



*Non-Ferrous Metals  
Consultative Forum on  
Sustainable Development*

# **Sustainable Development Drivers and Community Engagement Approaches**

**DRAFT REPORT OF THE AD HOC WORKING GROUP ON NON-FERROUS  
METALS PRODUCTION**

**The co-chairs**

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International Nickel  
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## **Draft Report of the ad hoc Working Group on Production**

### **1. INTRODUCTION**

The debate on sustainability and development started with the United Nations Conference on the Human Environment in Stockholm in 1972. The Stockholm Declaration proclaims that governments have the solemn responsibility to protect the environment for both present and future generations. After this conference, several States included in their constitutions and laws the right of an adequate environment and the obligation of the State to protect that environment. The subsequent debates focused on the perceived contradiction between (economic) development and environmental protection. The report of the Club of Rome (“Limits to Growth”), published also in 1972, was important in the debates.

In 1983, the World Commission on Environment and Development was established as an independent body by the United Nations with the purpose to formulate “a global agenda for change” as a response to the growing concern expressed by the world community regarding the environmental challenges and the need to address the recurrent development issues. The mandate of the commission, headed by Mrs. Gro Harlem Brundtland, at that time Prime Minister of Norway, was to identify these critical challenges for the humankind and the planet, and to propose realistic solutions to ensure a sustainable development worldwide at the turn of the millennium. The concept of sustainable development was considered as a promising strategy to combine the need for the environmental protection with the need for economic development and promote a rationalized utilization of natural resources.

In the report released by the “Brundtland Commission” in 1987 entitled “Our Common Future”, the concept of sustainable development is defined as “the development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. This definition contains two key concepts:

1. Needs: the first priority is to satisfy the essential needs of the world’s poor;
2. Limitations imposed by technology and social organization, which requires a pragmatic approach to optimize the use of the resources currently available here, and now as well as elsewhere and tomorrow.

The notion from the Brundtland report that economic development and protecting the environment were not in conflict culminated in a political commitment on climate and biodiversity and development in the 1992 UN Conference on Environment and Development in Rio de Janeiro (Agenda 21). However, the conference left a very important issue open related to sustainable development, as it did not address the practical problems related to the concept: how to achieve simultaneously global economic growth, improvement in social welfare and environmental protection as well as intergenerational equity.

Although practical applications of the concept of SD have received relatively little attention, it is a very useful concept. Within governments, it provides a therapy for the “tunnel vision” within various departments as it forces integrated policymaking. It also provides the tools to align short-term policy making to medium- and long term objectives. Currently, a bottom-up push for sustainable development seems to be emerging, which is potentially very strong. Examples are the Fair Trade movements, the rise of the green (and ethical) investment funds and eco-labeling. This development is stimulated by consumer choices, which could inspire business to adjust their policy to benefit from this development.

The World Summit on Sustainable Development, which was held in Johannesburg in 2002, reaffirmed SD as a central element of the international agenda, particularly to fight poverty and protect the environment. The summit emphasized the linkages between poverty, the environment and the use of natural resources; particularly energy and sanitation were critical elements in the negotiations. The principle of partnerships between governments, business and civil society was given a large boost by the Summit, and within the mining and minerals sector a few partnerships were indeed announced as some of the outcomes of interest of the Summit.

## **2. HISTORY SD INITIATIVE STUDY GROUPS**

The initiative on Sustainable Development and non-ferrous metals of the International Copper Study Group, International Lead and Zinc Study Group and the International Nickel Study Group started in 1999 when Member Countries of these Groups organized a multi stakeholder workshop in London. The main objective of the workshop was to identify challenges and opportunities to enhance the contribution of non-ferrous metals to a sustainable society. In the workshop, government representatives from Member Countries and some non-member countries, industry, non-governmental organizations (NGOs) as well as other international organizations participated.

The main outcome of the discussion was that partnership between the stakeholders in the non-ferrous metals industry was needed to improve the contribution of this industry in terms of sustainability. The exchange of information between the various stakeholders was considered to be essential to build trust and to improve mutual understanding. A list of specific means to achieve the objectives was compiled. In general, industry was urged to enhance responsible management, and governments were encouraged to support sustainable development with regulations. A Steering Committee of representatives of the Member Countries of the Study Groups was asked to arrange a follow-up meeting.

