died. Accordingly, applying regulatory, tax, subsidy or other measures to influence their conduct in reducing external costs is not possible. Moreover, these sites, often located on Crown land, revert to Crown ownership.

Nonetheless, the external environmental, social, economic, and cultural costs of this past conduct remain to be resolved. In the circumstances of orphaned/abandoned mines the funding approaches are comparatively simple to state, though more difficult and controversial to apply in practice. The approaches include the following.

First, governments (federal, provincial, or federal-provincial) could pay for the rehabilitation of these sites out of general revenue. The theory behind this funding approach is that governments set the standards, provided access to minerals, collected corporate income taxes, mining taxes, royalties, payroll taxes, and taxes on personal incomes. Moreover, governments either did not require, or did not enforce, adequate rehabilitation during the operating life of the sites and there is now no one available upon

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[60] J.O. Saunders, "The Economic Approach" in E.L. Hughes, A.R. Lucas & W.A. Tilleman, eds., *Environmental Law and Policy*, 2d ed. (Toronto: Emond Montgomery Publications, 1998) at 361, 366, 389-390.

whom to impose these financial obligations. This approach makes all taxpayers responsible for financial resolution of the problem.

Second, the present mining industry could contribute to a fund that can pay for rehabilitation of orphaned/abandoned mines. The theory behind this funding approach is a generalized notion of polluter pays or internalization of external costs imposed on the industry as a whole as a cost of doing business in the jurisdiction in future. This approach makes the mining industry, and consumers of the products made by the industry, responsible for financial resolution of the problem.

Third, governments could provide incentives for existing mining companies to rehabilitate orphaned/abandoned mines. These incentives could come in the form of tax deductions, exemptions from liability, issuance of a mining licence on an adjacent site, financial contribution by government in partnership with a mining company, or other similar arrangements. This approach makes both taxpayers and consumers responsible for financial resolution of the problem.

Fourth, governments could, without imposing new taxes or fees on the mining industry, (1) re-direct a portion of existing mining tax revenue, and (2) reduce existing incentives to the industry[61] and earmark both streams to orphaned/abandoned mine rehabilitation generally, or through a fund specifically designed for this purpose. This approach makes both taxpayers and consumers of mineral products responsible for financial resolution of the problem.

Fifth, governments could use a combination of the above or related funding approaches.

Several of these theoretical approaches to orphaned/abandoned mine funding have been employed in a number of jurisdictions. The next part of this report reviews the experience with several of these approaches in practice.

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[61] The question of whether and, if so, why, and the extent to which the mining industry has received preferential tax treatment, incentives, or subsidies has been debated for over 30 years in Canada going back at least to the 1972 Royal Commission on Taxation (hereinafter the "Carter Commission"). The federal government adopted few of the Carter Commission proposals that would have ended preferential tax treatment of the industry observed by the Commission. However, the debate has continued. See ND. Olewiler, "Non-Fuel Mineral Taxation: The Carter Commission and Subsequent Tax Reform" in W.N. Brooks, ed., *The Quest for Tax Reform* (Toronto: Carswell, 1988) 249 at 257, 261 (noting an extraordinarily complex federal and provincial tax system that perpetuates distortionary subsidies Carter Commission sought to eliminate for the mining industry that are not received by other sectors of the economy). Historically, the reasons for such subsidies or incentives have included that mining is an inherently risky activity that contributes to economic growth, employment, development, and exports such that it requires a reduced level of taxation or tax concessions to stimulate the activity. *Ibid.* at 250-251. See also Ontario Fair Tax Commission, *Fair Taxation in a Changing World* (Toronto: Queen's Printer for Ontario, 1993) 485-511 (noting suggestions for rethinking Ontario's approach to mining taxation). See also MiningWatch Canada and Pembina Institute for Appropriate Development, *Looking Beneath the Surface: An Assessment of the Value of Public Support for the Metal Mining Industry in Canada* (Ottawa: MWC-PIAD, 2002) at 122-128 (noting recommendations for ending recent federal and provincial tax credit programs for flow-through shares in the mining sector, and removing other provincial sales and exploration tax exemptions).

# VII. FUNDING APPROACHES: THE PRACTICE - A SUMMARY REVIEW OF SELECTED EXISTING AND PROPOSED LEGISLATIVE AND NON-LEGISLATIVE PROGRAMS IN CANADA, THE UNITED STATES, AND THE UNITED KINGDOM

This part of the report reviews seventeen programs organized under five different funding approaches that have been employed in practice in Canada, the United States, and the United Kingdom. Funding approaches examined include:

- Government funded programs from general revenues;
- Federal-provincial government funded cost sharing arrangements from general revenues;
- Levies on industrial production;
- Government-industry partnerships; and
- Non-profit organization trust funds.

Each segment of this part of the review identifies, describes, and then evaluates the advantages and disadvantages of the funding approach under consideration. The evaluation includes assessment of the funding approach on the basis of the principles and criteria discussed under Part IV of the report,[62] the views of respondents to the survey, experience under the program, and other pertinent information.

## A. Government Funded Programs From General Revenues

### 1. Overview

The first funding approach for cleanup of orphaned/abandoned mines considered in this report is that of government funded programs from general revenues coming from a single level of government. In this regard, four programs are considered from the governments of Canada, Ontario, Manitoba, and Saskatchewan. Programs under this category range from the fairly new to those that, with some exceptions, have been in place for over a decade. These programs also are at different stages of implementation on a continuum ranging from inventory, to assessment, to rehabilitation. At the end of this section is a brief review of aspects, or the status, of selected other provincial government programs relating to orphaned/abandoned mines.

[62] Where programs under a funding approach are similar, evaluation of them on the basis of the principles and criteria discussed under Part IV will not be re-stated in order to avoid repetition of analysis.

## 2. Government of Canada

### *a. Northern Contaminated Sites Program*

Given the division of powers granted to the Parliament of Canada under the Canadian Constitution,[63] the primary legislative jurisdiction of the federal government for mining activity and its aftermath resides in the northern territories.[64] Indian and Northern Affairs Canada ("INAC") is the custodian of most federal lands in northern Canada. As a result, the department, through its Northern Contaminated Sites Program, manages a number of contaminated properties that are no longer maintained by their original owners. These northern properties include contaminated sites from private sector mining activities dating back over half a century, long before the advent of modern environmental regulation.[65]

The department has developed a general policy on contaminated sites management for sites that are located on reserve lands, on federal lands north of the 60th parallel, and on other lands under INAC's responsibility. The policy applies to orphaned/abandoned mines and defines them as:

> "a site where the person or corporation that created the contaminated site is unknown or out of business and the site is on federal Crown land or Canada lands (e.g. reserve land)."[66]

INAC also recently has developed policies for when it will enter into transactions with purchasers of abandoned mines in the Northwest Territories and Nunavut. These policies are discussed below.[67]

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[63] Federal legislative jurisdiction over mining and related activity derives from the *Constitution Act, 1867* (U.K.), 30 & 31 Vict., c. 3, ss. 91(1A) (public property), 91(3) (taxation), 91(12) (seacoast and inland fisheries), 91(24) (Indian lands), 91(27) (criminal law) reprinted in R.S.C. 1985, App. II, No. 5. Sections 92(10(c) respecting works wholly within a province declared by the Parliament of Canada to be for the general advantage of Canada (the declaratory power) and section 91 (preamble respecting peace, order, and good government) have been used to justify federal legislation relating to all aspects of the uranium industry. Provincial legislative authority is derived from several heads of power under the Constitution, including: ss. 92(2) (direct taxation within the province), 92(5) (management and sale of public lands belonging to the province), 92(13) (property and civil rights in the province), 92A (non-renewable natural resources), and 109 (in Ontario, Quebec, Nova Scotia, and New Brunswick all lands, mines and minerals belonging to those provinces at the time of Confederation).

[64] For a review of federal resource management laws in northern Canada see Castrilli, *supra* note 1. As of April 1, 2003 federal jurisdiction in the Yukon devolved to the Yukon Government. However, under the devolution arrangement, the federal government retained financial responsibility for abandoned mines in the Yukon. Accordingly, with some exceptions for mines on non-federal lands, the federal government retains financial responsibility for abandoned mines throughout the north - Yukon, Northwest Territories, and Nunavut.

[65] Indian and Northern Affairs Canada, *Northern Contaminated Sites Program* (Ottawa: INAC, 2003) at 1, online: Indian and Northern Affairs Canada <http://www.ainc-inac.gc.ca/ps/nap/consit/index_e.html> (last updated: 19 March 2003).

[66] Indian and Northern Affairs Canada, *Contaminated Sites Management Policy* (Ottawa: INAC, 2002). The policy includes objectives and guiding principles, including application of the polluter pays principle.

The department estimates that of thirty abandoned mine sites in the north, action is required and considered high priority at 17 of them, action is likely required at 8 of them, and action may be required at the remaining 5 of them.[68] INAC currently spends millions of dollars annually to stop contaminants escaping from these sites. In 2002 alone, the department budgeted $26 million to prevent water contamination and otherwise protect human health and the environment in the vicinity of abandoned mine sites. However, INAC also estimates that the cleanup and closure of these sites will cost at least $555 million from public funds.[69]

The department has staff dedicated to responding to the problems posed by these sites, but not enough resources to match the size of the problem.[70] As a result, INAC currently is working with central agencies in the federal government to secure long-term funding to address the problem of abandoned mines and to prioritize cleanups.[71]

In this regard, the 2003 federal budget raised the issue of contaminated sites, specifically identifying northern abandoned mines as part of the problem to be addressed as follows:

> "Federal contaminated sites are an unfortunate legacy of past practices, with unanticipated environmental consequences and contamination inherited from others, such as abandoned mines in northern Canada. Current legislation and policies strive to prevent the creation of new contamination from federal sources and obtain financial security for mining projects to cover the costs of any eventual clean-up.
>
> In order to address existing contamination, the Government will commit funding of $175 million over two years. This will establish a centrally managed fund making ongoing resources available to address the highest-risk federal sites. …"[72]

Although northern abandoned mines are specifically referred to in the 2003 Budget as a rationale for addressing federal contaminated sites, it is unclear how much of the $175 million two-year commitment is earmarked for abandoned mine cleanups. In addition to a chapter on northern abandoned mines, the 2002 report of the CESD to Parliament also contained a chapter addressing the legacy of federal contaminated sites, of which northern abandoned mines were identified as part of a larger problem confronting the federal government.[73]

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[67] See Part VI.D.2.a., below.
[68] CESD I, *supra* note 4 at 24.
[69] *Ibid*. at 1. More recent estimates place INAC cleanup expenditures to date at $90 million, and total cost estimates as at least $700 million.
[70] *Ibid*. at 11-12.
[71] *Ibid*. at 19.
[72] Finance Canada, *Budget 2003 - Budget Plan* (Ottawa: FC, 2003) chapter 5, at 26, 28, online: Finance Canada <http://www.fin.gc.ca/budget03/bp/bpc5e.htm> (date accessed 5 April 2003).
[73] Commissioner of the Environment and Sustainable Development, *The Legacy of Federal Contaminated Sites:Report to the House of Commons* (Ottawa: CESD, 2002) at 5 [hereinafter CESD II] (noting that

### *b. Evaluation of Advantages and Disadvantages*

The recent report from the Commissioner of the Environment and Sustainable Development ("CESD") on the problem of abandoned mines in the north raised the following points regarding the INAC program:

- In recent years, the department has made progress toward establishing a comprehensive program to deal with abandoned mines;[74]

- However, INAC policy on contaminated site management provides insufficient guidance on abandoned mines, even though they represent the major portion of the Department's contaminated site problems;[75]

- The financial burden of dealing with the legacy of northern abandoned mines is huge, and the federal government has not yet come to grips with it. There are no funding strategies in place to support the department's recent efforts. Without sufficient funding to implement long-term solutions, INAC currently is covering only basic care and maintenance;[76]

- The current care and maintenance approach employed by the department is not an optimal use of public funds and constitutes a band-aid approach that does little to solve the problem and is not sustainable in the long term. Existing containment structures are deteriorating and reaching their capacity. Decisions are required on whether to do a major retrofit of these structures or cleanup the accumulating toxic chemicals. Long-term, stable funding and solutions are needed;[77]

- The INAC estimate that long-term solutions will cost Canadian taxpayers at least $555 million is regarded as conservative.[78]

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thousands of sites on federal properties have been contaminated by the federal government, tenants on its lands, and others as a result of decades of misuse relative to recent standards. Such sites include abandoned mines in the north, airports, government laboratories, harbours and ports, landfills, lighthouse stations, military bases and training facilities, and reserve lands. Cleanup of these sites represents billions of dollars in costs to the Canadian taxpayer).

[74] CESD I, *supra* note 4 at 1.

[75] *Ibid.* at 12.

[76] *Ibid.* at 18.

[77] *Ibid.* at 1, 18-19.

[78] R. Arseneault, Office of the Auditor General of Canada, "Abandoned Mines in the North: 2002 Report - Chapter 3" (Workshop on Legal and Institutional Barriers to Collaboration Relating to Orphaned/Abandoned Mines, Ottawa, 24 February 2003) at slide 7.

The recent federal budget announcement on monies for federal contaminated sites may partially address the issue of funding for northern abandoned mines. However, the extent to which the federal government is prepared, or able, to fund abandoned mine cleanups entirely from the treasury is unclear.

In terms of how an INAC program approach otherwise accords with the principles/criteria discussed in Part IV above for evaluating funding approaches for orphaned/abandoned mine cleanup, the following may be said:

- As a program based on government funding from general revenues, an INAC program approach is not consistent with polluter pays (under either a strict or general interpretation) of the principle as it would make the public wholly responsible for the actions of past mining activities;
- An INAC program approach also may not be consistent with the beneficiary pays principle, unless the principle is interpreted as the public reaping the benefits of general mining industry activity as was suggested by several survey respondents (though disputed by other respondents);
- As applied to date, an INAC program approach largely would fail to meet fairness principles of certainty of process, effectiveness, and timeliness in achieving environmental objectives;
- In being inconsistent with several (if not all depending on one's interpretation) of the above principles, an INAC program approach might be said to fail to address sustainable development goals as well;[79]
- As applied to date and in light of the findings of the CESD, an INAC program approach would fail to meet principles of openness, accessibility, and participation but the program is still largely under development and thus a final assessment in connection with this principle may be premature;
- Given the magnitude of the funding needed and available as identified by INAC and reported upon by the CESD, an INAC funding approach would up to now appear to be unable to raise funding commensurate with the scale of the orphaned/abandoned mine problem in northern Canada;[80]

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[79] J. Gelinas, Commissioner of the Environment and Sustainable Development, "The Legacy of Federal Contaminated Sites" (Americana 2003 Forum, Montreal, 19 March 2003) (Ottawa: CESD, 2003), online: Commissioner of the Environment and Sustainable Development <http://www.oag-bvg.gc.ca/domino/cesd_cedd.nsf/html/c200303sp01_e.html> (date accessed: 28 April 2003) (noting that fundamental principles such as "precautionary action" and "polluter pays" are not being applied; and sites such as Yellowknife's Giant Mine pose serious health and environmental problems for present and future generations).

[80] *Ibid.* (noting that some of the significant high-risk abandoned mines cannot be cleaned up in a two-year time span - the period covered by the recently announced funding in the 2003 Budget of $175 million, an undefined portion of which will go to abandoned mine cleanup - and at least one of these sites, the Yukon's

- An INAC funding approach would be comparatively easy to administer because all that would be required is for the government to appropriate sufficient funds from general revenues on an annual basis;
- From the perspective of economic impacts, an INAC funding approach would impose no financial demands on the mining industry but could have severe financial implications for the federal government depending on how quickly and at what level expenditures were committed to the program;
- Such an approach could address both existing and future orphaned/abandoned mines, but reliance on the availability of general revenues to address future problems may undermine several of the other principles noted above;
- The existence of general revenues as the only source of funding would not likely discourage future site abandonments;
- An INAC funding approach to the extent it was based on exclusive reliance on general revenues likely would be poorly perceived by the public;
- An INAC funding approach derived from general revenues likely could generate monies for purposes of emergency response but, based on experience to date in the north, this approach becomes more problematic the greater the overall magnitude of the problem.

Overall, and as noted by one respondent, in the short term while industry would possibly prefer an INAC funding approach of exclusive reliance on general revenues, the approach contains several drawbacks. It is unlikely to be very attractive to government, would suffer from poor public perception (as well as harm industry's image in the sense that such an approach might be perceived as giving industry a "free ride"), and be very vulnerable to changing government priorities.

## 3. Ontario Government

### *a. Abandoned Mines Rehabilitation Program*

In the early 1990s, Ontario spent approximately $10 million on inventory, assessment, and cleanup of orphaned/abandoned mines. Beginning in 1999, the government continued the process of assessing the status of abandoned mines in the province and the process of rehabilitating them with $27 million in additional public funds.[81] The province recently committed a further $21 million in public funds over the

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Faro Mine will, by itself, require at least $200 million. Accordingly, this level of funding provides only a "band-aid" approach and does nothing to provide long-term solutions needed).

[81] Ontario Ministry of Northern Development and Mines, *Abandoned Mines Rehabilitation Program* (Toronto: ONDM, 2003) at 1, online: Ontario Ministry of Northern Development and Mines <http://www.mndm.gov.on.ca/mndm/mines/mg/abanpro/default_e.asp> (last modified: 19 February 2003)

next four years commencing in 2004 to continue the rehabilitation program. There are approximately 6,000 known abandoned mines in the province.[82] Many of these sites have been, or will become, the responsibility of the government:

> "Some of Ontario's abandoned mine sites are more than a century old, and while companies may not have closed out the site in a manner that meets today's standards, the lands have already reverted to the Crown. Other privately held lands may become the Crown's responsibility in extreme circumstances such as a business failure or receivership. There are also combinations of circumstances that will prompt the government to address serious or immediate risks on a privately owned site: for example, when a company is in receivership and there are emergency situations that may place public safety or health at risk."[83]

In the first three years of the initiative that began in 1999, the province's Abandoned Mines Rehabilitation Program, administered by the Ontario Ministry of Northern Development and Mines ("ONDM"), undertook work at more than 45 abandoned mine sites. The province also completed an assessment of all known abandoned mine sites on Crown and privately owned land.[84] In 2000-2001 alone, approximately 4000 sites were evaluated.[85] As part of the program, Ontario also developed an Abandoned Mine Information System ("AMIS") designed to include the entire database of abandoned mines in the province.[86] In addition, ONDM recently signed a memorandum of understanding with the Ontario Mining Association to carry out joint rehabilitation projects on abandoned mine sites on Crown land. This arrangement is discussed below.[87]

Early "semi-official" estimates of the funding needed to cleanup orphaned/abandoned mines in Ontario, now regarded as out of date, placed the cost at approximately $300 million. A more up to date estimate, but not substantiated, places the cost as much as 67% higher (i.e. between $300-$500 million).

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(noting that in September 1999 the province announced a four-year $27 million program to rehabilitate lands that are former mine sites).

[82] Ontario Ministry of Northern Development and Mines, News Release, "Eves Government Invests $21 Million to Rehabilitate Ontario's Abandoned Mines" (26 May 2003). See also Ontario Ministry of Northern Development and Mines, Backgrounder, "Abandoned Mines Rehabilitation Program" (26 May 2003).

[83] *Supra* note 81.

[84] Ontario Ministry of Northern Development and Mines, News Release "Eves Government Invests $10 Million In Abandoned Mines Rehabilitation" (15 January 2003) at 1 (the $10 million to be spent in 2003 is the fourth-year installment of the $27 million program announced in 1999).

[85] Ontario Ministry of Northern Development and Mines, *Table of Sites Rehabilitated Under the Abandoned Mines Rehabilitation Program: 1999-2003* (Toronto: ONDM, 2003) at 4, online: Ontario Ministry of Northern Development and Mines <http://www.mdnm.gov.on.ca/mndm/mines/mg/abanpro/sitetable_e.asp> (last modified: 26 March 2003) (4000 sites to be evaluated in 2000-2001).

[86] *Ibid*. at 4, 6.

[87] See Part VI.D.4, below.

For the last two years the province has spent $10 million per year under the program.[88] Accordingly, if the province maintained a $10 million per year spending pace into the foreseeable future, it would require at least 30 years to complete the cleanup of abandoned mine sites (Crown and private) in Ontario. To complete the task within ten years would require an appropriation from the provincial treasury on the order of at least $30 million per year. Expenditures at such levels over a prolonged period also would require an increased number of resource personnel (and arguably a corresponding budget increase) within the provincial government to properly administer and oversee the engineering, tendering, and construction scheduling requirements of such a large program.