### **Non-Ferrous Metals Consultative Forum on Sustainable Development**

The Steering Committee organized a multi stakeholder meeting in September 2000 in Brussels to identify specific recommendations and action items, which receive the broadest level of support of all the stakeholders, to enhance the contribution of non-ferrous metals in terms of sustainability. During this first “Non-Ferrous Metals

Consultative Forum on Sustainable Development” (NFMCF on SD), specific consideration was given to efficient production, use and recycling of the (non-ferrous) metals not only from a sustainable development point of view, taking into consideration economic, social and environmental issues. The following six key areas were suggested to be selected for further attention:

- Stewardship Programs;
- Community Consultation and Involvement;
- Promotion of Recycling;
- Research and Development;
- Open and Transparent Mechanisms to Improve Communication;
- Information Development and Dissemination for Decision Making.

To put specific work in these key areas forward, the Forum recommended to establish three ad-hoc Working Groups, comprising of representatives from all stakeholders groups to deal with:

1. Production of Non Ferrous Metals;
2. Product Stewardship, including use and recycling;
3. Science, Research and Development.

#### **Ad-hoc Working Groups**

The Member Countries of the Study Groups agreed to follow the Forum’s recommendation, to establish three ad-hoc Working Groups, each co-chaired by a representative from government, industry and non-governmental organizations. Participants were solicited from all stakeholder groups. Each of the three international metals Study Groups provided secretariat support for a Working Group.

The mandate of the ad hoc Working Groups was to bring together existing work, share information, identify gaps and rapidly initiate relevant activities related to the recommendations identified for future action by the Brussels Forum. To draw up a work plan, each Working Group was asked to consider all the outcomes from the meeting in Brussels, and to take the most appropriate ones forward as quickly as possible

Thirteen Member Countries of the Study Groups signed up to participate actively in the Forum, as well as 15 industry organizations and 25 companies involved in the non-ferrous metals industry. 15 (most environmental) NGOs and academics and 3 international organizations were engaged in the process as well. Representatives from most of these organizations gathered in London in April 2001 to discuss and agree on a working program for each of the ad-hoc Working Groups.

#### **Other Initiatives on Metals, Mining and Sustainable Development**

This initiative of the Study Groups is certainly not the only one dealing with sustainability in mining and minerals. International organizations such as the World Bank and UNEP are involved in more theoretical discussions on mining and sustainability and are also running some projects. National governments participated in the Johannesburg World Summit on Sustainable Development, which also reviewed minerals and metals.

The mining and minerals industry started the Global Mining Initiative to review the strength and weaknesses of mining and processing of metals in terms of sustainability. The results of this initiative were presented in May 2002.

The initiative of the Study Groups is dealing with related issues, and information results of these and other similar initiatives have been used by the Working Groups. The Study Group initiative is unique in the sense that it is government led, and includes representatives from industry and civil society (NGOs), which all have its impact in the identification of the relevant subjects and the decision on which topics to be covered in the follow-up.

### **3. AD HOC WORKING GROUP ON NON-FERROUS METALS PRODUCTION**

About 35 participants registered to participate in this working group, of which six representatives from NGOs (including Universities), nine representatives from Member States of the Study Groups, around 15 industry representatives and some representatives from international organizations. The working group is co-chaired by Mr. David Cammarota, US government, Mr. Alan Young, Mining Council of British Columbia and Mr. Chris Hartley, BHP Billiton, who had to step down in March 2002 because of a change in position. Ms. Caroline Digby, ICMM, succeeded him in August. The International Nickel Study Group provides secretariat assistance.

#### **Objectives**

During the Brussels Forum in 2000, the working group was requested to address issues related to community consultation and involvement. In April 2001, co-chairs and participants met in London to discuss the objectives of this working group and to consider the actual work program. From the discussions, four key areas of interest emerged:

1. Evaluation of policies designed to promote Sustainable Development in the production of non-ferrous metals;
2. Community engagement initiatives;
3. Education and communication initiatives of Sustainable Development in minerals;
4. Economics of Sustainable Development and minerals.

Taking into consideration the limited availability of financial resources and the voluntary character of the initiative, participants agreed to concentrate on the first two topics. The other two items were deemed to be also highly important, but were considered to be more long term in nature and requiring specific knowledge.