### *b. Evaluation of Advantages and Disadvantages*

Ontario has perhaps the most developed abandoned mine cleanup program in Canada. The province will have expended from the beginning of the 1990s to the end of 2003 approximately $37 million, and committed a further $21 million through 2007, all from general revenues. The program has been well received by the mining industry.[89] However, given the magnitude of the overall problem remaining (conservatively $300 million in cleanup costs), it is unclear whether, how long, and at what level of expenditure the province could sustain the program from general revenues alone as it has done up to now.

The analysis set out above[90] also largely applies to how an Ontario program approach would accord with the principles/criteria discussed in Part IV for evaluating funding approaches for orphaned/abandoned mine cleanup. However, the following differences should be noted based on the performance of the Ontario program to date:

- An Ontario program approach would appear to more closely comport with the fairness principles of effectiveness, efficiency, clarity, consistency (since 1999), and timeliness in achieving environmental objectives (assuming the level of activity since 1999 is maintained into the foreseeable future);
- An Ontario program approach has provided comparatively greater information about results achieved to date and therefore would be more consistent with the principle of accessibility of information;
- Given the magnitude of the funding needed as identified by Ontario, it is not clear whether an Ontario funding approach would be able to raise funding commensurate with the scale of the orphaned/abandoned mine problem in the province except over a very long timeframe.

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[88] *Supra* note 81 at 1 ($27 million 4-year funding to be expended as follows: year 1 - $2 million, year 2 - $5 million, years 3 and 4 - $10 million each year).

[89] Editorial, "Money Well Spent: Abandoned Mines Program Gets Results" *The Northern Miner* (9-15 June 2003) (noting that the government program provides funds to do proper closure work on former mines sites whose owners have gone into bankruptcy or otherwise vanished).

[90] See Part VI.A.2.b, above.

## 4. Manitoba Government

### *a. Orphan Mine Site Rehabilitation Program*

Manitoba has recognized the problems associated with abandoned mine sites in the province for some time.[91] As in other provinces, Manitoba has several un-rehabilitated mine sites where the former mining owner no longer exists and where as a result site ownership has reverted to the Crown under provincial law. To address both public safety and environmental health hazards associated with abandoned mine sites the Ministries of Conservation and Industry, Trade and Mines recently invested $2 million of public funds to begin the process of rehabilitating such sites in northern Manitoba. Five sites will be assessed in the 2001-2005 period with a view to capping and closing off open mine shafts as well as fencing off these properties.[92]

A companion part of this program involves an environmental health risk assessment during the same four-year period to research and assess the environmental impact of abandoned mines. Under this initiative air and water quality testing will be undertaken, environmental health risks assessed, and environmental mitigation options identified at specific abandoned mine sites.

A further component of the program involves establishment of a multi-stakeholder advisory committee made up of First Nation communities, the mining industry, local communities, environmental groups, and the public to provide on-going advice and direction on appropriate policies related to abandoned mine rehabilitation.[93]

### *b. Evaluation of Advantages and Disadvantages*

The Manitoba program is comparatively new. Accordingly, it largely would be premature to apply to such a program approach the principles and criteria discussed in Part IV for evaluating funding approaches for orphaned/abandoned mine cleanup. The analysis set out above[94] may be said to apply in a general way to such an approach because it is based on a regime of general revenue funding. However, the following differences should be noted based on the information available on the Manitoba program to date:

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[91] Manitoba Government, *State of the Environment Report for Manitoba, 1993* (Winnipeg: 1993) at 4-5 (acid mine drainage contaminating lake from eight million tonnes of tailings deposited over 44 hectare area from mine abandoned in early 1950s). See also Manitoba Government, *State of the Environment Report for Manitoba, 1995* (Winnipeg: 1995) at 4 (abandoned metal mines may pose serious environmental problems including acid mine drainage and contamination by metals).

[92] Manitoba Government, News Release, "Province to Begin Process of Rehabilitating Abandoned Mines in Northern Manitoba" (18 July 2001).

[93] *Ibid.*

[94] See Part VI.A.2.b, above.

- A Manitoba program approach would appear to more closely comport with principles of openness, accessibility, and participation because of the establishment of the multi-stakeholder advisory committee noted above.

## 5. Saskatchewan Government

### *a. Northern Saskatchewan Abandoned Mines Assessment Program*

Saskatchewan also has long recognized problems associated with abandoned uranium, gold, and base metal mines in the northern part of the province[95] that have become the responsibility of the government.[96] However, a program to undertake remedial action at such sites in the late 1980s was terminated in the early 1990s due to budget constraints. In 2000, the provincial government approved a new Abandoned Mines Assessment Program. The purpose of this program is to complete the assessments of northern sites and prioritize them based on public safety and environmental concerns. The prioritization is a risk-based assessment in which those sites that present the most severe public safety and/or environmental concerns are ranked first.[97]

Currently, Saskatchewan is in the process of assessing the status of 75 abandoned mines in the province and has issued annual reports and implemented interim cleanup measures at some of the sites.[98] Upon completion of the program, the province anticipates that all abandoned mines and exploration sites in northern Saskatchewan that pose environmental or public safety concerns will have been assessed.[99] Remediation will then be undertaken based on the risk assessment of each of the abandoned mines.[100]

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[95] Saskatchewan Environment, *An Assessment of Abandoned Mines in Northern Saskatchewan (Year Two): Executive Summary* (Regina: SERM, 2002) [hereinafter *Saskatchewan Year Two Summary*] (noting that mining exploration in the province dates from the early 20th century and that exploration and mining operations were abandoned with little, if any, regard to environmental protection, public safety, or aesthetics. As a result the vast majority of sites - pre-1980s - which were abandoned with no closure activities have left in some cases severe public safety hazards and possible long term environmental concerns).

[96] Saskatchewan Government, News Release, "New Report on Abandoned Mines" (24 September 2002) (noting that in the 1950s and 1960s many mining companies simply walked away from sites when the ore ran out and since many of these companies no longer exist, the cleanup task has fallen to the provincial government).

[97] *Saskatchewan Year Two Summary*, *supra* note 95 at 1.

[98] Saskatchewan Environment, "Assessing Northern Abandoned Mines" (18 September 2001) (noting release of interim report on the health, safety, and environmental risks of abandoned mines in northern Saskatchewan). See also Saskatchewan Government, *supra* note 26 (noting that the province is more than half way through an abandoned mines assessment program for northern Saskatchewan).

[99] *Saskatchewan Year Two Summary*, *supra* note 95 at 2.

[100] Saskatchewan Government, *supra* note 96.

Saskatchewan does not have an estimate of funding needed for cleanup of all orphaned/abandoned mines in the province. However, the provincial government does estimate cleanup costs of approximately $30 million for 42 orphaned/abandoned uranium mines in the province, for which it believes the mining industry and the federal government should be at least partially responsible.

### *b. Evaluation of Advantages and Disadvantages*

The Saskatchewan program also is comparatively new. Accordingly, it also largely would be premature to apply to such a program approach the principles and criteria discussed in Part IV for evaluating funding approaches for orphaned/abandoned mine cleanup. The analysis set out above[101] may be said to apply in a general way to such an approach because it is based on a regime of general revenue funding. However, the following differences should be noted based on the information available on the Saskatchewan program to date:

- A Saskatchewan program approach would appear to more closely comport with the principle of accessibility of information because of the issuance of annual reports noted above.

## 6. Status of Selected Other Provincial Government Programs

This section provides a brief review of aspects, or the status, of selected other provincial government programs relating to orphaned/abandoned mines that also follow the model of funding from general government revenues:

- In British Columbia, there currently is no provincial government funding allocated to the cleanup of orphaned/abandoned mines in the province. However, the provincial government recently has funded an historical mine inventory, which identified 1,887 such mines in the province. Of this number 1,171 were classified as mineral deposits known to have geo-environmental characteristics with the potential for generating acid and leaching metals. Of the 3 per cent of historic mine sites inspected to date, 6.5 per cent are estimated to pose potential environmental contamination concerns.[102] No estimates are available regarding the funding needed to cleanup orphaned/abandoned mines in the province.

- Since the 1970s, Quebec has spent more than $30 million under three programs to secure mine openings, and restore abandoned mines on

[101] See Part VI.A.2.b, above.

[102] British Columbia Ministry of Energy and Mines, *Historic Mine Sites in British Columbia*, by L.N. Barazzuol & G.G. Stewart (Victoria: BCMEM, 2003) at iii (historic mine sites defined as those lacking mining permits under provincial law and where mining has occurred in the past).

public and private lands. However, the province does not currently have a system of financing the restoration of abandoned mines. In the March 2003 Budget, the province acknowledged that some abandoned mine tailings sites can pose health hazards, and identified 16 sites requiring priority action over the next 15 years at a cost of $46 million to be paid for out of government funds.[103] An intervening provincial election has delayed confirmation of this commitment by the new government. Quebec estimates unofficially that approximately $70 million is needed to cleanup all orphaned/abandoned mines in the province.

- Ten per cent of over 100 abandoned exploration and mining properties in Newfoundland and Labrador are anticipated to incur environmental remediation costs. As no formal environmental site assessments have been completed for the ten sites, the provincial government has not determined the extent of remediation efforts or costs to rehabilitate these sites.[104] Since the mid-1980s, the province has spent approximately $15 million from government revenues to cleanup orphaned/abandoned mines. Unofficial estimates place the remaining total costs to cleanup such sites at $70-$80 million, with $6 million budgeted for 2003-2004.

## 7. Summary

Arising from the foregoing analysis, the authors draw the following findings and conclusions. First, with some exceptions, funding approaches for cleanup of orphaned/abandoned mines based exclusively on government funding from general revenues, on their face and as applied to date, do not meet and have not met most of the principles and criteria identified in Part IV of this report.

Second, the exceptions to the first finding relate to administrative ease, accessibility of information, and ability to respond to emergencies. These three principles or criteria appear capable of being met by a regime of government funding from general revenues.

Third, in the short term while industry would possibly prefer a funding approach of exclusive reliance on government general revenues, the approach contains several drawbacks. It is unlikely to be very attractive to government. It would suffer from poor public perception (as well as harm industry's image in the sense that such an approach might be perceived as giving industry a "free ride"). It has demonstrated vulnerability to

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[103] Government of Quebec, *Additional Information on Budgetary Measures: 2003-2004 Budget* (Quebec City: Government of Quebec, 2003) at 8.

[104] Auditor General of Newfoundland and Labrador, *Report on Reviews of Departments and Crown Agencies for the Year Ending 31 March 2002* (St. John: Government of Newfoundland and Labrador, 2002) at 70-72.

changing government priorities. Based on experience to date this approach by itself has not demonstrated an ability to raise adequate funding commensurate with the scale of the orphaned/abandoned mine problem in Canada, or to do so in a timely manner.

Finally, survey respondents who commented on this point variously characterized the adequacy of the current funding approach, which is based on general government revenue, as extremely inadequate, poor, non-existent, or burdensome to government.

## B. Federal-Provincial Government Funded Cost Sharing Arrangements From General Revenues

### 1. Overview

The second funding approach for cleanup of orphaned/abandoned mines considered in this report is that of government funded programs from general revenues coming from two levels of government. In this regard, two programs are considered from the (1) Canadian Council of Ministers of the Environment, and (2) governments of Canada and Ontario. At least one of the programs under this category was discontinued almost a decade ago and has not been replaced. The other program is active but has not seen much activity as it relates to abandoned sites. These programs also were designed to address issues pertaining to inventory, assessment, and rehabilitation.

### 2. Canadian Council of Ministers of the Environment

#### *a. National Contaminated Sites Remediation Program*

In 1989, the Canadian Council of Ministers of the Environment ("CCME") approved $250 million in funding from general revenues for the National Contaminated Sites Remediation Program ("NCSRP"). The objectives of the five-year federal-provincial-territorial government program were to ensure cleanup of high-risk orphan sites based on the polluter pays principle, promote development of domestic environmental technology, and cleanup federal sites.[105] The federal government matched funds spent by the provinces and territories, with the amount of federal money available to each province or territory calculated on the basis of the size of its population.[106] A total

[105] Auditor General of Canada, *Managing the Legacy of Hazardous Wastes* (Ottawa: Minister of Public Works and Government Services, 1995). See also Canadian Council of Ministers of the Environment, *National Contaminated Sites Remediation Program: 1990-1991 Annual Report* (Winnipeg: CCME, 1991) (noting that orphan sites were defined as sites for which no responsible parties can be located).

[106] "Contaminated Sites Legislation: CCME Report Backs 'Polluter Pays' Principle" *West Coast Environmental Law Research Foundation Newsletter* 16:4 (2 November 1992), online: West Coast Environmental Law <http://www.wcel.org/4976/16/16_04.html> (date accessed: 9 April 2003) (noting that a bilateral cost sharing agreement signed under the NCSRP provided British Columbia with $23.4 million in federal funds for remediation of orphan sites).

of $200 million was designated for orphan site cleanup.[107] Under the NCSRP, governments initiated or completed remediation at 40 high-risk contaminated sites that had no identifiable owner,[108] although it is not clear how much of the funding was dedicated to, or how many of these sites were, orphaned/abandoned mines.[109]

In 1993, CCME consultants expressed concern that the available funding would not be spent by the end of the program in 1995. The reason for this concern appeared to be that provincial governments were unable or unwilling to take full advantage of federal money available under NCSRP due to financial constraints at the provincial level. The effect of these constraints influenced the amount of money spent by both levels of government. Moreover, these consultants were of the view that at the termination of the NCSRP in 1995, a new or similar program would have to be developed to continue to address the issue of orphan site remediation in Canada.[110]

### *b. Evaluation of Advantages and Disadvantages*

The analysis set out above[111] also largely applies to how an NCSRP program approach would accord with the principles/criteria discussed in Part IV for evaluating funding approaches for orphaned/abandoned mine cleanup. However, the following differences should be noted based on what is known of the performance of the NCSRP program:

- Although the NCSRP program was completed eight years ago there is comparatively little detailed information available regarding its performance generally or, in relation to orphaned/abandoned mines in particular. Accordingly, an NCSRP approach would fail to meet the principle of accessibility of information;
- Given the magnitude of the funding needed and available as identified in this report,[112] a NCSRP approach might be better positioned to raise funding commensurate with the scale of the orphaned/abandoned mine problem.

Overall, and as noted by one respondent, in the short term industry would possibly prefer a NCSRP funding approach of exclusive reliance on federal-provincial general revenues. Moreover, the existence of federal funding might assist in "locking-in"

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[107] CCME-KPMG, *supra* note 23 at 9.

[108] Government of Canada, *1995 Report of Canada to the United Nations Commission on Sustainable Development* (Ottawa: Minister of Public Works and Government Services, 1995), online: Government of Canada <http://www.sdinfo.gc.ca/reports/en/1995/part4.cfm> (last updated: 29 July 2002).

[109] In Ontario, for example, the province received less than $1 million for cleanup of one orphaned/abandoned mine under NCSRP. Quebec received about twice that amount. Other provinces such as British Columbia and Newfoundland received no funding for orphaned/abandoned mines under this program.

[110] CCME-KPMG, *supra* note 23 at 9-10.

[111] See Part VI.A.2.b, above.

[112] Conservatively, at least $850 million needed for northern Canada and Ontario alone.

provincial funding, which is an advantage in comparison to relying on a single level of government. However, this approach also contains several drawbacks. First, provincial governments were unable or unwilling to take advantage of federal money available under the NCSRP.[113] Second, the approach is still unlikely to be very attractive to government. The federal government, in particular, has many of its own contaminated sites to address (mining and non-mining), though one respondent was of the view that the government bears some responsibility for the war-time emergency creation of some metals mines in Canada. Third, and as noted above, a federal-provincial approach still would suffer from poor public perception (as well as harm industry's image in the sense that such an approach might be perceived as giving industry a "free ride"). Finally, such an approach, though more robust than that arising from a single level of government, would still be vulnerable to changing federal-provincial priorities.

## 3. Governments of Canada and Ontario

### *a. Cost Sharing Agreement for Abandoned Uranium Mine Waste*

Approximately 225 million tonnes of uranium mine and mill tailings have accumulated in Ontario, Saskatchewan, and the Northwest Territories since uranium mining began in Canada in the 1930s. Generally, uranium mine and mill tailings are disposed of in tailings ponds or mined-out pits.[114] In the normal course, final decommissioning of uranium mine and mill tailings and the associated costs are the responsibility of the uranium mining companies under federal law.[115]

Problems may arise, however, where companies are not able to cover these costs. In recognition of this concern, in 1996 the federal and Ontario governments entered into a memorandum of agreement on the decommissioning and long-term maintenance of uranium mine and mill tailings. The agreement recognizes that present and past producers of uranium are responsible for all financial aspects of the decommissioning and long-term care of uranium mine sites, including uranium tailings. However, in the case of abandoned tailings where a producer or owner is unable to pay for cleanup, the agreement outlines how the two parties will share these costs.[116] To date these provisions have not had to be invoked by the parties to the agreement.

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[113] See CCME-KPMG, *supra* note 23 at 9.

[114] Natural Resources Canada, Backgrounder 96/79a, "Radioactive Wastes in Canada" (24 January 1996), online: Natural Resources Canada <http://www.nrcan.gc.ca/media/newsreleases/1996/199679a_e.htm> (last updated: 13 December 2002).

[115] *Uranium Mines and Mills Regulations*, S.O.R./2000-206 (under the *Nuclear Safety and Control Act*, S.C. 1997, c. 9).

[116] Her Majesty the Queen in Right of Canada (represented by the Minister of Natural Resources) and Her Majesty the Queen in Right of Ontario (represented by the Minister of Northern Development and Mines), *Memorandum of Agreement* (Ottawa & Toronto: NRC/ONDM, 23 January 1996) art. 4.1 (declaring that, subject to certain exceptions noted in the agreement, where the owner or operator of a uranium mine or mill site is bankrupt or insolvent, defaults on its perpetual care obligations, or in emergency circumstances agreed upon by the parties, Canada and Ontario will each pay 50% of the perpetual care costs). See also

### *b. Evaluation of Advantages and Disadvantages*

The analysis set out above[117] also largely applies to how a Canada-Ontario agreement approach would accord with the principles/criteria discussed in Part IV for evaluating funding approaches for orphaned/abandoned mine cleanup. However, as noted above, those parts of the agreement regarding percentage expenditures by the federal and Ontario governments with respect to abandoned uranium mine waste have never had to be invoked because there has always been a responsible party available to cover uranium mine waste cleanup costs.

## 4. Summary

Arising from the foregoing analysis, the authors draw the following findings and conclusions. First, in general, funding approaches for cleanup of orphaned/abandoned mines based exclusively on federal-provincial government funding from general revenues (primarily the NCSRP program), on their face and as applied, do not meet most of the principles and criteria identified in Part IV of this report. Second, the exceptions to the first finding relate to administrative ease, accessibility of information,[118] and ability to respond to emergencies. These three principles or criteria appear capable of being met by a regime of federal-provincial government funding from general revenues. Third, in the short term industry would possibly prefer a funding approach of exclusive reliance on federal-provincial general revenues. Fourth, the existence of federal funding might assist in "locking-in" provincial funding, which is an advantage in comparison to relying on a single level of government.

However, a federal-provincial approach also contains several drawbacks:

- Provincial governments were unable or unwilling to take advantage of federal money available under the NCSRP;[119]
- The approach is still unlikely to be very attractive to government. The federal government, in particular, has many of its own contaminated sites to address (mining and non-mining), though one respondent was of the view that the government bears some responsibility for the war-time emergency creation of some metals mines in Canada;[120]

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Natural Resources Canada, News Release 96/02, "Canada-Ontario Cost-Sharing Agreement for Abandoned Uranium Mine Waste Announced" (24 January 1996), online: Natural Resources Canada < http://www.nrcan.gc.ca/media/newsreleases/1996/199602_e.htm> (last updated: 8 November 2002).

[117] See Part VI.A.2.b, above.

[118] Though little information appears available about the performance of the NCSRP generally, or in relation to orphaned/abandoned mines in particular.

[119] See CCME-KPMG, *supra* note 23 at 9.

[120] The federal government also has substantial legislative authority and responsibility for uranium mine waste pursuant to the declaratory power of the Constitution, which appears to explain the Canada-Ontario agreement on that matter.

- A federal-provincial approach still would suffer from poor public perception (as well as harm industry's image in the sense that such an approach might be perceived as giving industry a "free ride");
- Such an approach, though more robust than that arising from a single level of government, would still be vulnerable to changing federal-provincial priorities over time.

Finally, it is unclear whether even this approach by itself has the ability to raise adequate funding commensurate with the scale of the orphaned/abandoned mine problem in Canada, or to do so in a timely manner.

## C. Levies on Industrial Production

### 1. Overview

The third funding approach for cleanup of orphaned/abandoned mines considered in this report is that of levies on industrial production. Programs considered under this category usually include establishment in law of a government entitlement to impose a fee or tax on an industry sector(s), which fee or tax would be deposited into a dedicated fund earmarked solely for the purpose of orphaned/abandoned mine cleanup. In this regard, six existing programs are considered under the laws of the United States, Ontario, Manitoba, and Alberta. One proposed legislative program currently before the Congress of the United States also is considered because of its particular focus on abandoned hardrock mines. Apart from the proposed legislation just referred to there is considerable experience with programs under this category ranging from one to two decades. In general, programs under this category address different stages of the problem on a continuum ranging from inventory, to assessment, to rehabilitation.

### 2. Existing

#### *a. United States: Surface Mining Control and Reclamation Act of 1977*

#### i. Abandoned Mine Reclamation Fund

The purposes of the United States *Surface Mining Control and Reclamation Act* of 1977 ("*SMCRA*"),[121] which is administered by the Department of the Interior, include to:

[121] 30 U.S.C.A. §§ 1201-1328 (West 2003).

> "promote the reclamation of mined areas left without adequate reclamation prior to August 3, 1977, and which continue, in their unreclaimed condition, to substantially degrade the quality of the environment, prevent or damage the beneficial use of land or water resources, or endanger the health or safety of the public."[122]

To assist in achieving this purpose the Congress of the United States established an Abandoned Mine Reclamation Fund ("AMRF" or "Fund") under subchapter IV of *SMCRA*.[123] The Fund is contributed to by all active coal mining operators on an annual basis. The rationale for such an approach appears in the *SMCRA* legislative history:

> "The burden of paying for reclamation is rightfully assessed against the coal industry. The bill adopts the principle that the coal industry, and by extension the consumers of coal, must bear the responsibility for supporting special rehabilitation programs to recover and reclaim areas which have been severely impacted in the past by coal mining operations."[124]

The purposes of the Fund include:

- Reclamation and restoration of land and water resources adversely affected by past coal mining activities;
- Clean-up of abandoned surface mine, coal processing, and disposal areas;
- Sealing and filling abandoned deep mine entries and voids;
- Planting of land adversely affected by past coal mining to prevent erosion and sedimentation, including measures for the conservation of soil, water, woodland, fish, and wildlife;
- Prevention, abatement, treatment and control of water pollution created by coal mine drainage including restoration of stream beds, and construction and operation of water treatment plants;
- Prevention, abatement, and control of coal mine subsidence;
- Protection of public health, safety, general welfare, and property from extreme danger or adverse effects of abandoned coal mines;
- Protection, repair, replacement, or enhancement of public facilities, such as roads, recreation, conservation, open space areas, etc.[125]

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[122] *Ibid*., § 1202(h) (West 2003).
[123] *Ibid*., § 1231(a) (West 2003).
[124] *Surface Mining Control and Reclamation Act*, H. Rep. No. 95-218, 95th Cong., 2d. Sess. (1977) at 136, reprinted in 1978 United States Code Congressional and Administrative News at 668 [hereinafter *SMCRA Legislative History*].
[125] *SMCRA*, §§ 1231(c), 1233(a) (West 2003).

Most of the lands and water eligible for reclamation under *SMCRA* are those that were mined or adversely affected by mining and abandoned or left inadequately reclaimed prior to August 1977 and for which there is no continuing reclamation responsibility under state or other federal laws.[126] Amendments to *SMCRA* that came into effect in 1990 extend eligibility on a limited basis to sites mined after August 1977.[127]

The sources of monies for the Fund include reclamation fees, user charges, monies recovered from enforcement actions, donations, and interest credited to the Fund.[128] The annual reclamation fees that must be paid into the Fund by all existing coal mining operations are as follows:

- 35 cents per ton of coal produced by surface mining;
- 15 cents per ton of coal produced by underground mining;
- 10 cents per ton of lignite coal produced.[129]

The principal factors that influenced the subchapter IV reclamation fee levels in *SMCRA* included:

- ensuring that the fee level is not an undue burden on the mining industry;
- ensuring that sufficient funds are generated by the fee system for meeting statutory objectives within a reasonable timeframe; and
- structuring the fee levels so that they do not exert an inflationary influence on the economy.[130]

The fees are deposited in the Fund and used to pay the reclamation costs of abandoned mines. Collection of fees for the Fund began January 30, 1978 and currently is authorized to continue until September 30, 2004.[131]

The bulk of the monies acquired through the Fund are distributed by the Department of the Interior to state and tribal governments for use in compliance with the requirements of *SMCRA* under a formula established under the Act.[132]

The primary focus of *SMCRA* is on abandoned coal mines and lands adversely impacted by past coal mining activity. However, the Act also authorizes expenditure of

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[126] *Ibid*., § 1234 (West 2003).
[127] *Ibid*., § 1232(g)(4)(B)(i)(ii) (West 2003).
[128] *Ibid*., § 1231(b) (West 2003).
[129] *Ibid*., § 1232(a) (West 2003).
[130] *SMCRA Legislative History*, supra note 124 at 137, 669.
[131] *SMCRA*, § 1232(b) (West 2003).
[132] *Ibid*., § 1232(g) (West 2003).

monies from the Fund arising from abandoned non-coal mining activities where a state or tribal government:

- certifies that it has no further eligible abandoned coal mining lands to reclaim, or
- requests, and the Secretary of the Interior determines, that problems at such sites could endanger life and property, constitute a hazard to public health and safety, or degrade the environment.[133]

The Department of the Interior - Office of Surface Mining, Reclamation and Enforcement ("DOI-OSMRE") has developed both extensive rules[134] and guidelines[135] regarding administration of the abandoned mine land program. The rules and guidelines address such matters as:

- Fee collection and coal production reporting;[136]
- Fund administration;[137]
- General reclamation requirements;[138]
- Noncoal reclamation;[139]
- Program considerations;[140] and
- Site considerations.[141]

From January 30, 1978, when the first reclamation fees were collected for the abandoned mine reclamation fund, through December 31, 2002, the AMRF program under *SMCRA* has collected almost $6.6 billion (U.S.).[142]

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[133] *Ibid*., §§ 1239(a)(b)(c)(filling voids and sealing tunnels - hazardous conditions), 1240a (certification) (West 2003).
[134] *Abandoned Mine Land Reclamation*, 30 C.F.R. §§ 870-887 (2003).
[135] Department of the Interior, Office of Surface Mining, Reclamation and Enforcement, *Revised Guidelines for Abandoned Mine Land Reclamation Programs and Projects* (Washington, D.C.: DOI-OSMRE, 1996) [hereinafter *Revised Guidelines*].
[136] Addressing such matters as fee computation, payment obligations, production records, and compliance authority.
[137] Addressing such matters as information collection, and coordination between federal and state reclamation funds.
[138] Addressing such matters as eligible coal lands and waters, and reclamation objectives and priorities.
[139] Addressing such matters as state certification of completion of coal site reclamation, reclamation priorities for noncoal program, and exclusions from the program.
[140] Addressing such matters as land, water, or mineral rights required for reclamation, jurisdictional responsibilities, non-emergency site selection criteria, emergency projects, etc.
[141] Addressing such matters as mine drainage, slide-prone areas, erosion and sedimentation, vegetation, toxic materials, hydrologic balance, public health and safety, fish and wildlife values, and air quality.
[142] Department of the Interior, Office of Surface Mining, Reclamation and Enforcement, *Abandoned Mine Land Fund: Status* (Washington, D.C.: DOI-OSMRE, 2003), online: Department of the Interior <http://www.osmre.gov/fundstat.htm> (last updated: 29 January 2003).

According to DOI-OSMRE, through September 30, 2002, the states, Indian Tribes, and the federal government through the AMRF program had reclaimed:

- $1.477 billion (U.S.) worth of public health and safety related problems created by past coal mining;
- $195 million (U.S.) worth of environmental related problems created by past coal mining; and
- $238 (U.S.) million worth of problems created by past noncoal mining.[143]

However, DOI-OSMRE also notes that it has identified $8.2 billion (U.S.) of high priority (public health and safety) related problems created by past coal mining. Of this estimate $6.6 billion (U.S.), or 80%, have yet to be reclaimed. Moreover, the federal government notes that "new problems are constantly added to the inventory [of abandoned mine lands] as conditions worsen at old mine sites and as development expands into old mining areas. Thus, even though [abandoned mine land] problems are reclaimed each year, the inventory of unreclaimed problems increases each year."[144]

In addition, DOI-OSMRE notes that "ninety percent of the $2.0 billion" worth of environmental problems created by past coal mining are not reclaimed. Furthermore, this represents only a small part of the total problem as no systematic effort has been made to inventory these problems.[145] Other federal laws such as the *Comprehensive Environmental Response, Compensation, and Liability Act* ("*CERCLA*")[146] may address some of the environmental problems associated with abandoned mines. However, mine sites that have been listed for remedial action under *CERCLA* are not eligible to receive expenditures from the AMRF under *SMCRA*.[147] Guidelines established under *SMCRA* clarify further that abandoned mine sites that contain toxic materials may be eligible for clean-up under *CERCLA* and if they are added to the *CERCLA* National Priority List ("NPL"), they become ineligible for assistance from the *SMCRA* - AMRF.[148] The requirements of *CERCLA* are discussed further below.[149]

Finally, under subchapter V of *SMCRA*[150] the activities of active coal mines are regulated to ensure that the environmental impacts from on-going surface coal mining are

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[143] Department of the Interior, Office of Surface Mining, Reclamation and Enforcement, *Abandoned Mine Land Program: Accomplishments* (Washington, D.C.: DOI-OSMRE, 2003), online: Department of the Interior <http://www.osmre.gov/aml/accomp/zintroac.htm> (last updated: 29 January 2003).
[144] Department of the Interior, Office of Surface Mining, Reclamation and Enforcement, *Abandoned Mine Land Program: Unreclaimed Problems* (Washington, D.C.: DOI-OSMRE, 2003), online: Department of the Interior <http://www.osmre.gov/aml/remain/zintroun.htm> (last updated: 29 January 2003).
[145] *Ibid.*
[146] 42 U.S.C.A. §§ 9601-9675 (West 2003).
[147] *SMCRA*, § 1240a(d) (West 2003).
[148] *Revised Guidelines*, supra note 135.
[149] See Part IV.C.2.b, below.
[150] *SMCRA*, §§ 1251-1279 (West 2003).

controlled and will not become a problem in future following mine closure or abandonment. In this regard, the subchapter V regime establishes separate statutory authority for the issuance of permits, the collection of fees, the development of reclamation plans, and the posting of performance bonds to ensure compliance with the requirements of the Act by active coal mine operators. Although outside the scope of this report, the subchapter V program under *SMCRA* (and not the subchapter IV program) is most closely analogous to federal requirements relating to northern Canada, or to requirements under most provincial mining laws respecting existing mining operations.

### ii. Evaluation of Advantages and Disadvantages

Although much has been accomplished under *SMCRA* regarding reclamation of abandoned mines, it is apparent that much remains to be done. Clearly, however, the United States has a statutory and regulatory regime in place that has been successful in involving the coal mining industry in contributing financially to resolution of the problem.[151]

It also is apparent that it is not really possible to compare federal requirements in Canada or at the provincial level with the United States on abandoned mine site reclamation, because there are no legislative requirements for establishment of abandoned mine funds in Canada. The true comparison between the regimes in both countries as they exist today would be between subchapter V of *SMCRA* and the permit and security deposit provisions of the various federal laws applicable to mining for northern Canada, or under provincial mining laws. The regimes of both countries address what an existing mining operator must do in relation to its own on-going operation to ensure there are no post-closure problems at that particular site. What is entirely lacking in federal legislative requirements for northern Canada, or under provincial mining laws, is the notion found in subchapter IV of *SMRCA*. That notion is that existing operations must make annual non-refundable contributions to a fund to cover the costs of reclamation of lands long abandoned by other mining operators anywhere in the country.

The advantages of the approach contained in *SMCRA* may be summarized as follows:

- Creation of two regulatory/fiscal regimes addressing existing mining operations and orphaned/abandoned mining sites in one statute:

  - one regime to address regulatory control and fiscal assurance of existing operations on a permit by permit basis (subchapter V); and

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[151] Department of the Interior, Office of Surface Mining, Reclamation and Enforcement, *2001 Annual Report: Abandoned Mine Land Reclamation* (Washington, D.C.: DOI-OSMRE, 2002) at 4, 6 (noting that *SMCRA* requires active coal mining companies to report coal tonnage and pay abandoned mine reclamation fees and that in 2001 the compliance rate with respect to payment of the required fees was 99.9 percent, resulting in total collection of $284.0 million [US] for the Fund).

- a second regime to address control and non-refundable financing for reclamation of abandoned sites based on annual levels of mineral production by existing operators (subchapter IV);

- Consolidation of this twin approach into one overriding statutory regime for mining rather than dispersing it over two or more statutes based on narrow subject matter such as land, water, special geographic area, etc.;[152] and

- Exclusion of the application of the AMRF to abandoned mines when such sites also are covered by Superfund, thus avoiding duplication of financial and administrative coverage.[153]

The disadvantages of the *SMCRA* approach may be summarized as follows:

- Predominant focus of statute on coal mining as opposed to all types of mining activity;

- Predominant focus of statute on mining lands abandoned before August 1977, with only limited application of monies from the fund for lands abandoned after this date;

- Bulk of monies from the fund acquired by the federal government must be distributed to state and tribal agencies thus raising the potential for jurisdictional fights to arise regarding the distribution of funds for reclamation of sites.[154]

In terms of how an AMRF approach otherwise accords with the principles/criteria discussed in Part IV above for evaluating funding approaches for orphaned/abandoned mine cleanup, the following may be said:

- As a program based exclusively on levies on coal mining production, an AMRF approach is consistent with polluter pays (under a general but not strict interpretation of the principle) because it links an industry sector with a higher likelihood of being responsible for, or connected with, past coal mining activities;

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[152] There are at least five federal statutes applicable to mining in northern Canada: (1) *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, S.C. 2002, c.10; (2) *Territorial Lands Act*, R.S.C. 1985, c. T-7; (3) *Yukon Waters Act*, S.C. 1992, c.40; (4) *Northwest Territories Waters Act*, S.C. 1992, c. 39; and (5) *MacKenzie Valley Resource Management Act*, S.C. 1998, c.25. The primary unifying factor under these five federal laws is that, until April 1, 2003, they all were administered by the same federal department - Indian and Northern Affairs Canada. Since April 1st the Yukon government is now responsible for a "mirrored" version of legislation previously administered by INAC in the Yu kon.

[153] The absence of Superfund-type legislation in Canada makes this less of an issue here. Accordingly, were the federal government in northern Canada and/or the provincial governments to adopt a Fund comparable to the AMRF it should not exclude funding of abandoned mines containing toxic materials as *SMCRA* does (where a site also is a Superfund site).

[154] J.D. Collins, "The Abandoned Mine Reclamation Fund - A View from the West" (1985) 20 Land & Water L. Rev. 67.

- An AMRF approach is consistent with the beneficiary pays principle, unless the principle is interpreted as only the public reaping the benefits of general mining industry activity;
- An AMRF approach is consistent with certain fairness principles (e.g. certainty of process, effectiveness, efficiency, clarity, consistency, and timeliness in achieving environmental objectives) but not consistent with other fairness principles to the extent that AMRF monies can be, and have been, used to pay for rehabilitation of orphaned/abandoned non-coal mines;
- An AMRF approach is consistent with the overall concept of sustainable development and the achievement of its goals;
- As applied to date, an AMRF program approach would meet principles of openness and accessibility of information;
- An AMRF approach is consistent with the principle of being able to raise funding commensurate with the scale of the orphaned/abandoned coal mine problem in the United States. However, it is unclear whether an AMRF approach (focused only on coal mines) would be appropriate (or capable of sufficient revenue-generating capacity) at the provincial level in Canada, or federally north of the 60th parallel, unless it also included other types of mining activity within its ambit;
- An AMRF approach would be comparatively easy to administer in terms of revenue generation, collection, and application of funding raised to the orphaned/abandoned mine problem;
- From the perspective of economic impacts, an AMRF approach could impose significant financial demands on the mining industry depending on the fee level imposed. Accordingly, adoption of such an approach would have to consider the economic health of that industry for the jurisdiction (federal and/or provincial) within which the approach would be employed;
- An AMRF approach could address both existing and future orphaned/abandoned mines and is particularly well-suited to address the latter because it focuses on current operations within the mining industry. However, some respondents were of the view that the focus of a Fund only should be on existing orphaned/abandoned mines;
- For the same reasons, while an AMRF approach could have some effect on discouraging future site abandonment, some respondents were of the view that the reverse could occur;
- An exclusively AMRF approach likely would be well-received by the public, but strongly opposed by the mining industry;
- An AMRF approach, if it generated sufficient funds (as it has in the United States), would provide a ready pool of monies for addressing emergency situations.

Overall, and as noted by one respondent, a levy on mining production could ensure a sustainable source of funds for cleanup of orphaned/abandoned mines. However, other respondents cautioned that if the industry were to contribute to a fund it would have

to be done in such a way that it did not impair the competitiveness of Canadian producers. Still other respondents were of the view that a levy on industrial production, while important, would be insufficient by itself to cover the costs of orphaned/abandoned mine cleanup given the magnitude of the problem.

### *b. United States: Comprehensive Environmental Response, Compensation, and Liability Act*

#### i. Hazardous Substance Superfund

The *Comprehensive Environmental Response, Compensation, and Liability Act* ("*CERCLA*"), which is administered by the Environmental Protection Agency ("EPA"), was enacted in 1980, and substantially amended and re-authorized in 1986.[155] *CERCLA* is the principal federal law designed to clean up hazardous waste sites in the United States.[156] The law established a tax on the chemical and petroleum industries and authorized the federal government to respond to releases or potential releases of hazardous substances that might harm human health and the environment. The tax went to a fund, now called the Hazardous Substance Superfund ("Superfund" or "Fund"),[157] for cleaning up abandoned or uncontrolled hazardous waste sites where a financially viable party cannot be found.[158] Although *CERCLA* is best known for its liability provisions,[159] the subject of this review focuses on the provisions of the law dealing with the Fund.

From its re-authorization in 1986 through December 31, 1995, the revenues generated from three excise taxes on petroleum and chemicals and a special income tax on corporations largely financed Superfund. The three excise taxes were:

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[155] 42 U.S.C.A. §§ 9601-9675 (West 2003).

[156] *Ibid*., § 9605 (West 2003). The heart of the *CERCLA* cleanup program is the National Contingency Plan ("NCP"). *National Oil and Hazardous Substances Pollution Contingency Plan*, 40 C.F.R. Part 300 (West 2003). The NCP specifies the roles of federal and state governments in responding to releases of oil and hazardous substances, and establishes procedures for making cleanup decisions. Attached to the NCP is the National Priorities List ("NPL"), which lists the top-priority sites, determined by the Environmental Protection Agency ("EPA") with input from state governments, for response actions under *CERCLA*. Approximately 1500 sites have been placed on the NPL since the inception of Superfund. See K.Q. Seelye, "Bush Proposing to Shift Burden of Toxic Cleanups to Taxpayers" *The New York Times* (24 February 2002) at 1, 22. A comparatively small number of abandoned mines have been placed on the NPL. Political Economy Research Center, *Cleaning Up Mining Waste* by S. Buck and D. Gerard (Washington, D.C. PERC, 2001) at 3, 7 (approximately 50). The abandoned mine sites on the NPL would not be eligible for cleanup under *SMCRA*. See *supra* notes 133-134 and accompanying text.

[157] *Internal Revenue Code*, 26 U.S.C.A. § 9507(a) (West 2003) (establishing authority for Superfund).

[158] 42 U.S.C.A. § 9604(4) (West 2003) (President may respond to any release or threat of release of a hazardous substance if it constitutes a public health threat or environmental emergency and no other person with the authority and capability to respond to the emergency will do so in a timely manner).

[159] *Ibid*., §§ 9604 (authorizing President to respond to actual or potential releases of hazardous substances by undertaking removals or remedial actions consistent with the NCP), 9606 (authorizing issuance of administrative orders requiring the abatement of actual or potential releases that may create imminent and substantial endangerment to health, welfare, or the environment), 9607 (listing categories of persons responsible for response costs).