Members decided that the key issue of this group should be “to identify the characteristics of successful SD initiatives in the minerals and metals production, focusing on community engagement”. For the selected key issues specific objectives were formulated:

Sustainable Development (SD) Drivers: To improve the understanding on how society promotes or inhibits more responsible practices that respect the combination of social, environmental and economic goals through the life cycle of minerals development;

Community Engagement (CE) Approaches: To get a better understanding of where and how companies and government, communities and NGO's have developed meaningful and satisfying community engagement strategies and tools.

### **Work Program**

Members of the working group agreed to work simultaneously on both issues. The best way to achieve the objectives was considered to inventory and evaluate the various incentives and disincentives for SD, and a range of approaches to community engagement (successes and failures), drawing on the experience and the expertise of the working group members and their networks. Submissions for both inventories were requested from members of the working group and others.

### **Procedures**

The co-chairs designed templates to obtain inputs in a comparable format for the respective inventories. More than 55 examples of SD drivers were provided and around 35 examples of CE approaches. The templates and replies have been posted at the working group area of the NFMSD website of the Forum ([www.nfmsd.org](http://www.nfmsd.org)) without any editing. Members of the working group discussed the submissions in telephone conferences.

The Porto Forum (November 2001) reviewed the first results of the ad-hoc Working Groups and proposed ways forward. The Working Group on Production was asked to continue its work on SD drivers and CE, and was specifically requested to bring in the financing and financial service community (debt and equity, green investments) in the process, as it was felt that this sector might become an important driver for sustainability.

The co-chairs organized a face-to-face meeting in Toronto in March 2002, with the objective to bring together representatives of the working group, experts in SD and CE and representatives of the financial sector. Participants discussed, challenges and opportunities in making future contributions to a sustainable society for each stakeholder group involved in non-ferrous metals production. The presentations as well as the report of the meeting are posted on the NFMSD website.

### **Sustainable Development and Non-Ferrous Metals Production**

Before reviewing the results of the working group in more detail, a short introduction on SD and mining and metals is presented. Currently the concept of SD is based on three pillars (dimensions): an economic, social and environmental pillar, which are often referred to as the three P's: Profit, People, and Planet. The main function of each pillar and some key issues can be summarized as follows:

- Economic (Profit): to provide the necessary means for satisfy social needs and innovations. *Key issues*: efficient and stable growth, shareholders value;
- Social (People): quality of life. *Key issues*: poverty alleviation, education, health and safety;
- Environment (Planet): this is a dualistic pillar: it can be considered as a resource as well as a sink, which both can potentially put a limit to growth. *Key issues*: availability of natural resources, recycling, and pollution.

Initiatives to promote SD can be categorized on their sphere of influence. On the *global level*, SD is promoted by a wide range of binding and voluntary initiatives from intergovernmental bodies such as the World Bank, UNEP, OECD and many others. Also on the *national level* legislation and voluntary agreements are means to put SD initiatives forward. On the *local (project) level* SD can be promoted by national initiatives (development plans, mining laws), but can also be linked to local community needs and corporate policies.

SD initiatives can be generic, as for example the Kyoto protocol and the Millennium Development Goals as proposed by the UNEP, or industry specific, for instance affecting specifically the mining and minerals industry, such as the Berlin Guidelines issued by UNEP, World Bank initiatives, the Global Mining Initiative. This distinction can also be made at the national and local level.

Participants in the working group meeting in Toronto suggested to define Sustainable Development for the non-ferrous metals industry as: “*an attitude to integrate economic, environmental and social issues into strategic decisions for the exploration, development, operating, marketing and recycling of (non-ferrous) metals and its products*”.

To reflect and evaluate the contribution of this industry in terms of sustainability, a set of objective and measurable indicators<sup>1</sup> and criteria<sup>2</sup> is needed. At the meeting of the working group in Toronto, it was clearly indicated that the currently available SD indicators do not reflect entirely the real contribution of the mining and minerals industry (including the non-ferrous metals industry) to sustainable development. For that purpose, a specific set of indicators and criteria is needed.

The most visible and direct impact of non-ferrous metals production in terms of sustainability is prevailing at the local (plant) level. At this level, Health and Safety issues are very important, not only inside the company, but also for the community. The contribution of the industry to the local health care therefore needs to be reflected in an SD indicator, and to evaluate the effectiveness of a company’s initiative, specific criterion need to be applied. Appendix 1 summarizes some issues, which indicate the contribution of the non-ferrous metals industry to SD, and could provide a basis for criteria to evaluate the effectiveness of specific actions. The final choice of indicators and criteria will (ideally) depend on local conditions and priorities of the parties involved.