- A per barrel tax on refinery crude oil and imported petroleum products;[160]
- A per ton tax imposed on designated chemicals (a chemical feedstocks tax);[161] and
- A per ton tax on imported substances that contain or were derived from any of the designated feedstock chemicals.[162]

The special income tax on corporations was an additional income tax on relatively large corporations based on their alternative minimum taxable income.[163]

In designing a tax to raise revenues for funding the Superfund program the tax structure set forth in the 1986 amendments was designed to meet the following objectives:

- Provide a stable and predictable source of revenue;
- Broaden the base from which revenue is received;
- Minimize adverse economic impacts on industries;
- Impose the tax on the type of industries and practices that caused the hazardous substance release problems Superfund was designed to address; and
- Encourage a reduction in the quantities of hazardous waste generated and to discourage the management of hazardous wastes in surface impoundments and landfills.[164]

Together the four taxes and an allocation of $250 million per year from general revenues authorized by the Congress of the United States generated approximately $1.5 billion per year for Superfund.[165] Thus, Superfund is an example of a mixed fund with approximately 83% coming from excise and corporate income taxes and 17% coming

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[160] *Internal Revenue Code*, 26 U.S.C.A. §§ 4611-4612 (West 2003) (imposing excise tax of 9.7 cents per barrel - 0.23 cents per gallon - on the amount of crude oil received at domestic oil refineries. The same tax rate was imposed on the amount of refined petroleum products imported into the United States for consumption, storage, or use. This tax also was imposed on domestic crude oil used or exported before it is received at a refinery). This tax was the single largest revenue source for Superfund resulting, for example, in $570 million (US) in fiscal year 1992. Congressional Research Service, *Taxes to Finance Superfund* by S. Lazzari (Washington, D.C.: CRS, 1996) at 3.

[161] *Internal Revenue Code*, 26 U.S.C.A. §§ 4661-4662 (West 2003) (imposing excise tax on 42 listed chemicals sold by the manufacturer, producer, or importer. Tax rates ranged from $0.22 per ton for potassium hydroxide to $4.87 per ton for benzene and nine other chemicals).

[162] *Ibid*., §§ 4671-4672 (West 2003) (imposing excise tax on imported substances derived from the 42 chemicals subject to the feedstocks tax at the same rates as those set out in §§ 4661-4662).

[163] *Ibid*., § 59A (West 2003) (imposing environmental corporate alternative minimum tax "AMT" that went to Superfund rather than to the general fund at the rate of $12 per $10,000 of the AMT income above $2 million).

[164] *Superfund Amendments and Reauthorization Act ("SARA") of 1986*, H. Rep. No. 99-499, 99th Cong., 2d. Sess. (1986) at 125, reprinted in 1986 United States Code Congressional and Administrative News at 2907 [hereinafter *SARA Legislative History*].

[165] Congressional Research Service, *Superfund Reauthorization Issues in the 106th Congress* by M. Reisch (Washington, D.C.: CRS, 2000) at 2.

from the Treasury of the United States. The four taxes expired at the end of 1995 and have not been reinstated. Disputes about reform of the liability and tax provisions of *CERCLA* have resulted in a stalemate in Congress regarding reauthorization of the taxes. Accordingly, in subsequent years the percentage makeup of private and public sources of monies in Superfund changed (e.g. in fiscal year 2000 the percentage makeup was 50:50 private/public).[166] Unless re-authorized this year, by 2004 all of the funding for Superfund will come from the Treasury.[167]

From 1980 to December 31, 2002, the Superfund program has been responsible for the assessment of approximately 44,418 sites in the United States. Of this total, 33,106 sites (75%) have been removed from the Superfund inventory and 11,312 sites remain active in the site assessment program, or are on the NPL.[168]

### ii. Evaluation of Advantages and Disadvantages

In terms of providing both a sustainable source of funds and facilitating identification, assessment and cleanup of a large number of sites the Superfund approach has a considerable track record. The program also has generated a significant amount of controversy, in part because of the *CERCLA* liability provisions, which are outside the scope of this review, but also because of the tax regime under Superfund itself, which is within the scope of this review. Accordingly, any evaluation of the advantages and disadvantages of Superfund should distinguish between its tax program and the liability provisions of *CERCLA*.

The analysis set out above[169] also largely applies to how a Superfund program approach would accord with the principles/criteria discussed in Part IV for evaluating funding approaches for orphaned/abandoned mine cleanup. However, the following differences should be noted:

- The Superfund program is in transition from one based largely on levies/taxes on petrochemical industry production to one based largely on general government revenues. Accordingly, a Superfund approach, which once was largely consistent with polluter pays (under a general interpretation of the principle) increasingly is less so;
- Superfund has always been a mixed fund in the sense that it was based on an industry tax as well as on general government revenues (though the percentage contribution from each source has been in rapid transition to the latter source-type since 1995). Accordingly, a

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[166] *Ibid*. at 6.
[167] K.Q. Seelye, "Bush Proposing to Shift Burden of Toxic Cleanups to Taxpayers" *The New York Times* (24 February 2002) at 1, 22.
[168] Environmental Protection Agency, *Superfund Accomplishment Figures: Summary Fiscal Year 2003* (Washington, D.C.: EPA, 2003) at 1, online: Environmental Protection Agency <http://epa.gov/superfund/action/process/numbers.htm> (last updated: 13 March 2003).
[169] See Part VI.C.2.a.ii, above.

Superfund approach is consistent with the beneficiary pays principle, whether the principle is interpreted broadly or narrowly;

- A Superfund approach is consistent with most components of the fairness principle but not consistent with other aspects of the principle to the extent that Superfund monies can be, and have been, used to pay for rehabilitation of sites from industries that do not contribute to the Fund.

### *c. Ontario: Aggregate Resources Act*

#### i. Aggregate Resources Trust - Management of Abandoned Aggregate Properties Program

The purposes of the *Aggregate Resources Act* ("*ARA*"),[170] administered by the Ontario Ministry of Natural Resources, include requiring rehabilitation of land from which aggregate has been excavated.[171] To assist in achieving this purpose, the *ARA* authorizes the Minister to establish an Aggregate Resources Trust ("Trust").[172] The Trust must provide for the following matters on such terms and conditions as may be specified by the Minister:

- Rehabilitation of abandoned pits and quarries, including surveys and studies respecting their location and condition; and
- Research on aggregate resource management, including rehabilitation.[173]

The Act defines "abandoned pits and quarries" to mean pits and quarries for which a licence or permit was never in force at any time after December 31, 1989. The Act also defines "rehabilitation" to mean the treatment of land from which aggregate has been excavated so that the use or condition of the land is:

- restored to its former use or condition; or
- changed to another use or condition that is or will be compatible with the use of adjacent land.[174]

Regulations under the *ARA* impose an annual six-cent per tonne licensing fee for each tonne of aggregate removed from a site during the previous year.[175] One-twelfth (or

[170] R.S.O. 1990, c. A.8, as am.
[171] *Ibid*., s. 2(c).
[172] *Ibid*., s. 6.1(1).
[173] *Ibid*., s. 6.1(2)1-2.
[174] *Ibid*., s. 1(1).
[175] General Regulation, O. Reg. 244/97, s. 2, as am.

0.5 cents) of the six cents per tonne fee must be provided to the Trust for purposes of abandoned pits and quarries rehabilitation and research as set out above.[176]

Within the Trust there is a separate Management of Abandoned Aggregate Properties Program ("MAAP"). Before 1997, MAAP was called the Abandoned Pits and Quarries Rehabilitation Fund ("Fund") and administered by the Ministry of Natural Resources. Since 1997, the Aggregate Producers Association of Ontario ("APAO") has administered the program for the provincial government.[177]

### ii. Evaluation of Advantages and Disadvantages

The analysis set out above[178] also largely applies to how a MAAP program approach would accord with the principles/criteria discussed in Part IV for evaluating funding approaches for orphaned/abandoned mine cleanup. However, the following differences should be noted.

A MAAP program approach comports better with principles of fairness than either an AMRF or Superfund program approach because funds go to rehabilitate only sites abandoned by the industry contributing to the fund.

Although financed somewhat differently from other funds discussed in this Part of the report, the basic approach of the funding regime under the *ARA* is the same; a levy on current operations to pay for sites historically abandoned by others. In this case, a portion of a single fee is specifically earmarked for this purpose, rather than multiple fees being imposed for a variety of purposes. Accordingly, the approach contained in the *ARA* may be viewed as an advantage administratively and also in terms of its apparent acceptance by the aggregate industry. Moreover, using certain benchmarks the program may be viewed as a success in substantive terms as well. From 1990 to 2001, over $2.5 million was spent on rehabilitation and over 200 hectares of abandoned aggregate lands improved.[179]

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[176] *Ibid*., s. 3.3. The other 5.5 cents per tonne of the fees paid go to municipal, regional, or county governments in which the site is located and the provincial Crown. *Ibid*., s. 3.1-2,4.

[177] Ontario Ministry of Natural Resources, *Non-Renewable Resources: Fact Sheet* (Toronto: OMNR, 1996) at 2, online: Ontario Ministry of Natural Resources <http://www.mnr.gov.on.ca/csb/news/nonrefs.html> (last modified: 17 June 1996). See also Ontario Ministry of Natural Resources, *The Aggregate and Petroleum Resources Law Amendment Act* (Toronto: OMNR, 1997) at 2-4, online: Ontario Ministry of Natural Resources <http://www.mnr.gov.on.ca/csb/news/jun27fs97.html> (last modified: 30 June 1997). See also Ontario Aggregate Resources Corporation, *MAAP Program* (Mississauga: OARC, 2002), online: Ontario Aggregate Resources Corporation <http://www.toarc.com/corporate_maap.asp> (date accessed: 9 April 2003) (noting that from 1990-1997 the program was known as the Abandoned Pits and Quarries Rehabilitation Fund and administered by the ministry of natural resources. In 1997, the program was transferred to the Aggregate Trust, renamed MAAP, and is now administered by the APAO).

[178] See Part VI.C.2.a.ii, above.

[179] Aggregate Producers Association of Ontario, *Management of Abandoned Aggregate Properties Program: 2001 Annual Report* (Mississauga: APAO, 2001) at 2 [*APAO 2001 Annual Report*].

A disadvantage of the approach, however, relates to its capacity to generate revenue commensurate with the magnitude of the abandoned pits and quarries problem in Ontario. Based on anticipated aggregate production for 2003 of approximately 175-180 million tonnes,[180] MAAP will receive approximately $900,000 this year.[181] In practice, for the five-year period (1997-2001) since the APAO took over responsibility for the MAAP program, expenditures for abandoned pit and quarry rehabilitation have averaged approximately $365,000 per year.[182] This suggests the fluctuating nature of aggregate production per year and the corresponding fluctuation in monies in the program available for rehabilitation.

The reported average cost to rehabilitate land disturbed by aggregate production activity in Ontario is $12,500 per hectare, with each rehabilitated site averaging approximately 1.5 hectares in size.[183] There are over 6,700 abandoned pits and quarries in Ontario.[184] That is the equivalent of approximately 10,050 hectares of land requiring rehabilitation in the province.[185] At an average cost of $12,500 per hectare for rehabilitation, it would require approximately $125 million to rehabilitate 10,050 hectares.

Moreover, at an average cost of $12,500 per hectare for rehabilitation, approximately 29 hectares of land can be rehabilitated per year (using the average number of hectares rehabilitated per year during the period 1997-2001).[186] Accordingly, using a rate of rehabilitation of 29 hectares per year it will take approximately 345 years to rehabilitate all existing abandoned pits and quarries in Ontario.[187] This estimate assumes, of course, that all 6,700 abandoned pits and quarries in Ontario require rehabilitation. It is understood that this question currently is being considered within the MAAP program and that over the course of the next while, these sites will be evaluated to determine whether all of them require rehabilitation. In the context of abandoned mines, however, a funding approach that purported to achieve cleanup at a pace measured over many decades, if not centuries, would not appear to be an option of first choice for adoption.

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[180] Patricia Arsenault, *Aggregate Producers Association of Ontario: Annual General Meeting* (Mississauga: APAO, 2003) (aggregate industry output for 2003 expected to be in the range of 175-180 million tonnes).
[181] The figure of $900,000 is obtained by multiplying 180 million tonnes by 0.5 cents per tonne.
[182] *APAO 2001 Annual Report*, *supra* note 179 at 21.
[183] *Ibid.*
[184] Aggregate Producers Association of Ontario, *Management of Abandoned Aggregate Properties Program* (Mississauga: APAO, 2002), online: Aggregate Producers Association of Ontario <http://www.apao.com/Maap/Information/what%27s%20new.htm> (date accessed: 9 April 2003) (noting that the 2002 edition of the abandoned pit and quarry database contains information on over 6700 abandoned pits and quarries in Ontario).
[185] The figure of 10,050 ha is obtained by multiplying 6,700 abandoned pit and quarry sites by an average site size of 1.5 ha.
[186] *APAO 2001 Annual Report*, *supra* note 179 at 21. The figure of 29 ha is obtained by dividing $12,500 into $365,000 (the average annual expenditure under the MAAP program for the period 1997-2001).
[187] The figure of 345 years is obtained by dividing 29 hectares rehabilitated per year into 10,050 hectares.

### *d. Manitoba: Mines and Minerals Act*

## i. Quarry Rehabilitation Reserve Fund

The *Mines and Minerals Act* ("*MMA*"), administered by the Manitoba Ministry of Industry, Trade, and Mines, declares that the object and purpose of the statute is to provide for, promote, encourage, and facilitate exploration, development, and production of minerals and mineral products in Manitoba, consistent with principles of sustainable development.[188]

The Act further defines sustainable development principles to include the following. First, integration of decisions respecting the economy and mining with environmental protection. Second, economic development and environmental preservation for the benefit of present and future generations. Third, the need to prevent or minimize environmental hazards from mineral development by avoiding policies, programs, and decisions that have significant adverse environmental or economic impact. Fourth, the application of conservation policies and practices that enables mineral extraction to proceed in an environmentally and economically wise manner. Fifth, recycling of mining waste by-products to enable re-use, reduction, or recovery of the by-products. Sixth, rehabilitation of lands damaged by mining activity.[189]

The *MMA* requires an operator of an aggregate quarry to pay an annual rehabilitation levy on aggregate quarry minerals produced by the operator in the preceding year.[190] The Minister of Finance is required to deposit the rehabilitation levies into a Quarry Rehabilitation Reserve Account established under the Consolidated Fund and to credit to the account any earnings from investment of amounts deposited.[191] The province is authorized to expend from this account monies required to rehabilitate lands on which a quarry is situated and to enter into agreements for that purpose.[192]

The Act also establishes enabling authority for the promulgation of regulations respecting such matters as levies required for the purposes of the Act[193] and the application of rehabilitation levies.[194] The regulations themselves require that every operator of an aggregate quarry must remit annually to the province a rehabilitation levy equal to the product of the number of tonnes of aggregate quarry mineral produced multiplied by $0.10.[195]

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[188] S.M. 1991-92, c. 9 C.C.S.M., c. M162, s. 2(1).
[189] *Ibid*., s. 2(2).
[190] *Ibid*., s. 200(1).
[191] *Ibid*., s. 200(3).
[192] *Ibid*., s. 200(4).
[193] *Ibid*., s. 230(h).
[194] *Ibid*., s. 230(ff).
[195] *Quarry Minerals Regulation, 1992*, M. Reg. 65/92, Sch. C., as am. (rehabilitation levy).

The following sets out the background to establishment of the quarry rehabilitation program in Manitoba:

> "The aggregate industry, which supplies the sand, gravel, and crushed stone that is used in virtually all construction projects, is primarily located in southern Manitoba. As a result, aggregate pits and quarries are highly visible to the public…
>
> In the highly competitive construction industry, the cost of rehabilitating pits and quarries has historically been ignored to keep the price of aggregate down. As a result, the problem of what to do about depleted pits and quarries has continued to grow."[196]
>
> "Manitoba has more than 4,000 pits and quarries; a legacy of over a century of mining aggregate minerals… .Historically, when all material of commercial value is depleted from a site, pits and quarries have been abandoned without rehabilitation."[197]

In order to address these problems, which were creating image problems for the industry as well as making it increasingly difficult to establish new sites, the quarry rehabilitation program was developed as an aggregate industry initiative to implement sustainable development in relation to pits and quarries within the province. Landowners who have a depleted pit or quarry on their property may apply to have it rehabilitated. The program addresses rehabilitation of all sites, including those which will be depleted in the future as well as those mined out decades ago. The only qualification is that the site must be depleted of economically valuable aggregate. All rehabilitation costs are paid for out of the rehabilitation levy. [198]

In the ten-year period (1993-2002) during which the program has been in place, it has expended approximately $11.4 million for rehabilitation work on over 5,300 hectares of aggregate-disturbed lands in the province, at an average cost of $2,150 per hectare.[199]

### ii. Evaluation of Advantages and Disadvantages

The quarry rehabilitation program is regarded as a success by industry and government in Manitoba because it has:

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[196] Manitoba Government, *State of the Environment Report for Manitoba, 1993* (Winnipeg: 1993) at 3.
[197] Manitoba Government, *State of the Environment Report for Manitoba, 1995* (Winnipeg: 1995) at 5.
[198] Manitoba Ministry of Industry, Trade and Mines, *Land Access and Sustainable Development: Pit and Quarry Rehabilitation Program* (Winnipeg: MITM, 2003) at 1-2, online: Manitoba Ministry of Industry, Trade and Mines <http://www.gov.mb.ca/itm/mrd/mines/sustain/quarry.html> (last updated: 3 January 2003) [here inafter *Manitoba PQRP I*].
[199] Manitoba Ministry of Industry, Trade and Mines, *History of Aggregate Production and Rehabilitation Activity* (Winnipeg: MITM, 2003) at Table 1 [hereinafter *Manitoba PQRP II*].

- Created a level playing field amongst aggregate industry competitors by eliminating the problem of free-riders (i.e. those companies that had not been rehabilitating their lands);[200]
- Provided certainty that worked out properties would be rehabilitated; and
- Created employment opportunities because rehabilitation work is contracted back to private industry in the local community.[201]

The program has been included in this review as a possible approach to consider in connection with the problem of orphaned/abandoned mines. However, certain characteristics of the program distinguish it from, or should be kept in mind with respect to, the situation facing governments, industry, and the public regarding historical orphaned/abandoned mines.

First, while approximately $1.4 million is collected per year from the aggregate industry in rehabilitation levies[202] the program applies to sites for which there is still a responsible owner as well as to "orphan" sites.

Second, the province does not know the number of orphaned/abandoned pits and quarries out of the 4,000-7,000 total sites in Manitoba, or how much it would cost or how long it would take to rehabilitate them.

Third, it appears unlikely that if the program applied solely to historically orphaned/abandoned sites that the aggregate industry in Manitoba would have supported a rehabilitation levy of 10 cents per tonne of aggregate produced while still remaining legally responsible for progressive and final rehabilitation of their existing sites.

While an attractive and unusual departure from the other examples of production levies under this Part of the review, the cumulative effect of the above points makes it difficult to evaluate the adequacy of the program with respect to abandoned pits and quarries. More importantly given the terms of reference for this review, the above points make it difficult to evaluate the applicability/transferability of the program to the problem of orphaned/abandoned mines.

Finally, the analysis set out above[203] also largely applies to how a Manitoba program approach would accord with the principles/criteria discussed in Part IV for evaluating funding approaches for orphaned/abandoned mine cleanup. However, the following other differences should be noted in addition to those referred to above:

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[200] The payment by industry of 10 cents per tonne of aggregate produced is a substitute for being required to file and implement a rehabilitation plan. Because the rehabilitation responsibility devolves to the province the program eliminates the problem of some companies not complying with their rehabilitation obligations and thereby gaining an unfair advantage over their competitors.

[201] *Manitoba PQRP I*, *supra* note 198.

[202] The figure of $1.4 million per annum is based on roughly 14 million tonnes of aggregate production per year multiplied by 10 cents per tonne. See *Manitoba PQRP II*, *supra* note 199 at Table 1.

[203] See Part VI.C.2.a.ii, above.

- A Manitoba program approach comports better with principles of fairness than either an AMRF or Superfund program approach because funds go to rehabilitate only sites abandoned by the industry contributing to the fund.

### *e. Alberta: Oil and Gas Conservation Act*

#### i. Oil and Gas Orphan Fund

The purposes of Alberta's *Oil and Gas Conservation Act* ("*OGCA*"), administered by the Alberta Ministry of Energy, include:

- controlling pollution,
- ensuring conservation in the development of oil and gas resources in the province, and
- securing observance of safe and efficient practices in the suspension and abandonment of oil and gas wells and facilities.[204]

To assist in achieving these purposes, the *OGCA* authorizes the Minister to establish an Oil and Gas Orphan Fund ("OGCF" or "Orphan Fund"),[205] that is now administered by the Alberta Oil and Gas Orphan Abandonment and Reclamation Association, (also known as the Orphan Well Association - "OWA").[206] The purposes of the Orphan Fund include paying for suspension, abandonment, and reclamation costs in respect of orphan wells, facilities, and sites where the work is carried out by certain agencies designated in the Act,[207] which responsibilities now have been delegated to the OWA.

The Act imposes a requirement on oil and gas licensees to pay into the Orphan Fund an annual levy with respect to their wells, facilities, and sites.[208] Failure to pay the levy by the date set out in the Act results in the imposition of a penalty in an amount equal to 20% of the levy.[209]

The Orphan Fund is a joint industry-government initiative that is funded by the oil and gas industry through two main revenue sources: (1) the annual levy; and (2) a first time licensee fee, which is a one-time start-up fee, charged to all new licensees. In the past, the levy was based on the number of inactive wells held by each company.

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[204] R.S.A. 2000, c. O-6, s.4.
[205] *Ibid*., s. 69(1).
[206] *Orphan Fund Delegated Administration Regulation*, A. Reg. 45/2001, as am. The Association, incorporated under the trade name of the Orphan Well Association, is delegated the responsibilities under the Act that were formerly those of the Alberta Energy and Utilities Board. *Ibid*., s. 3.
[207] R.S.A. 2000, c. O-6, s. 70(1).
[208] *Ibid*., s. 74(1).
[209] *Ibid*., s. 74(2).

Currently, the levy must be based on each company's proportion of deemed liabilities to the total oil and gas industry deemed liability. The first time licensee fee is $10,000.[210]

To pay for the abandonment of orphan wells, the Alberta Energy and Utilities Board ("AEUB") first officially collected the Orphan Fund levy from the oil and gas industry in 1993. In 1996, the oil and gas industry and the Alberta government agreed to expand the scope of the Orphan Fund to include pipeline abandonment, facility decommissioning, decontamination, and site reclamation. A Fund Advisory Committee composed of government, AEUB, and industry representatives directs the policies that guide administration and operational activities of the Orphan Fund.[211]

An Orphan Review Committee reviews individual recommendations from the AEUB and the provincial environment ministry on deeming wells, facilities, and sites as orphans. The board and the province must make every reasonable attempt to recover monies from responsible parties before wells, facilities, or sites can be deemed orphans. However, once a well, facility, or site is deemed to be an orphan, the OWA can conduct the abandonment and reclamation work.[212]

### ii. Evaluation of Advantages and Disadvantages

In the nine-year period during which the Alberta Oil and Gas Orphan Fund has been in place, the program has collected over $26 million and expended over $19 million for abandonment and reclamation activities at over 400 orphan wells, facilities, and sites in the province.[213] The program has been regarded as something of a model for other jurisdictions in Canada to consider that are concerned about contaminated sites.[214]

The Orphan Fund has been included in this review as a possible approach to consider in connection with the problem of orphaned/abandoned mines. However, certain characteristics of the program should be considered that may distinguish it from the situation facing governments, industry, and the public with respect to historical orphaned/abandoned mines.

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[210] *Oil and Gas Conservation Regulations*, A. Reg. 151/71, s. 16.530(1), as am. See also Alberta Energy and Utilities Board, *2001/2002 Orphan Fund Annual Report* (Edmonton: AEUB, 2002) at 2, 4 [hereinafter *AEUB Orphan Fund Annual Report*].

[211] *AEUB Orphan Fund Annual Report*, *ibid*. at 2.

[212] *Ibid.* at 3.

[213] *Ibid.* at 1, 9-10.

[214] AGBC, *supra* note 7 at 61-62 (examined in B.C. provincial auditor's 2002 report on management of contaminated sites on provincial lands). Saskatchewan also has modeled its oil and gas orphan program on the one in Alberta. *See* Saskatchewan Energy and Mines, News Release, "Decommissioning of Oil and Gas Wells" (5 April 2001) (noting that the oil and gas industry encouraged the provincial government to make changes to provincial law to ensure that oil and gas wells and facilities that are no longer needed are properly abandoned and the land reclaimed. The Saskatchewan program defines an orphan well or facility as one where the owner is defunct or missing. If a well or facility does become abandoned a fund, supported solely by industry, will pay the abandonment and reclamation costs).

First, at one level the Orphan Fund may be a substitute for companies undertaking reclamation activity at their own sites that are to be abandoned in future, not the sites of others that have been long abandoned in the past. In essence, the levy is paid now in lieu of a company developing and paying for a well, facility, or site rehabilitation and closure plan for its own property in future. In this regard, the Alberta Oil and Gas Orphan Fund may be more directly comparable to the Manitoba quarries rehabilitation levy, discussed above, that authorizes the government to undertake reclamation activities that normally would be undertaken by companies at their own operating sites. Under such a regime, the reclamation of long abandoned sites is more incidental to the true focus of the program, which is delegating to government (or a delegated administrative organization) rehabilitation of existing industry sites that will become abandoned in future. Prevention of improper future site abandonment is by no means an inappropriate policy choice for a legal regime to choose. Indeed, it is to be encouraged to ensure that the existing backlog of abandoned sites does not grow larger. However, it does raise the question of whether and, if so, to what extent such a program will make a priority of cleanup of sites that have long been orphaned and abandoned.

Second, and related to the first point, is the question of to what extent companies would agree to pay significant levies or reclamation fees if they were solely or predominantly directed to the reclamation of long abandoned sites of others. Given the apparently large backlog of past abandoned sites it is by no means clear that current members of the (oil, gas, or mining) industry would be prepared to make that kind of commitment to solely historical sites even if it would improve significantly the public image of the industry. This particularly would appear to be the case if companies still remained legally and financially responsible for proper site closure of their existing operations.

Accordingly, while the Alberta Oil and Gas Orphan Fund may be a model worth considering and applying for the purpose of proper future site abandonment, it may not be the most appropriate choice to consider if the primary goal is cleanup of a large backlog of historical sites.

Finally, the analysis set out above[215] also largely applies to how an Orphan Fund program approach would accord with the principles/criteria discussed in Part IV for evaluating funding approaches for orphaned/abandoned mine deanup. However, the following other differences should be noted in addition to those referred to above:

- An Orphan Fund program approach comports better with principles of fairness than either an AMRF or Superfund program approach because funds go to rehabilitate only sites abandoned by the industry contributing to the fund.

### *f. United States: Oil Pollution Act of 1990*

[215] See Part VI.C.2.a.ii, above.

### i. Oil Spill Liability Trust Fund

The *Oil Pollution Act of 1990* ("*OPA*"),[216] administered by EPA, was enacted by the Congress of the United States largely in response to public concern following events in 1989 in which the oil tanker *Exxon Valdez* struck a reef off the Alaskan coast and spilled 11 million gallons of oil.[217] To combat future problems the *OPA* established a comprehensive prevention, response, liability, and compensation regime for dealing with vessel and facility caused oil pollution to navigable waters of the United States.[218]

The rationale for *OPA* appears in its legislative history:

> "What the Nation needs is a package of complementary…laws that will adequately compensate victims of oil spills, provide quick, efficient cleanup, minimize damage to fisheries, wildlife and other natural resources and internalize those costs within the oil industry and its transportation sector."[219]

To assist in achieving this goal the Congress established an Oil Spill Liability Trust Fund ("OSLTF" or "Fund"),[220] administered by the Coast Guard of the United States - National Pollution Funds Center. When a party responsible for an oil spill is unknown, refuses, or is unable to pay, monies from the Fund can be used to cover removal costs or damages resulting from oil discharges.[221] The primary source of revenue for the Fund was a 5 cents per barrel fee on imported and domestic oil, though authority for collection of this fee expired at the end of 1994. When the tax authority was in force the tax could not be collected in any year where the unobligated balance of the Fund exceeded $1 billion.[222] Other sources of revenue now sustain the Fund.[223] The Fund can provide up to $1 billion for any one oil pollution incident, including up to $500 million

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[216] 33 U.S.C.A. §§ 2701 - 2761 (West 2003).

[217] Environmental Protection Agency, *Oil Program: Oil Pollution Act Overview* (Washington, D.C.: EPA, 2003) at 1, online: Environmental Protection Agency <http://www.epa.gov/oilspill/opaover.htm> (last updated: 28 January 2003). See also Environmental Protection Agency, *Oil Program: Exxon Valdez* Washington, D.C.: EPA, 2003) at 1, online: Environmental Protection Agency <http://www.epa.gov/oilspill/exxon.htm> (last updated: 28 January 2003).

[218] Robert Percival, *Environmental Regulation: Law, Science, and Policy* (Boston: Little, Brown and Company, 1992) at 138-139. In general, the *OPA* makes the owner or operator of a vessel or facility from which oil is discharged ("responsible party") liable for the costs associated with the containment or cleanup of the spill and any damages resulting from the spill. *OPA*, 33 U.S.C.A. § 2702 (West 2003).

[219] *Oil Pollution Act of 1990*, S. Rep. No. 101-94, 101st Cong., 2d. Sess. (1990) at 2, reprinted in 1990 United States Code Congressional and Administrative News at 723 [hereinafter *OPA Legislative History*].

[220] *Internal Revenue Code*, 26 U.S.C.A. § 9509 (West 2003) (establishing authority for OSLTF).

[221] *OPA*, 33 U.S.C.A. § 2712(a) (uses of Fund), § 2714(a)(c) (where President unable to designate source of discharge) (West 2003). See also *OPA Legislative History*, *supra* note 219 at 5, 727 (purposes of Fund include provision of funds for compensation where spiller cannot be identified, located, or is judgment proof).

[222] *Internal Revenue Code*, 26 U.S.C.A. § 4611 (West 2003).

[223] Environmental Protection Agency, *Oil Program: Oil Spill Liability Trust Fund* (Washington, D.C.: EPA, 2003) at 1, online: Environmental Protection Agency <http://www.epa.gov/oilspill/oilfund.htm> (last updated: 28 January 2003) (Fund interest, cost recovery from responsible parties, fines, and civil penalties).

for the initiation of natural resource damage assessments and claims in connection with any single incident.[224]

Finally, the *OPA* allows claimants to seek payment from the Fund without having to resort to the legal system. In particular, claims resulting from "mystery" spills and claims not paid by a responsible party may be submitted to the Fund for payment of uncompensated removal costs and several categories of damages.[225] These categories contribute to the 46% of costs that the Coast Guard has not been able to recover since the Fund's inception.[226]

#### ii. Evaluation of Advantages and Disadvantages

The analyses set out above[227] also largely apply to how an OSLTF program approach would accord with the principles/criteria discussed in Part IV for evaluating funding approaches for orphaned/abandoned mine cleanup. However, the following differences should be noted.

The OSLTF, in its initial form, represents a further example of a levy on industrial production being used to provide monies for environmental restoration. However, the purposes of this Fund also include providing compensation for damage to public and private property. In the context of an abandoned mines fund (or other comparable funding approach), compensation for property damage would constitute an added dimension to that provided by other funding approaches reviewed in this report.

### 3. Proposed

#### *a. United States: Abandoned Hardrock Mines Reclamation Act*

#### i. Abandoned Minerals Mine Reclamation Fund

Over the last few years, a number of Bills have been introduced in the Congress of the United States addressing the issue of abandoned hardrock mine lands. The findings of the recently proposed *Abandoned Hardrock Mines Reclamation Act* (H.R. 504), a Bill

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[224] *Ibid.*

[225] *OPA*, 33 U.S.C.A. §§ 2712-2713 (West 2003) (uncompensated removal costs, natural resource damages submitted by federal, state, Indian tribe, or foreign trustees, real or personal property damage, lost government revenues, lost profit and earning capacity, and increased public service costs).

[226] United States Coast Guard, *National Pollution Funds Center: 1999-2000 Year in Review* (Arlington: USCG, 2000) at 18 (46% of costs have not been collected for reasons such as lack of evidence, responsible party bankrupt, deceased, otherwise unable to pay, or cannot be found).

[227] See Parts VI.C.2.a.ii (AMRF), and VI.C.2.b.ii (Superfund), above.

introduced by a Colorado member of the U.S. House of Representatives in January 2003,[228] illustrate the background to the problem:

> - Through various mining laws and policies going back to the 19th century, the federal government has encouraged the development of gold, silver, and other mineral resources, especially in the western United States, with the development of these resources helping create a strong economy and providing needed materials for many critical products and services;
>
> - However, historically mining activities have occurred in recurrent cycles of "boom" followed by "bust," with many mines left inactive or abandoned at the end of each cycle;
>
> - As a result of this history, the United States has been left with an unwelcome legacy of inactive or abandoned mines, including thousands of such mines in the western part of the country;
>
> - Many of these inactive or abandoned mines pose safety hazards to the public, and the drainage and runoff from such mines has damaged thousands of stream miles to the detriment of water quality, particularly in several western states;
>
> - The environmental cleanup of these inactive or abandoned mines is hampered by lack of funding. In many cases, a responsible party for the mine site cannot be identified or the responsible party lacks the economic resources to respond to the adverse environmental effects of a site. Federal and state agencies and Indian tribes often are unable to afford to make cleanup of these mine sites a high priority.[229]

Accordingly, the purposes of H.R. 504 include facilitating the "cleanup of inactive and abandoned mine sites by establishing a source of funding for that purpose."[230] To assist in achieving this purpose H.R. 504 would establish an Abandoned Hardrock Mine Reclamation Fund ("AHMRF" or "Fund").[231] The Fund is contributed to annually by any person producing hardrock minerals from a mine within an unpatented mining claim or a mine on land that was patented under the general mining laws of the

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[228] H.R. 504, 108th Cong., 1st Sess. (2003). An earlier version of the same Bill was introduced in 2002: H.R. 4078, 107th Cong., 2d Sess. (2002). "Hardrock minerals" are defined in H.R. 504 by reference to minerals not subject to disposition under several U.S. federal laws identified in the Bill. H.R. 504, 108th Cong., 1st Sess. § 101(3) (2003). In practice, the term would appear to include such minerals as gold, copper, silver, lead, and molybdenum. Mineral Policy Center, *Udall Abandoned Hardrock Mines Reclamation Act (H.R. 504): Revenue Estimate* (Washington, D.C.: MPC, 2003) at 1 [hereinafter MPC I].

[229] H.R. 504, 108th Cong., 1st Sess. § 1(b)(1)-(5) (2003).

[230] *Ibid*., § 1(c). The other purpose of H.R. 504 is to limit the potential liability of parties undertaking to carry out abandoned mine cleanups. *Ibid*. See also Castrilli, *supra* note 1 (discussing this other purpose in the context of an earlier version of H.R. 504).

[231] *Ibid*., § 103(a)(1).

United States.[232] There is no explicit rationale offered in H.R. 504 as to why existing hardrock mine operations should contribute to a fund for the cleanup of abandoned mines, other than perhaps the findings identified above. However, H.R. 504 would be administered by the Department of the Interior utilizing the existing program structure under *SMCRA* established for abandoned coal mines.[233] As a result, the rationale contained in the *SMRCA* legislative history may explain H.R. 504 as well.[234]

The objectives of the Fund established under H.R. 504 include:

- Reclamation and restoration of abandoned surface mined areas;
- Reclamation and restoration of abandoned milling and processing areas;
- Sealing, filling, and grading abandoned deep mine entries;
- Planting of land adversely affected by past mining to prevent erosion and sedimentation;
- Prevention, abatement, treatment, and control of water pollution created by abandoned mine drainage; and
- Control of surface subsidence due to abandoned deep mines.[235]

Most of the lands and water eligible for reclamation under H.R. 504 are those that will have been, but no longer are, mined for hardrock minerals as of the date of the Bill's enactment. The Bill would not apply to abandoned mine lands identified for remedial action under *CERCLA*, federal uranium mill tailings legislation, or for which minerals could still be economically extracted through mining, reprocessing, or remining.[236]

The source of monies for the Fund are annual reclamation fees that must be paid into the Fund by all existing hardrock mining operations on a sliding scale of from 2-5% of net proceeds depending on the efficiency of the particular mine. The higher the percentage of gross proceeds to net proceeds at a mine, the higher the reclamation fee, up to a maximum of 5% per annum.[237] The reclamation fee imposed on active mines may be

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[232] *Ibid*., § 102(a)(1). Where a mine has gross proceeds of less than $500,000 annually it is exempt from paying the reclamation fee. *Ibid*., § 102(b).
[233] *Ibid*., § 103(a)(3).
[234] *SMCRA Legislative History*, *supra* note 124 and accompanying text.
[235] H.R. 504, 108th Cong., 1st Sess. § 103(b)(1)(A)-(F) (2003).
[236] *Ibid*., § 103(c)(1)-(4).
[237] *Ibid*., § 102(a)(1)(2). The fee is based on the State of Nevada mineral excise tax. MPC I, *supra* note 228 at 1. See Nevada Revised Statutes, c. 362 (West 2003) (proceeds of minerals tax). According to information from the State of Nevada, the state's Abandoned Mine Lands Program is funded by fees paid by the minerals industry and grants from the U.S. Bureau of Land Management (U.S. Department of the Interior). State of Nevada Commission on Mineral Resources, Division of Minerals, *Abandoned Mine Lands Program: Fact Sheet* (Las Vegas: NVCMR, 2003) at 1.

offset where a royalty is later assessed under other federal laws for hardrock mineral production.[238]

The fees would be deposited in the Fund and used to pay the reclamation costs of abandoned hardrock mines[239] on the basis of the following order of priorities:

- Extreme danger - protection of public health, safety, general welfare, and property from extreme danger of adverse effects of past mining activity;
- Adverse effects - protection of public health, safety, general welfare, and property from adverse effects of past mining activity, including the restoration of land, water, and fish and wildlife resources degraded by the adverse effects of past mining activity.[240]

The bulk of the monies in the Fund would be distributed by the Department of the Interior to state governments for use in compliance with the requirements of H.R. 504 under a formula established under the Bill.[241]

### ii. Evaluation of Advantages and Disadvantages

The analysis set out above[242] also largely applies to how an H.R. 504 program approach would accord with the principles/criteria discussed in Part IV for evaluating funding approaches for orphaned/abandoned mine cleanup. However, the following differences should be noted.

One key advantage of H.R. 504 is that it addresses a major type of abandoned mine that largely was excluded by *SMCRA* - abandoned hardrock mines. It has been estimated that H.R. 504 would generate approximately $45 million (US) per year for the cleanup of abandoned hardrock mines.[243] The overall magnitude of the abandoned hardrock mine problem in the United States, however, has been estimated to require between $32 to $72 billion (US) to cleanup.[244] If the magnitude of the cleanup necessary is that great then the capacity of the Fund under H.R. 504 to generate monies commensurate with the problem may need to be reconsidered.

Moreover, while the premise of H.R. 504 appears to be the same as *SMCRA*, that the mining industry should fund the bulk of abandoned mine cleanups, the industry appears to oppose a fee levied on current hardrock mining activity to address historical

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[238] H.R. 504, 108th Cong., 1st Sess. § 102(f) (2003).
[239] *Ibid*., § 102(d).
[240] *Ibid*., § 103(e)(1)(2).
[241] *Ibid*., § 103(g).
[242] See Part VI.C.2.a.ii, above.
[243] MPC I, *supra* note 228 at 1.
[244] Mineral Policy Center, *Abandoned Hardrock Mines in the United States: The Problem, the Barriers, and One Possible Solution* (Washington, D.C.: MPC, 2003) at 8 [hereinafter MPC II].

problems.[245] By the same token, the environmental community opposes using taxpayer funds to address an industry-caused problem.[246]

Finally, one survey respondent noted that a tax on net proceeds, while feasible under provincial mining tax laws, has certain drawbacks. These include (1) only profitable companies are contributing (which raises a fairness question), and (2) the revenue system under such a regime is subject to the vagaries of the sector, in terms of fluctuating metal prices.

## 4. Summary

Arising from the foregoing analysis, the authors make the following findings and conclusions. First, in general, funding approaches for cleanup of orphaned/abandoned mines based exclusively on a levy on mining industry production, on their face and as applied to date, appear to meet, with some exceptions, most of the principles and criteria identified in Part IV of this report.

Second, the exceptions relate primarily to the principle of fairness to the extent that monies can be, and have been, used to pay for rehabilitation of sites from industries that do not contribute to the fund established under such regimes (as is the case under AMRF and Superfund).

Third, there is not enough information to know whether by itself a levy on mining production could ensure a sustainable source of funds for cleanup of orphaned/abandoned mines. Some respondents were of the view that it could. Other respondents were of the view that a levy on industrial production, while important, would be insufficient by itself to cover the costs of orphaned/abandoned mine cleanup given the magnitude of the problem. Still other respondents cautioned that if the industry were to contribute to a fund it would have to be done in such a way that it did not impair the competitiveness of Canadian producers. The position of the mining industry generally is that the industry alone is not profitable enough to fund cleanup costs for abandoned mines.[247]

Until there is an accurate estimate of the magnitude of cleanup costs by jurisdiction it is not possible to answer whether and, if so, what level of levy on mining production by itself would be sufficient to solve the problem.

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[245] *Ibid*. at 13. The US mining industry has strongly opposed such proposals in the past. See *Mining Law Reform: Hearing on S. 326 - Abandoned Hardrock Mines Reclamation Act of 1997 Before the Subcommittee on Forests and Public Management of the Senate Committee on Energy and Natural Resources*, 105th Cong., 2d Sess. (1998) (statement of Douglas C. Yearly, Chairman, National Mining Association, noting that the mining industry strongly opposed S. 326, considering it a punitive measure. S. 326 would have required any person producing hardrock minerals from a mining claim that was subsequently patented under the mining laws to pay a reclamation fee).

[246] MPC II, *supra* note 244 at 13.

[247] P. Reid, *supra* note 47 at 14.

## D. Government-Industry Partnerships

### 1. Overview

The fourth funding approach for cleanup of orphaned/abandoned mines considered in this report is that of government-industry partnerships. In this regard, three programs are considered from the governments of Canada, British Columbia, and, Ontario. Programs under this category are fairly new or still under development. These programs also are or will be designed to address different stages of the orphaned/abandoned mines problem from inventory, to assessment, to rehabilitation.

### 2. Government of Canada

#### *a. Indian and Northern Affairs Canada Policies on Entering into Transactions With Purchasers of Mines Abandoned by Receivers*

INAC recently developed mine site reclamation policies for the Northwest Territories and Nunavut[248] that set out what will happen when the operators of existing mines become insolvent. The policies state that the department will not assume environmental liability to facilitate a sale of a mine for the benefit of creditors. However, the policies set out a different approach when a mine operator is insolvent and a receiver, interim receiver, or trustee in bankruptcy abandons a mine because the unsecured environmental liabilities exceed the economic value of the mine. In that event, the department will consider entering into a transaction with a purchaser for the mine in the following circumstances:

- The sale would generate the maximum benefit to the Crown in terms of reducing the net liability remaining with the Crown;
- Any significant consideration related to the transaction would be paid into a trust fund for the remediation of the existing environmental liabilities at the site;
- A purchaser would have its liability for the existing environmental condition of the property limited;
- A portion of the economic value of the production from the mine would go to a fund for the remediation of the existing liabilities at the site; and

[248] Indian and Northern Affairs Canada, *A Mine Site Reclamation Policy for the Northwest Territories* (Ottawa: INAC, 2002)[hereinafter *INAC-NWT Mine Site Reclamation Policy*]. See also Indian and Northern Affairs Canada, *A Mine Site Reclamation Policy for Nunavut* (Ottawa: INAC, 2002).

- The purchaser would remain fully liable for the remediation costs of any environmental impact resulting from its operations at the site.

The policy notes further that whether INAC enters into such a transaction would depend on the extent of the benefits or potential benefits to the Crown in reducing the environmental impacts and ultimate cost to Canadian taxpayers of environmental remediation at the mine site.[249]

In 1999, INAC entered into one such arrangement with new owners of the Giant mine in the Northwest Territories. The Crown agreed to limit the liability of the new owners in respect of existing environmental conditions at the mine. In return the company agreed to fund ongoing environmental compliance at the mine by making contributions to a trust set up to ensure reclamation at the mine based on a share of the profits from mining ore at Giant. In late 2001, this arrangement was amended to require INAC to also make a contribution to ongoing environmental compliance costs at the mine.[250]

### *b. Evaluation of Advantages and Disadvantages*

In terms of how a INAC policy approach otherwise accords with the principles/criteria discussed in Part IV above for evaluating funding approaches for orphaned/abandoned mine cleanup, the following may be said. The approach blends indeterminate levels of mining company contributions with public funds to attempt to solve the orphaned/abandoned mine problem on a site by site basis. Accordingly, the policy approach may be both consistent and inconsistent with most of the principles and criteria discussed in Part IV depending on the particulars of the arrangement in any specific case.

The Giant mine example is a case in point. In its 2002 report to Parliament on northern abandoned mines, the CESD considered the INAC policy in the context of the Giant mine arrangement discussed above noting:

> "In December 1999, soon after the Department inherited this mine, it sold it for $10 to a private company. The deal was such that the company could operate the mine and extract gold but was required to pay for keeping the mine in full compliance with environmental requirements. The Department was to retain the responsibility for site cleanup, including the arsenic trioxide dust problem. This agreement kept 50 jobs at the site. After renegotiating the agreement with this company, since January 2002 the Department has been reimbursing the company 69 percent of the cost of environmental care and maintenance, amounting to $300,000 each month."[251]

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[249] See, e.g. *INAC-NWT Mine Site Reclamation Policy*, *supra* note 248 at 13-14.
[250] R. Lauer, Indian and Northern Affairs Canada, "Experiences from the North" (Workshop on Legal and Institutional Barriers to Collaboration Relating to Orphaned/Abandoned Mines, Ottawa, 24 February 2003).
[251] CESD, *supra* note 4 at 14.

Accordingly, while INAC regards its policy of finding private owners as a creative solution to the problem of northern abandoned mines,[252] the CESD regards the policy as only a partial and short-term solution.[253]

## 3. British Columbia Government

### *a. Britannia Mine Rehabilitation Collaboration*

The Britannia Mine was a copper mine that operated in British Columbia from 1902 until 1974 when operations ceased at the site.[254] Acid rock drainage from the mine has been described as one of the worst point sources of metal pollution to the environment in North America.[255]

Since 1995, the federal and British Columbia governments have cooperated in trying to understand the acid rock drainage problem and the necessary work and associated costs for remediation and treatment at the site.

In 2001, the province provided indemnification for environmental liabilities to the successor companies of the mine operators in exchange for $30 million. Using this money, the provincial government has taken on the task of remediation at the mine site.[256] The current estimated total cost for remediation and treatment at the site is $75 million, of which the province is contributing $45 million.[257]

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[252] Lauer, *supra* note 250.
[253] CESD, *supra* note 4 at 14.
[254] British Columbia Ministry of Water, Land and Air Protection, *Britannia Mine Reclamation Project* (Victoria: BCMWLAP, 2002), online: British Columbia Ministry of Water, Land and Air Protection <http://wlapwww.gov.bc.ca/sry/p2/britannia/index.htm> (last updated: 15 November 2002).
[255] AGBC, *supra* note 7 at 59.
[256] British Columbia Ministry of Water, Land and Air Protection, *Britannia Mine Reclamation Project: Reclamation* (Victoria: BCMWLAP, 2002), online: British Columbia Ministry of Water, Land and Air Protection <http://www.britanniamine.info/reclamation.htm> (last updated: 15 November 2002).
[257] AGBC, *supra* note 7 at 15, 59. A similar arrangement has been in place in Ontario since 1999 between the Ontario Government and the Kinross Gold Corporation. In the Kinross example, the company, as part of the negotiations to purchase former mining properties owned by Royal Oak Mines, which were the subject of receivership proceedings, entered into an agreement with the province to address public safety and environmental protection issues. Certain obligations under the agreement were designated entirely as the responsibility of the company (e.g. progressive rehabilitation and tailings stabilization). Other obligations were identified as shared responsibilities between the company and the province (e.g. subsidence). The agreement allocated financial obligations for the shared responsibilities as follows: (1) the first $5 million were to be shared equally; (2) the next $10 million was solely the province's responsibility; and (3) any amounts beyond this were solely the responsibility of Kinross. See Ontario Government and Kinross Gold Corporation, *Agreement Between Kinross Gold Corporation and Her Majesty the Queen in Right of the Province of Ontario (as Represented by the Ministry of Northern Development and Mines)* (16 December 1999).

### *b. Evaluation of Advantages and Disadvantages*

Although there are conflicting views as to whether the Britannia Mine is "abandoned" the arrangement entered into between the province and the successor companies bears some similarities to the INAC policy paradigm discussed above.

In terms of how a Britannia Mine approach otherwise accords with the principles/criteria discussed in Part IV above for evaluating funding approaches for orphaned/abandoned mine cleanup, the following may be said. Unlike the INAC policy approach, the Britannia Mine approach specifies a fixed level of mining company contribution (i.e. $30 million) to solving the problem. Like the INAC policy approach, the Britannia Mine approach blends with that industry contribution, an indeterminate level of public funds ($45 million to date) to attempt to solve the orphaned/abandoned mine problem on that particular site. Accordingly, the approach may be characterized as both consistent and inconsistent with most of the principles and criteria discussed in Part IV. Overtime, and depending on the particulars of the Britannia Mine arrangement, if the commitment of public funds grows while the company contribution remains fixed, the arrangement may become more, rather than less, inconsistent with the principles and criteria discussed in Part IV.

Finally, at least one respondent to the survey was of the view that government-mining industry partnerships of this type can have great or limited application to the orphaned/abandoned mine problem depending on the extent of industry-government contribution and the sustainability of such programs. Another survey respondent questioned whether, in the absence of a general program, many case by case partnerships would be possible to arrange, would this approach have a significant impact on the problem and, if not, would there be a public perception backlash.

## 4. Ontario Government

### *a. Ontario Ministry of Northern Development and Mines - Ontario Mining Association Collaboration*

The Ontario Ministry of Northern Development and Mines ("ONDM") and the Ontario Mining Association ("OMA") recently signed a memorandum of understanding[258] that would allow mining companies to make voluntary contributions[259]

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[258] *Supra* note 82 (noting that the province and the OMA will each invest up to $1 million as part of a $2 million partnership arrangement to rehabilitate mine sites on Crown lands). See Ontario Government and Ontario Mining Association, *Ontario Mining Association and Her Majesty the Queen in Right of Ontario as Represented by the Ministry of Northern Development and Mines: Memorandum of Understanding* (26 May 2003) [hereinafter *OMA-MNDM Memorandum of Understanding*].

[259] *OMA-MNDM Memorandum of Understanding*, *ibid*., art. 1 (contributions may be monetary or non-monetary, with the latter including donation of services or secondment of personnel), art. 3.2 (contributions are entirely voluntary).

to rehabilitate historical abandoned mines[260] on Crown lands[261] in return for a tax deduction[262] and indemnification from liability.[263] This collaborative effort was initiated by the OMA in 2000.[264] ONDM will administer funds received from industry, government, or other parties.[265] Both ONDM and OMA expect that implementation of the agreement could result in:

- Enhancing the rate of rehabilitation of abandoned mine hazards in Ontario; and
- Improving the image of the mining industry.[266]

### *b. Evaluation of Advantages and Disadvantages*

In terms of how an ONDM-OMA approach otherwise accords with the principles/criteria discussed in Part IV above for evaluating funding approaches for orphaned/abandoned mine cleanup, the following may be said. The approach blends indeterminate levels of mining company and public fund contributions to attempt to solve a portion of the orphaned/abandoned mine problem on a programmatic basis. That is, companies may contribute money or services without having any particular site in mind when they make their contribution. In that regard, the approach works like an industry levy contributed to a fund. The difference, of course, is that the industry contribution is voluntary, and comes with a tax deduction. Accordingly, the approach may be both consistent and inconsistent with the principles and criteria discussed in Part IV depending on the ratio of private to public money being administered by ONDM as part of the arrangement and the level of contributions made to solve the problem. At least one survey respondent supported this approach, but suggested that it will only have limited impact unless a fully funded agency also is created.

## 5. Summary

Arising from the foregoing analysis, the authors make the following findings and conclusions. First, government-industry partnerships may be site-specific or generic.

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[260] J. Martschuk, Ontario Mining Association and W.R. Cowan, Ontario Ministry of Northern Development and Mines, "The OMA/OMNDM Initiative: A Case Study" (Workshop on Legal and Institutional Barriers to Collaboration Relating to Orphaned/Abandoned Mines, Ottawa, 24 February 2003) at 17.

[261] *Ibid.* at 15 (noting that rehabilitation projects would be restricted to abandoned mine hazards on Crown land where 100% of the liability rests with the Crown).

[262] *Ibid.* at 13-14, 16, 18 (noting that voluntary cash donations may be tax deductible as long as the donor receives no refund or benefit in return, and does not participate directly in the selection or rehabilitation of sites being funded).

[263] *Ibid.* at 15 (noting that Crown in Right of Ontario will indemnify companies providing financial gifts and participants on advisory committee under this arrangement from third party liability as long as they do not act in bad faith, are not grossly negligent, and do not engage in willful misconduct, or fraud).

[264] *Ibid.* at 4 (noting OMA resolution on how OMA and member companies can assist provincial government to address problems associated with historical abandoned mines).

[265] *Ibid.* at 11.

[266] *Ibid.* at 3.

Second, the approach may blend indeterminate or determinate levels of mining company contributions with usually indeterminate levels of public funds to attempt to solve the orphaned/abandoned mine problem. Third, accordingly, the approach may be both consistent and inconsistent with the principles and criteria discussed in Part IV depending on the particulars of the arrangement and how it evolves over time. Fourth, based on limited experience to date the approach may be only a partial and short-term solution to the problem unless the approach can be linked to a more sustainable general, institutional arrangement over time. Fifth, in the absence of a general program, it is not clear how many case by case partnerships would be possible to arrange, whether the approach would have a significant impact on the problem and, if it did not, whether the approach would suffer a public perception backlash. Finally, generic government-industry partnerships (i.e. those not tied to a specific site) may have limited impact in the absence of a fully funded agency created to institutionalize government commitment to solving the orphaned/abandoned mine problem.

## E. Non-Profit Organization Trust Funds

### 1. Overview

The fifth funding approach for cleanup of orphaned/abandoned mines considered in this report is that of non-profit organization trust funds. In this regard, one program is considered from the United Kingdom. The program under this category largely has run its course but was in place for a number of years. The program also addressed different stages of the problem ranging from inventory, assessment, and rehabilitation.

### 2. United Kingdom

#### *a. National Groundwork Trust - Changing Places Program*

The National Groundwork Trust (the "Trust") of the United Kingdom was established in 1981 as a non-profit, charitable organization dedicated to the economic, social, and environmental regeneration of communities harmed by the restructuring of the country's heavy industries, such as the coal industry. The Trust is a non-government organization with a network of individual trusts located across the country that can obtain private sponsorships from large companies or from the central government for its programs.[267]

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[267] Environmental Protection Agency, International Affairs, *International Brownfields Case Study: National Groundwork Trust, Birmingham, England* (Washington, D.C.: EPA, 2003) at 1, online: Environmental Protection Agency <http:www.epa.gov/international/urban/brownfields/groundwork.html> (last updated: 14 March 2003). There are now nearly 50 trusts in the UK, several projects sponsored by the Trust in Eastern Europe, and the Trust approach adopted in Japan and the United States (by the National

One of the Trust's programs, Changing Places, was a £60 million (approximately $147 million Can.) community-based land regeneration program funded by a variety of public and private entities.[268] The Changing Places Program was formed to address the problem of what to do with large tracts of vacant land left behind following the demise of the coal mining industry. Cleanup of such derelict lands historically had been the responsibility of local authorities that were provided with grants by the United Kingdom government for this purpose.[269] The Changing Places Program provided assistance to 21 projects (seven involving former coal-fields) resulting in the reclamation of approximately 1,000 hectares of land to achieve tourism and recreational opportunities, as well as open space and habitat protection.[270]

### *b. Evaluation of Advantages and Disadvantages*

In terms of how a Trust approach accords with the principles/criteria discussed in Part IV above for evaluating funding approaches for orphaned/abandoned mine cleanup, the following may be said. The Trust approach is, in many respects, a government-industry partnership arranged by a non-government entity. Like those arrangements discussed above, the Trust approach blends indeterminate levels of industry, public (and individual) financial contributions to attempt to solve the orphaned/abandoned mine problem on a programmatic basis. Companies, governments, individuals contribute money without having any particular site in mind when they make their contribution. In that regard, the approach works like an industry levy contributed to a fund. The difference, of course, is that the industry and private contributions are voluntary, and come with a tax deduction. Accordingly, the approach may be both consistent and inconsistent with the principles and criteria discussed in Part IV depending on the ratio of industry to public money being administered by the Trust as part of the arrangement.

## 3. Summary

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Parks Service). See National Groundwork Trust, <http://www.groundwork.org.uk/what/index.htm> (last updated: 17 January 2003).

[268] One of the main sponsors of the program was the United Kingdom Millennium Commission, a temporary body, which provided an initial £22 million (approximately $54 million Can.) from national lottery funds. See National Groundwork Trust, *Changing Places Project: Background* (Birmingham: NGT, 2001), online: National Groundwork Trust <http://www.changingplaces.org.uk/about-cp/background.htm> (last updated: 9 April 2001).

[269] See EPA, *supra* note 267 at 6. See also *UNEP 1999*, *supra* note 8 at 40 (noting that acid drainage from abandoned mines in the United Kingdom have severely contaminated local streams). In 1995, the national government enacted amendments to its environmental and water pollution legislation that established an early warning or notice system regarding lands that have been, or are about to be, abandoned. The amendments, which address both contaminated lands and abandoned mines, impose obligations on mine operators to warn the national environmental agency of imminent abandonment of such facilities. The agency, in turn, must inform local authorities in whose area the abandoned land is located. *Environment Act 1995*, c. 25, Part II (contaminated lands and abandoned mines).

[270] See EPA, *supra* note 267 at 7.

As only one program was considered in this part of the report, see the views set out under Part VI.E.2.b, above.

# VIII. ADMINISTRATION AND MANAGEMENT OF ORPHANED/ABANDONED MINE FUNDING

## A. Overview

As part of the process of developing a funding approach for cleanup of orphaned/abandoned mines government will need to consider who should administer monies received under the program. KPMG considered this issue in their study.[271] As part of the process for the current report, the authors sought the views of survey respondents on this matter as well.

## B. Responsibility for Administration of Funding

Among the entities or arrangements respondents were asked to consider included:

- A department(s) of one level of government;
- Joint administration by two levels of government;
- Special government agency under either of the first two approaches;
- Government-mining industry;
- Government-industry in general;
- Mining industry;
- Industry in general;
- Other.[272]

The following provides a brief summary of the views of respondents on this matter.

### 1. Department(s) of One Level of Government

As was noted by KPMG, government can administer a funding approach through a line ministry or department.[273] However, orphaned/abandoned mines may present both safety as well as environmental and human health problems depending on the circumstances. Accordingly, the issue of which ministry(s) or department(s) should be responsible must be considered. The views of survey respondents represented a range of responses on this question. Some respondents who supported funding administration by a government department advocated administration by an environment ministry. Others

[271] CCME-KPMG, *supra* note 23 at 45-51.
[272] See Part XI (Appendix A), below.
[273] CCME-KPMG, *supra* note 23 at 45.

supported administration by a mines ministry. Still others supported joint administration by mines and environment ministries. On balance, if administration of funding by a single government level is the preferred option, the administering entity will have to bring to the task the expertise that resides within mines and environment ministries.

## 2. Joint Administration by Two Levels of Government

KPMG also noted that a funding approach can be administered by two levels of government.[274] Respondents who commented on this option were of the view that because of limited federal jurisdiction south of the 60th parallel[275] joint federal-provincial administration of a funding approach would only be appropriate if the federal government were contributing financially to the program.

However, with federal financing comes federal constitutional authority to set national standards as well. Under the Canadian Constitution the federal spending power[276] would enable the federal government to play a prominent role in an orphaned/abandoned mines funding regime through the financing of cleanup and research as well as by conditioning such financing on the adoption of federal standards. In practice, Parliament has relied on the federal spending power to impose national standards for hospital insurance, medical care, and student housing programs as a condition of federal contribution to these provincial regimes. The courts have upheld each of these federal spending power initiatives in social and health-related areas.[277]

Indeed, leading authorities have suggested that under the federal spending power, Parliament may spend or lend funds to any government, institution, or individual it wishes, for any purpose it chooses, and may attach to any grant or loan any condition it chooses, including conditions it could not directly legislate.[278] The courts have been prepared to accept the exercise of this power by Parliament because withholding federal monies to fund a matter within provincial jurisdiction does not result in regulation of that matter by the federal government.[279]

Therefore, under the federal spending power a federal department or agency with the requisite statutory enabling authority could do a number of things with respect to orphaned/abandoned mines south of the 60th parallel. In particular, it could condition loans or grants to, or other financial arrangements with, the provinces, or other entities, respecting such matters as national orphaned/abandoned mine cleanup standards for air, land, and water protection, and related areas of concern.

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[274] *Ibid.*
[275] See *supra* note 63.
[276] *Ibid.*, s. 91(1A).
[277] See *e.g. Re Canada Assistance Plan*, [1991] 2 S.C.R. 525; *Eldridge v. British Columbia*, [1997] 3 S.C.R. 624 (dictum upholding *Canada Health Act*); *Central Mortgage and Housing Corporation v. Co-op College Residences* (1975), 13 O.R. (2d) 394 (Ont. C.A.) (upholding federal loans for student housing).
[278] Peter W. Hogg, *Constitutional Law of Canada*, looseleaf, Vol. 1 (Toronto: Carswell, 1998) at 6-17).
[279] *Re Canada Assistance Plan*, *supra* note 277 at 567.

### 3. Special Government Agency

KPMG also noted that a funding approach can be administered by a separate government agency.[280] Respondents were divided in their response to this option. Some did not favour it. Those respondents that did felt that it was an option if there was stable long-term funding. Of the respondents that favoured this approach, some felt the agency should be formed within one government level, others as a federal-provincial agency. Some that favoured a special agency (whether within one level of government or as a federal-provincial body) also supported industry representation on such a body.

### 4. Government-Mining Industry

KPMG also identified a government-industry sector administrative model.[281] Again views were split amongst survey respondents. Those that did not favour such a model cited concerns of lack of adequate public input and oversight. Some respondents felt such a model could be applicable to some sites. Finally, as noted above, some respondents that favoured a special agency (whether within one level of government or as a federal-provincial body) also supported industry representation on such a body.

### 5. Government-Industry in General

Respondents generally did not favour or regard as feasible an administrative model that involved government and general industry (i.e. mining and non-mining industrial sector) administration of funds earmarked for orphaned/abandoned mine cleanup. Some respondents did not regard it as feasible unless the non-mining industrial sectors were part of the funding formula (which itself was regarded as an approach that would be unattractive to those sectors and otherwise administratively unwieldy). Other respondents did not regard such a model as providing adequate public input or oversight.

### 6. Mining Industry

KPMG also identified a mining industry-administered model. KPMG noted that such a structure is most consistent with a funding approach that obtains money from direct industry contributions. However, the KPMG report also noted that the danger with this type of model is that the industry may, or will be perceived to not, adhere to strict enough standards or adequately remediate sites.[282] Survey respondents who supported this type of approach on the basis that if industry is providing the funding it should have a major role, also recognized the need for significant government involvement because sites are orphan or on Crown land. Respondents who did not support this model cited

[280] CCME-KPMG, *supra* note 23 at 45.
[281] *Ibid.* at 46.
[282] CCME-KPMG, *supra* note 23 at 45.

problems of lack of public input, oversight, accountability, and potential conflict of interest.

### 7. Industry in General

See comments under Part VII.B.6, above.

### 8. Other

Respondents mentioned several other administrative models that did not exactly fit into the above options. These included the following:

- Administration by one government department but with funding allocation decisions made on the advice of a multi-stakeholder body;
- Administration by a special agency (whether established within one level of government or as a federal-provincial body) with industry representation on such a body;
- Administration by a multi-stakeholder board of trustees with representation on the board from government, industry, aboriginal, non-government organizations, affected communities, and others.

## C. How Funding Should be Managed or Held

As part of the process of developing a funding approach for cleanup of orphaned/abandoned mines government will need to consider how the entity responsible for management of the program will administratively appropriate, receive, hold, and manage these monies. Among the options or models respondents were asked to consider included:

- Government line-item appropriation from general revenue;
- Dedicated orphaned/abandoned mine fund;
- Other.

The following provides a brief summary of the views of respondents on this matter.

### 1. Government Line-Item Appropriation From General Revenue

Government can administratively identify funding for orphaned/abandoned mines as an annual (or multi-year) line-item appropriation from general revenues. Where expenditures for cleanup of such sites have occurred to date in federal and provincial

jurisdictions in Canada, they have normally occurred in this manner. Survey respondents fairly unanimously did not prefer this method.

### 2. Dedicated Orphaned/Abandoned Mine Fund

Government also can administratively identify or earmark orphan/abandoned mine monies by way of a dedicated fund (whether derived from general revenues, industrial levy, or other method). This approach more typically occurs in the United States, but also has been used in Canada in connection with abandoned pits, quarries, or oil and gas facilities.[283] Survey respondents fairly unanimously preferred this approach, viewing it as more transparent and better for long-term planning.

## D. Summary

Arising from the foregoing analysis, the authors make the following findings and conclusions. First, there are a variety of entities that could administer funding for a program of orphaned/abandoned mine cleanup. These include a department(s) of one level of government; joint administration by two levels of government; a special government agency under either of the first two approaches; government-mining industry; government-industry in general; mining industry; industry in general; as well as other possible entities. Survey respondents were divided on which of the above entities to choose.

Second, there did appear to be some consensus that whatever administering entity is chosen it will have to bring to the task the expertise that resides within mines and environment departments as well as industry because of the safety, environmental, and human health problems posed by orphaned/abandoned mines. Coupled with this was a concern expressed by several respondents that the decision-making processes employed by the entity include public input, oversight, accountability, and freedom from conflict of interest.

Third, if the administering entity were departments from the federal and provincial levels of government or a special agency thereof, the federal government would be entitled pursuant to the federal spending power of the Canadian Constitution to set national standards in connection with the program.

Fourth, there appeared to be fairly unanimous opposition from survey respondents to relying on annual (or multi-year) government line-item appropriations from general government revenues and fairly unanimous support for a dedicated orphaned/abandoned mine fund (whether derived from general revenues, industrial levy, or other method).

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[283] See part VI.C, above.

## IX. THE ROLE OF LEGISLATION IN THE PROCESS

A final matter that should be considered is the role of law, if any, in the process of establishment and maintenance of a funding approach for orphaned/abandoned mine cleanup. In the normal course, if the preferred approach is continuation of a program of discretionary government funding from general revenues, then arguably legislation is unnecessary, as that has been the process that has been in place for years.

A second scenario to the same effect would be for governments to decide as a matter of policy to earmark for orphaned/abandoned mine cleanup an existing revenue stream such as a percentage of revenue obtained under provincial mining tax laws, or to reduce existing mining industry subsidies or incentives, or both. Arguably, this scenario also would not require major or any legislative change.[284]

However, if imposition of a levy on industrial production and establishment of a dedicated orphaned/abandoned mine fund is the preferred approach, amendment of existing or, enactment of, new laws would be necessary at the federal or provincial levels.[285]

## X. FINDINGS AND CONCLUSIONS

Orphaned or abandoned mines for which the owner cannot be found, or for which the owner is financially unable to carry out clean-up, pose environmental, health, safety, and economic problems to communities, industry, and governments in many countries including Canada. This report outlines a variety of funding approaches that could be considered for the purpose of cleaning up or managing liabilities related to orphaned and abandoned mines across Canada. The report evaluates advantages and disadvantages of each approach and recommends preferred option(s) for consideration by governments.

Part III of the report provided a brief background to the orphaned/abandoned mines problem. The report noted that there is no single definition for orphaned/abandoned mines. Generally, they may be described as sites requiring cleanup but for which responsible parties cannot be found because they have gone bankrupt, or left the jurisdiction, and, therefore site ownership has reverted to government. This part of the report summarized the environmental, social, and economic impacts of such sites and noted international as well as domestic examples of the problem. Finally, this part of the report noted that internationally the problem is regarded as requiring both financial and legal solutions.

Part IV considered a number of principles and criteria for evaluating funding approaches for cleanup of orphaned/abandoned mines in Canada based on past studies conducted for bodies such as the Canadian Council of Ministers of the Environment. The

[284] The caveat to this statement is that to the extent some subsidies are authorized in mining tax and related laws, those legislative regimes, or regulations thereunder, may require amendment.
[285] See part VI.C, above.

principles and criteria included: polluter/beneficiary pays; fairness; openness, accessibility, and participation; sustainable development; revenue-generating capacity; administrative ease; economic impacts; ability to address existing and future orphaned sites; ability to discourage future site contamination; public perception; and emergency response. These principles and criteria were evaluated on the basis of these background studies as well as on the basis of the views of respondents to survey questions prepared for this report. The authors concluded that, although application of a number of the principles, such as polluter pays, were controversial in the literature and amongst survey respondents, all of the principles with some modification to take into account the unique circumstances surrounding orphaned/abandoned mines, are appropriate for evaluating potential funding approaches.

Part V examined a number of economic and financial policy theories that should inform the adoption of a funding approach for orphaned/abandoned mine cleanup. This part of the report noted that the problem of controlling external costs is more difficult to resolve in the context of orphaned/abandoned mines because the parties responsible for the problem are no longer financially viable, cannot be identified or located, no longer exist, or have died. Accordingly, applying regulatory, tax, subsidy or other measures to influence their conduct in reducing external costs is not possible. Moreover, these sites, often located on Crown land, revert to Crown ownership. Nonetheless, the external environmental, social, economic, and cultural costs of this past conduct remain to be resolved. In the circumstances of orphaned/abandoned mines the funding approaches are comparatively simple to state, though more difficult and controversial to apply in practice. They include:

- Governments (federal, provincial, or federal-provincial) could pay for the rehabilitation of these sites out of general revenue;
- The present mining industry could contribute to a fund that can pay for rehabilitation of orphaned/abandoned mines;
- Governments could provide incentives (e.g. tax deductions, liability exemptions, etc.) for existing mining companies to rehabilitate orphaned/abandoned mines in a generic or site-specific partnership;
- Governments could, without imposing new taxes or fees on the mining industry, re-direct a portion of existing mining tax revenue, and reduce existing subsidies or incentives to the industry and apply both streams to orphaned/abandoned mine rehabilitation;
- Governments could use a combination of the above or related funding approaches.

The first approach makes all taxpayers responsible for financial resolution of the problem. The second approach makes the mining industry, and consumers of the products made by the industry, responsible for financial resolution of the problem. The remaining

approaches make both taxpayers and consumers responsible for financial resolution of the problem.

Several of the theoretical approaches to orphaned/abandoned mine funding identified in Part V have been employed in practice in a number of jurisdictions and were examined in detail in Part VI of the report. Part VI reviewed seventeen programs organized under five different categories of funding approaches that have been employed in practice in Canada, the United States, and the United Kingdom. Funding approaches examined included:

- Government funded programs from general revenues coming from a single level of government;
- Federal-provincial government funded cost sharing arrangements from general revenues;
- Levies on industrial production;
- Government-industry partnerships; and
- Non-profit organization trust funds.

The first funding approach for cleanup of orphaned/abandoned mines considered in Part VI, that of government funded programs from general revenues coming from a single level of government addressed four programs from the governments of Canada, Ontario, Manitoba, and Saskatchewan. Arising from analysis of those programs, the authors drew the following findings and conclusions:

- With some exceptions, funding approaches for cleanup of orphaned/abandoned mines based exclusively on government funding from general revenues, on their face and as applied to date, do not meet and have not met most of the principles and criteria identified in Part IV of this report;
- The exceptions relate to administrative ease, accessibility of information, and ability to respond to emergencies. These three principles/criteria appear capable of being met by a regime of government funding from general revenues;
- In the short term while industry would possibly prefer a funding approach of exclusive reliance on government general revenues, the approach contains several drawbacks:
    - It is unlikely to be very attractive to government;

- It would suffer from poor public perception (as well as harm industry's image in the sense that such an approach might be perceived as giving industry a "free ride");
- It has demonstrated vulnerability to changing government priorities;
- Based on experience to date this approach by itself has not demonstrated an ability to raise adequate funding commensurate with the scale of the orphaned/abandoned mine problem in Canada, or to do so in a timely manner;

- Finally, survey respondents who commented on this approach characterized it as extremely inadequate, poor, non-existent, or burdensome to government depending on the jurisdiction under discussion.

The second funding approach for cleanup of orphaned/abandoned mines considered in Part VI was that of government funded programs from general revenues coming from two levels of government. Programs considered were established under the auspices of the (1) Canadian Council of Ministers of the Environment, and (2) governments of Canada and Ontario (regarding uranium mine waste). The findings and conclusions for this funding approach, which largely relate to the CCME-NCSRP program, essentially are the same as those made in connection with a single level of government.

The third funding approach for orphaned/abandoned mine cleanup that was considered in Part VI was a levy on industrial production. Programs considered under this category usually include establishment in law of a government entitlement to impose a fee or tax on an industry sector(s), which fee or tax would be deposited into a dedicated fund earmarked solely for the purpose of orphaned/abandoned mine cleanup. Seven existing or proposed programs were considered under the laws of the United States, Ontario, Manitoba, and Alberta. Arising from analysis of those programs the authors drew the following findings and conclusions:

- In general, funding approaches for cleanup of orphaned/abandoned mines based exclusively on a levy on mining industry production, on their face and as applied to date, appear to meet, with some exceptions, most of the principles and criteria identified in Part IV of this report;

- The exceptions relate primarily to the principle of fairness to the extent that monies can be, and have been, used to pay for rehabilitation of sites from industries that do not contribute to the fund established under such regimes (as is the case under AMRF and Superfund);

- There also is not enough information to know whether by itself a levy on mining production could ensure a sustainable source of funds for cleanup of orphaned/abandoned mines in Canada. Similar programs in

the United States (e.g. AMRF - abandoned coal mines) have been very successful in raising funds roughly commensurate with the magnitude of the problem faced in that jurisdiction. Programs in Canada have not (e.g. Ontario - MAAP - abandoned pits and quarries) due to the imposition of exceedingly low levies;

- Hybrid programs (e.g. Manitoba - pits and quarries; Alberta - oil and gas) are more difficult to evaluate the adequacy of solely in relation to abandoned sites because they apply to both currently operating but soon to be abandoned as well as long abandoned sites;

- Some respondents to our survey were of the view that a levy could provide sustainable funding for orphaned/abandoned mine cleanup. Other respondents were of the view that a levy on industrial production, while important, would be insufficient by itself to cover the costs of orphaned/abandoned mine cleanup given the magnitude of the problem. Still other respondents cautioned that if the industry were to contribute to a fund it would have to be done in such a way that it did not impair the competitiveness of Canadian producers;

- Until there is an accurate estimate of the magnitude of cleanup costs by jurisdiction it is not possible to answer whether and, if so, what level of levy on mining production by itself would be sufficient to solve the problem in Canada at the federal or provincial level.

The fourth funding approach for cleanup of orphaned/abandoned mines considered in this report was that of government-industry partnerships. Three programs were considered from the governments of Canada, British Columbia, and, Ontario. Arising from analysis of those programs, the authors drew the following findings and conclusions:

- Government-industry partnerships may be site-specific or generic;

- The approach may blend indeterminate or determinate levels of mining company contributions with usually indeterminate levels of public funds to attempt to solve the orphaned/abandoned mine problem;

- As a result, the approach may be both consistent and inconsistent with the principles and criteria discussed in Part IV depending on the particulars of the arrangement and the extent to which it becomes dependent on public funds as it evolves over time;

- Based on limited experience to date the approach may be only a partial and short-term solution to the problem unless the approach can be linked to a more sustainable general, institutional arrangement over time;

- In the absence of a general program, it is not clear how many case by case partnerships would be possible to arrange, whether the approach would have a significant impact on the problem and, if it did not, whether the approach would suffer a public perception backlash;

- Finally, generic government-industry partnerships (i.e. those not tied to a specific site) may have limited impact in the absence of a fully funded agency created to institutionalize government commitment to solving the orphaned/abandoned mine problem.

The fifth funding approach for cleanup of orphaned/abandoned mines that was considered in Part VI was that of a non-profit organization trust fund. One program was considered from the United Kingdom. Arising from analysis of this program, the authors drew the following findings and conclusions:

- The Trust approach is, in many respects, a government-industry partnership arranged by a non-government entity. Like those arrangements, the Trust approach blends indeterminate levels of industry, public (and individual) financial contributions to attempt to solve the orphaned/abandoned mine problem on a programmatic basis;

- Companies, governments, individuals contribute money without having any particular site in mind when they make their contribution. In that regard, the approach works like an industry levy contributed to a fund. The difference is that the industry and private contributions are voluntary, and come with a tax deduction;

- Accordingly, the approach may be both consistent and inconsistent with the principles and criteria discussed in Part IV depending on the ratio of industry to public money being administered by the Trust as part of the arrangement.

Part VII of the report briefly examined certain administrative and management issues surrounding orphaned/abandoned mine funding. Arising from that analysis, the authors drew the following findings and conclusions:

- There are a variety of entities that could administer funding for a program of orphaned/abandoned mine cleanup. These include a department(s) of one level of government; joint administration by two levels of government; a special government agency under either of the first two approaches; government-mining industry; government-industry in general; mining industry; industry in general; as well as other possible entities. Survey respondents were divided on which of the above entities to choose;

- There did appear to be some consensus that whatever administering entity is chosen it will have to bring to the task the expertise that resides within mines and environment departments as well as industry because of the safety, environmental, and human health problems posed by orphaned/abandoned mines. Coupled with this was a concern expressed by several respondents that the decision-making processes employed by the entity should include public input, oversight, accountability, and freedom from conflict of interest;

- If the administering entity were departments from the federal and provincial levels of government or a special agency thereof, the federal government because of its financial contribution would be entitled pursuant to the federal spending power of the Canadian Constitution to set national standards in connection with the program;

- There appeared to be fairly unanimous opposition from survey respondents to relying on annual (or multi-year) government line-item appropriations from general government revenues and fairly unanimous support for a dedicated orphaned/abandoned mine fund (whether derived from general revenues, industrial levy, or other method).

Part VIII of the report reviewed the role of legislation, if any, in the process of funding approaches for orphaned/abandoned mine cleanup. The authors conclude that continuation of a program of discretionary government funding from general revenues, earmarking a percentage of an existing revenue stream such as that from provincial mining tax laws, or reducing existing mining industry subsidies or incentives to pay for cleanups would require little or no legislative change. However, imposition of a levy on industrial production and establishment of a dedicated orphaned/abandoned mine fund would require greater legislative changes.

## XI. RECOMMENDATIONS

Based on the above review the authors provide the following recommendations for the consideration of the Task Group:[286]

[286] These recommendations do not address what the percentage financial contribution should be from each of the funding approaches identified in recommendation 3, below. The reasons for this include that at the time of writing the Report the authors did not have information available on a number of matters that would greatly assist in such a determination. These matters include (1) an accurate estimate of the costs for cleanup of orphaned/abandoned mines in each jurisdiction in Canada; (2) the economic health of the mining industry for each jurisdiction in Canada; or (3) the timeframe that governments in each jurisdiction will want to use to achieve cleanup. While the authors recommend that the cleanup timeframe not exceed 2-3 decades, that is still a matter that governments will need to consider on a jurisdiction by jurisdiction basis.

1. Governments in Canada with authority for control of mining[287] should amend existing or enact new legislation[288] addressing specifically adoption and implementation of a funding regime for cleanup of orphaned/abandoned mines in their respective jurisdictions.

2. The funding regime should be designed to substantially eliminate the backlog of orphaned/abandoned mines in the jurisdiction in which the legislation is enacted within a reasonable timeframe (i.e. one or more decades not one or more centuries). To achieve this goal the legislation should identify the minimum and maximum quantum of monies that the Fund identified in recommendation 4 below should commence with at the start of each government fiscal year and authorize a well-defined remedial action planning and budgetary process.

3. Such legislative regimes should be based on a mix of all of the following funding approaches including:

    - Government funding from general revenues coming from a single level of government;

    - Federal-provincial (or federal-territorial) government funded cost sharing arrangements from general revenues, where appropriate;[289]

    - Levies on mining industry production;

    - Government-industry partnerships;

    - Government re-direction of a portion of existing mining tax revenue, and reduction of existing incentives to the mining industry and application of both streams to orphaned/abandoned mine cleanup; and

    - Other sources of monies such as interest on monies contained in the Fund, deposits to the Fund of fines and administrative penalties imposed on the mining industry under this law and general environmental legislation, donations to the Fund by individuals or others, etc.

4. The legislative regime adopted in each jurisdiction should include establishment of an Orphaned/Abandoned Mine Cleanup Fund ("OAMCF" or "Fund") into which general government revenue, industry levies, and other monies are deposited on an annual basis.

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[287] Federal, provincial and, where appropriate, territorial governments.

[288] Legislation as used in Part X includes, where appropriate, rules and regulations promulgated under the statute.

[289] It should be recognized that where federal financing occurs that level of government will be entitled to establish national standards, should it so desire, pursuant to the federal spending power of the Canadian Constitution.

5. The legislation should specify the minimum annual financial appropriation to be made by the government and the period over which that level of appropriation is to continue. Where there is a shortfall from the declared minimum size of the Fund set out in recommendation 2 following estimates based on implementation of all of the funding approaches set out in recommendation 3, the legislation should set out how the shortfall is to be made up for that year.

6. The legislation also should specify the annual levy or levy range to be imposed on each mining company, mining industry sector, or classes within a sector as a cost attributable to its activities in the jurisdiction and the period over which that level of contribution is to continue. The levy calculation may be based on fixed fee(s) per tonne of production, percentage of net proceeds from the previous year, or other method. In specifying the levy or levy range the legislation may take into account such factors as credits to the industry arising from government-industry partnerships, mining type (e.g. surface, underground), environmental impacts, and related matters. The levy should be designed to achieve three objectives. First, it should not constitute an undue financial burden on the mining industry.[290] Second, it should generate sufficient funds for meeting statutory objectives within a reasonable timeframe in conjunction with the other funding approaches. Third, it should be structured so that it does not exert an inflationary influence on the economy.

7. The legislation should set out the basis for government-industry partnerships, including whether they may be generic or site specific, or both. Where such arrangements are entered into the legislation should set out the effect of such arrangements, if any, on the annual levy noted in recommendation 6 and tax and incentive measures noted in recommendation 8.

8. The legislation should amend federal and provincial tax laws to specifically identify (1) the annual quantum of mining tax revenue being re-directed to the Fund, and (2) the annual quantum reduction of existing incentives to the mining industry being re-directed to the Fund.

9. The legislation should set out the specific purposes of the funding regime including:

    - Reclamation and restoration of land and water resources adversely affected by past mining activities;

    - Clean-up of abandoned surface mine, processing, milling, and disposal areas;

[290] This can include sensitivity to cash flow and ability to pay within a particular timeframe during periods of economic downturn that impact on the mining industry. The result could be deferral of a requirement on a company to pay the levy in certain years as long as the deferred payment is made up in subsequent years. Volatility of income in the mining sector that may justify this approach is illustrated in Part XIV (Appendix D) of this report using the Ontario mining industry as an example.

- Sealing, filling, and grading abandoned underground mine entries, shafts, openings, and voids;

- Planting of land adversely affected by past mining to prevent erosion and sedimentation, including measures for the conservation of soil, water, woodland, fish, and wildlife;

- Prevention, abatement, treatment and control of water pollution created by mine drainage including restoration of stream beds, and construction and operation of water treatment plants;

- Prevention, abatement, and control of mine subsidence;

- Protection of public health, safety, general welfare, and property from extreme danger or adverse effects of abandoned mines;

- Protection, repair, replacement, or enhancement of public facilities, such as roads, recreation, conservation, and open space areas;

- Provision for studies or technical reports by qualified professionals on remedial solutions to environmental, health, or safety problems at orphaned/abandoned mines;

- Compensation for private property or health damage; and

- Public involvement and reporting.

10. The legislation should specify that lands and water eligible for cleanup through the funding regime are those for which there is no identifiable responsible person and that were mined or adversely affected by mining and abandoned or left inadequately reclaimed prior to a date identified in the law. The legislation also should address how (whether) the funding regime will address sites abandoned after the above date so as not to encourage creation of future orphaned/abandoned mines.

11. The legislation should specify the orphaned/abandoned mine cleanup priorities under which the funding regime will operate. Possible priorities could include cleanup of sites posing (1) extreme danger to public health, safety, welfare, property, and the environment and (2) adverse effects[291] to public health, safety, welfare, property, and the environment, including restoration of land, water, fish and wildlife resources degraded by past mining activity.

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[291] "Adverse effects" include (a) impairment of the quality of the environment for any use that can be made of it, (b) injury or damage to property or to plant or animal life, (c) harm or material discomfort to any person, (d) impairment of the health or safety of any person, (e) rendering any property or plant or animal life unfit for human use, (f) loss of enjoyment of normal use of property, or (g) interference with the normal conduct of business.

12. The legislation should identify the administering entity for the funding regime. The authors recommend that this entity be either a department of government or special government agency created by the legislation establishing the funding regime. Whichever entity is chosen it should bring to the task the expertise that resides within mines and environment departments as well as industry because of the safety, environmental, human health, and engineering problems posed by orphaned/abandoned mines. Furthermore, the decision-making processes employed by the entity should include public input, oversight, accountability, and freedom from conflict of interest. Use of a multi-stakeholder advisory body should be considered to achieve these objectives.

13. The legislation should authorize promulgation of rules and regulations addressing such matters pertaining to administration of the funding regime as:

    - Levy collection, mining production reporting, and compliance;
    - General fund administration;
    - Remedial action planning and budgetary process;
    - General reclamation requirements relating to such matters as determining eligibility of specific lands and waters, cleanup objectives and priorities;
    - Exemptions, credits for industry partnership contributions, variances, and/or time-limited deferrals from the funding regime;
    - Program considerations such as land, water, or mineral rights required for cleanup, jurisdictional responsibilities, non-emergency site selection criteria, emergency projects, and the application of risk assessment to the site selection and site cleanup process;
    - Site considerations such as mine drainage, slide-prone areas, erosion and sedimentation, toxic materials, hydrologic balance, public health and safety, fish and wildlife values, and air quality;
    - Community involvement and public consultation in site selection and site cleanup projects as well as policy development; and
    - Such further and other matters as deemed appropriate in the circumstances.

14. In conjunction with establishment of a funding regime, the process of cleanup of orphaned/abandoned mines should be facilitated through measures designed to eliminate barriers and facilitate community involvement identified by previous studies commissioned by NOAMI. The authors are of the view that (1) adopting any

funding approach beyond appropriation of government funding from general revenue and (2) addressing existing legal and institutional barriers to orphaned/abandoned mine cleanup[292] will compel Parliament and provincial legislatures to address these and related problems as a matter of law. In the circumstances, establishing a comprehensive legal and financial response to these matters appears warranted.

[292] Castrilli, *supra* note 1.

# XII. APPENDIX A - SURVEY QUESTIONS

## SURVEY QUESTIONS: POTENTIAL FUNDING APPROACHES FOR ORPHANED/ABANDONED MINES IN CANADA

### I. Definition of, and Background to, the Issue

1. Is there an official cost estimate available of funding needed to cleanup[293] orphaned/abandoned mines ("OAMs") in your jurisdiction?[294] If so, please provide. If not, what information is available on the amount of funds needed to cleanup OAMs in your jurisdiction?

2. How much funding, if any, did your jurisdiction receive for, or apply to, cleanup of OAMs under the National Contaminated Sites Remediation Program of 1989? Is there any information/report available that evaluates the results of this program, as applied in your jurisdiction (or generally) with respect to cleanup of OAMs? If so, please provide.

3. Describe the current regime in your jurisdiction for funding cleanup of OAMs. Please describe in terms of:

   (a) source of funding (e.g. general government revenue, fund contributed to by levy industry, etc.);

   (b) level of funding spent to date to cleanup OAMs;

   (c) level of funding scheduled to be spent for OAM cleanup (for whatever period such information is available);

   (d) level of funding needed to cleanup OAMs [if not covered in response to Question 1, or Question 3(c), above].

4. Which public or private sector entity (or entities) in your jurisdiction receives funds, or is (are) responsible, for overseeing or conducting cleanup of OAMs?

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[293] "Cleanup" in this survey refers to abatement, remediation, and reclamation, of OAMs. "Abatement" refers to the reduction, decrease, or diminution of direct pollution discharges, or overland runoff from an OAM area to bodies of water including lakes, rivers, and watercourses. "Remediation" refers to the process of improving environmental conditions and reducing environmental risks from OAM areas through decontamination of soil, sediment, and groundwater and removing or treating mine wastes, tailings, or leached materials. "Reclamation" refers to the process of returning OAM areas to productive post-mining land use, and includes the process of reducing public safety hazards posed by such sites. "Rehabilitation" may be regarded as having the same meaning as "reclamation" for the purposes of considering questions in this survey.

[294] "Jurisdiction" in this survey refers to federal, provincial, or territorial level of government, as the case may be.

5. How would you characterize the adequacy of existing funding approaches (and levels of funding) for ensuring proper cleanup of OAMs in your jurisdiction? Is there any information/report on the adequacy of funding approaches (or funding levels) applied to cleanup of OAMs in your jurisdiction? If so, please provide.

**II. Principles/Criteria That Should Guide Evaluation of Possible Future Funding Approaches for Cleanup of OAMs**

6. What principles/criteria do you believe should guide evaluation of possible future funding approaches for cleanup of OAMs in your jurisdiction?

7. Do you believe that the following principles/criteria derived primarily, but not exclusively, from the Canadian Council of Ministers of the Environment ("CCME"),[295] should guide evaluation of possible future funding approaches for cleanup of OAMs in your jurisdiction? If so, why? If not, why not:

   (a) polluter[296]/beneficiary[297] pays;

   (b) fairness[298];

   (c) sustainable development goals[299];

   (d) openness, accessibility, participation[300];

   (e) revenue generating capacity[301];

   (f) administrative ease[302];

   (g) economic impacts[303];

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[295] Canadian Council of Ministers of the Environment, Task Group on Contaminated Site Liability, *Report on Contaminated Site Liability* (CCME, 1993) [hereinafter CCME).

[296] Refers to the principle that the polluter should bear, or internalize, the cost of pollution.

[297] Refers to the principle that those that benefit from an activity that caused the problem and those that benefit from the cleanup should not be unfairly enriched. Beneficiary in this context, therefore, includes a (1) past beneficiary of polluting activities, and (2) current beneficiary of site remediation.

[298] Includes notions of certainty of process, effectiveness, efficiency, clarity, consistency, and timeliness in achieving environmental objectives.

[299] Includes the notion of integrating environmental, human health, social, and economic concerns.

[300] Includes notions of accessibility of information and opportunity for public input.

[301] Ability to raise adequate funding commensurate with the scale of the OAM problem.

[302] Administrative ease refers to ease of generation of revenue, its collection, and application of funding raised to OAM cleanup. See KPMG Environmental Services Inc., *Funding and Administrative Options for the Remediation of Orphan Contaminated Sites*, prepared for CCME (CCME, 1993) [hereinafter KPMG].

[303] Financial demands on, for example, a mining company contributing to a fund for OAM cleanup and also remaining directly responsible for its own active mining sites. KPMG, *ibid*. Economic impacts also may refer to financial demands on the public treasury.

(h) ability to address existing and future OAMs[304];

(i) discourage future site contamination[305];

(j) public perception[306];

(k) emergency response.[307]

8. For Question 7(a) relating to polluter pays, [and the related principles/criteria of beneficiary pays, and arguably (b) fairness] it has been suggested that it is not possible to apply the principle when the actual polluter cannot be identified, or is bankrupt.[308] If not otherwise answered under Question 7(a) or (b) above, what are your views on how/whether the principle(s) can/should be applied in the context of OAMs?

9. If not answered in response to Questions 6-8, what other criteria in addition to/instead of those referred to above do you believe should guide evaluation of possible future funding approaches for cleanup of OAMs in your jurisdiction? Please provide reasons.

**III. Funding Approaches**

10. What are your views on the advantages and disadvantages of the following funding approaches for cleanup of OAMs generally, or in light of the above principles/criteria in particular, in your jurisdiction:

(a) Government funded program from general revenues;

(b) Federal-provincial government funding cost-sharing arrangement from general revenues;

(c) Levy on industrial production:

(i) mining industry only;
(ii) industry generally (resulting in a mixed or multi-purpose fund);

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[304] Existing OAMs refers to those in existence at the time of the commencement of an OAM cleanup program. Future OAMs refers to sites that become OAMs after the coming into force of an OAM cleanup program. KPMG, *ibid*.

[305] Role, if any, that a program directed to cleanup of OAMs can have on discouraging creation of future OAMs.

[306] Refers to public reaction to funding decisions/approaches. KPMG, *ibid*.

[307] Ability of a funding approach to respond to emergency situations at OAMs. CCSG Associates, *Financial Options for the Remediation of Mine Sites: A Preliminary Study*, prepared for MiningWatch Canada (Ottawa: MWC, 2001).

[308] KPMG, *supra* note 302 at 15. See also Commissioner of the Environment and Sustainable Development, *Abandoned Mines in the North* (Ottawa: CESD, 2002) at 17.

(d) Government-mining industry partnerships (e.g. site-specific basis);

(e) Non-profit organization trust fund

(f) Combination of two or more of the above approaches.

11. What other funding approaches, not identified above, should be considered for cleanup of OAMs in your jurisdiction? Are there any specific examples of funding approaches, including those not related to mining, that you recommend be considered?

**IV. Administration and Management of OAM Funding**

12. Who should be responsible for administering the funding for cleanup of OAMs in your jurisdiction:

(a) a department(s) of one level of government;

(b) joint administration by two levels of government (e.g. federal-provincial, federal-territorial);

(c) special government agency of either (a) or (b) above;

(d) government-mining industry;

(e) government-industry in general;

(f) mining industry;

(g) industry in general;

(h) other?

13. How should the funding for cleanup of OAMs be managed/held:

(a) As an annual government line-item appropriation from general revenue;

(b) Through dedicated OAM fund (whether derived from general revenue, industrial levy, etc.)

(c) other?

14. What role, if any, do you see for legislation on funding approaches for cleanup of OAMs in your jurisdiction?

**V. Other Comments**

15. Do you have any other comments on the issue of funding approaches for cleanup of OAMs not covered above? If so, please provide.

**VI. Other Documents**

16. If you have any documents on the subject of funding approaches for cleanup of OAMs not otherwise referred to above, please provide a copy of, or a reference for, such documents?

Thank you.

## XIII. APPENDIX B - RECIPIENTS OF SURVEY QUESTIONS

**GOVERNMENT**

**Government of Canada**

- Joanna Ankersmit, Indian and Northern Affairs Canada

- Lisa Keller, Environment Canada

- Bill Toms, Finance Canada

**Government of the Yukon**

- Marg Crombie

**Government of British Columbia**

- John Errington, Ministry of Energy and Mines

- Duane Anderson, Ministry of Energy and Mines

- Gregg Stewart, Ministry of Energy and Mines

**Government of Saskatchewan**

- John Schisler, Ministry of Environment and Resource Management

**Government of Manitoba**

- Brian Bailey, Ministry of Industry, Trade and Mines

- Bob Dubruil, Ministry of Industry, Trade and Mines

- Ben Edirmanasinghe, Ministry of Industry, Trade and Mines

**Government of Ontario**

- Dick Cowan, Ministry of Northern Development and Mines

- Len Koskitalo, Ministry of Finance

**Government of Quebec**

- Jean Dionne, Ministry of Natural Resources

**Government of New Brunswick**

- Sam McEwan, Ministry of Natural Resources and Energy

**Government of Nova Scotia**

- Bob Jones, Department of Natural Resources

**Government of Newfoundland and Labrador**

- Bob McGuire, Department of Mines and Energy

**DELEGATED ADMINISTRATIVE ORGANIZATION**

- George Antoniuk, Aggregate Producers Association of Ontario (responsible for Management of Abandoned Aggregate Properties Program)

**INDUSTRY**

- Dan Paskowski, Mining Association of Canada

- Walter Kuit, Teck-Cominco

- Loren Grazley, Mining Association of British Columbia

**NON-GOVERNMENT ORGANIZATION**

- Mark Winfield, Pembina Institute

- Joan Kuyek, MiningWatch Canada

- Sue Moodie, Yukon Conservation Society

- Alan Septoff, Mineral Policy Center (US)

- Kevin O'Reilly, Canadian Arctic Resources Committee

- John McInnis, Environmental Mining Council of British Columbia

**CONSULTANT**

- George Miller

- Sherry Yundt

- Bob Parsons

**OTHER**

- Alexander Wood, National Round Table on Environment and the Economy

- Gerald Harper,

- Fritz Balkau, United Nations Environment Programme

## XIV. APPENDIX C - TABLE 1: FUNDING APPROACHES SUMMARY

The purpose of Table 1 is to provide a summary comparison of funding approaches for which there is practical experience with orphaned/abandoned mine cleanup. The approaches considered in the report are evaluated in Table 1 against the principles or criteria first identified in Part IV and which were discussed in Part VI.

### TABLE 1:
### SUMMARY COMPARISON OF FUNDING APPROACHES FOR ORPHANED/ABANDONED MINES (OAMS) BY PRINCIPLE OR CRITERIA

| | FUNDING APPROACH | | | | | |
|---|---|---|---|---|---|---|
| | **Single Government Funding From General Revenue** | **Multi Government Funding From General Revenue** | **Levy on Mining Industry Production** | **Government-Industry Partnership** | **Non-Government Organization Trust Fund** | **Mix of Funding Approaches & Other Measures** |
| **PRINCIPLE OR CRITERIA** | | | | | | |
| **Polluter Pays** | Not consistent with principle under strict or general interpretation | Not consistent with principle under strict or general interpretation | Consistent with principle under general, but not strict, interpretation | Both consistent and inconsistent with principle depending on percentage of public & private funds involved though limited experience to date to evaluate fully | Both consistent and inconsistent with principle depending on percentage of public & private funds involved based on experience | Both consistent and in consistent with principle depending on percentage of public & private funds involved |
| **Beneficiary Pays** | Not consistent with principle unless defined as public obtaining benefits of general mining activity | Not consistent with principle unless defined as public obtaining benefits of general mining activity | Consistent with principle unless defined as only public obtaining benefits of general mining activity | Both consistent and inconsistent with principle | Both consistent and inconsistent with principle | Both consistent and inconsistent with principle |
| **Fairness** | As applied to date, mixed success in meeting this principle depending on program examined | As applied to date, mixed success in meeting this principle depending on program examined | Consistent with most components of principle, not consistent with others (e.g. to extent monies used to cleanup sites of industries not paying levy) | Both consistent and inconsistent with principle | Both consistent and inconsistent with principle | Both consistent and inconsistent with principle |
| **Sustainable Development Goals** | Not consistent with principle | Not consistent with principle | Consistent with principle | Both consistent and inconsistent with principle | Both consistent and inconsistent with principle | Both consistent and inconsistent with principle |
| **Openness, Accessibility, Participation** | To date, mixed success in meeting principle depending on program examined | To date, limited success in meeting principle depending on program examined | As applied to date, largely consistent with principle | Limited experience to date, but no reason cannot be designed to be consistent with principle | As applied, largely consistent with principle | No reason cannot be designed to be consistent with principle |

**FUNDING APPROACHES**

| | **Single Government Funding From General Revenue** | **Multi Government Funding From General Revenue** | **Levy on Mining Industry Production** | **Government-Industry Partnership** | **Non-Government Organization Trust Fund** | **Mix of Funding Approaches & Other Measures** |
|---|---|---|---|---|---|---|
| **PRINCIPLE OR CRITERIA** | | | | | | |
| **Revenue Generating Capacity** | As applied to date, fails to meet criterion | As applied to date, has failed to meet criterion, but might be better able to meet it in future | As applied to date, some programs largely meet criterion, others do not due to small size of levy | Insufficient experience to date to evaluate, though concern exists whether criterion can be met | As applied, program demonstrated some ability to meet criterion on limited basis | Represents best opportunity to meet criterion |
| **Administrative Ease** | Meets criterion | Meets criterion | Meets criterion | Meets criterion | Meets criterion | Meets criterion though most complex of approaches examined |
| **Economic Impacts** | Meets criterion for industry, not for government | Meets criterion for industry, not for government | Meets criterion for government, whether criterion met for industry depends on levy size and economic health of industry | Both consistent and inconsistent with criterion depending on percentage of public & private funds involved though limited experience to date to evaluate fully | Both consistent and inconsistent with criterion depending on percentage of public & private funds involved | Represents best opportunity to meet criterion from public and private sector perspective |
| **Address Existing & Future OAMs** | Can meet criterion , but may undermine other principles or criteria | Can meet criterion , but may undermine other principles or criteria | Can meet criterion, but concerns persist whether should address future OAMs | Can meet criterion, but may undermine other principles or criteria | Can meet criterion, but may undermine other principles or criteria | Can meet criterion, but same concerns remain as discussed under other approaches |
| **Discourage Future Site Abandonment** | Not meet criterion | Not meet criterion | Can meet criterion, but concerns persist whether could have reverse effect | Unclear whether consistent with, or have any effect on, criterion | Unclear whether consistent with, or have any effect on, criterion | Unclear whether consistent with, or have any effect on, criterion |
| **Public Perception** | Not meet criterion | Not meet criterion | Meets criterion, though not for industry depending on size of levy | If few partnerships occur, or have limited impact on overall OAM problem, likely not meet criterion | As applied appeared to meet criterion, though raises question of government accountability | Represents best opportunity to meet criterion depending on percentage of public & private funds involved |
| **Emergency Response** | Can meet criterion, but more problematic as magnitude of OAM problem increases | Better able to meet criterion, but still more problematic as magnitude of OAM problem increases | Can meet criterion, but more problematic as magnitude of OAM problem increases | Can meet criterion, but more problematic as magnitude of OAM problem increases | Can meet criterion, but more problematic as magnitude of OAM problem increases due to lack of government involvement | Represents best opportunity to meet criterion |

## XV. APPENDIX D - TABLE 2: ONTARIO MINING INDUSTRY NET INCOME (LOSS) STATEMENT - 1992 - 2001

The purpose of Table 2 is to provide a summary of the net income (or losses) of the mining industry in Ontario for the period 1992 - 2001. Table 2 shows the volatility of net income (or loss) in the industry from year to year during this period. Table 2 also shows that the average net income for the industry during this 10-year period has been approximately $258 million per year, though for the last 5-year period (1997-2001), it has been approximately $219 million per year.

**Table 2: Ontario Mining Industry Net Income (Loss) Statement - 1992 - 2001 ($millions)**

| Year | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Net Income (loss)** | 40.1 | (16.4) | 505.3 | 644.9 | 305.3 | (44.0) | 744.0 | 192.5 | 350.8 | (146.4) |

**Source:** Ontario Mining Association, *The Economic and Fiscal Contribution of the Mining Industry in Ontario* (2002), excerpt from Table 17 - Ontario Mining Industry Income Statement.