#### **4. DRIVERS FOR SUSTAINABLE DEVELOPMENT IN THE NON-FERROUS METALS INDUSTRY**

The working group agreed that the best way to identify the characteristics of successful SD initiatives in minerals and metals production was to improve the understanding of the driving forces of SD. Therefore, an inventory of SD drivers was compiled to evaluate the various incentives and disincentives, drawing on the experience and the expertise of the working group members and their networks.

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<sup>1</sup> Indicator: an instrument or device to provide specific information.

<sup>2</sup> Criteria: standard to judge or evaluate whether the objectives are met.



In addition, a face-to-face meeting was convened to supplement additional information to the inventory, and to address issues related to the financial sector as a potential driver for SD.

### **Inventory of SD Drivers**

A SD driver is defined as “*every initiative to promote (or inhibit) responsible practices taking into account economic, social and environmental goals*”. The inventory includes 58 entries, covering around 55 initiatives, mainly from developed countries. Respondents summarized the initiatives according to the template as prepared by the co-chairs. The submissions (which are posted on the working group area of the NFMSD website) have been included in the inventory without changes. Most of the initiatives (35) are government driven, or initiated by intergovernmental organizations such as OECD, and UNEP. Nine initiatives were reported to be a combined initiative of governments and industry, while 13 are exclusively industry led. In reviewing the results, working group members had the feeling that industry is involved in much more initiatives, which are not recognized as SD initiatives because they are considered as “business as usual”.

Most of the drivers focus on environmental issues. About a quarter of all drivers was reported to include a “triple bottom line” approach, addressing social, economic and environmental topics simultaneously; all were instigated by governments or international organizations. Half of the initiatives addressed two dimensions of the SD concept (economic/environment and social/environment); the rest of the drivers were reported to focus on just one pillar, the majority on the environmental one.

Respondents were also asked to evaluate the effectiveness of the initiatives they submitted. About 20 drivers were qualified as being very effective in meeting the SD objectives, while about 15 were reported to be weak or to have failed. The initiatives, which were assessed as affective, are included in Appendix 2. For the other submissions, results were reported to be unknown, or no qualification was included. The criteria used by the respondents to evaluate the initiatives were not indicated. One driver (Accelerated Reduction an/or Elimination of Toxics, ARET) has been included in two submissions, and was evaluated as being “successful” and at the same time as being “weak”.

### **Working Group Meeting in Toronto**

This meeting was a very useful addition to the inventories. Experts on SD in the mining and minerals sector provided presentations, which were reviewed by members of the working group. Representatives from the financial sector were invited to present their views on the possible impact of their activities as a driving force of SD in the mining and minerals industry. A full report of this meeting and the presentations are posted at the NFMSD website.

One of the conclusions from this meeting is that the mining and minerals industry definitively need to improve its economic, social and environmental performance in order to retain its “license to operate”. Therefore, the industry needs to consider the added value of incorporating SD initiatives in its company strategy, and to communicate the results clearly to all stakeholders. However, it also appeared that

current indicators are not well designed to assess the performance of the mining and minerals industry in terms of its contribution to SD.

It was generally recognized that the financial sector could become a major driving force for the mining and minerals industry, if specific conditions are requested to secure access to capital. Representatives from the debt and equity side of the financial market indicated that, “hard data” such as mine depletion and exploration activities are still more important to secure financial sources than a company adhering to SD principles in its strategy. Every mining company is expected to follow the World Bank mining guidelines, and those following explicitly SD principles do not have easier access to equity or more favorable terms when increasing debt. However, representatives from the green investment sector presented some studies indicating that mining companies, which show a high score on “SD indicators”, tend to outperform the industry averages. This does not necessarily indicate a correlation between corporate SD approach and economic performance; companies that incorporate SD principles in their business strategies could simply be better managed.

## 5. COMMUNITY ENGAGEMENT APPROACHES

To get a better understanding of current Community Engagement (CE) strategies and tools, participants in the working group and others were requested to provide examples to be included in a database. Some respondents indicated that much more CE initiatives are underway than actually included in their submissions. Conference calls with participants and the meeting in Toronto were important to put the submissions in the inventory in perspective.

### **Inventory on CE Approaches**

The inventory contains about 30 examples of various CE approaches in developed and developing countries. Respondents summarized the initiatives according to the template as prepared by the co-chairs. The submissions, which are posted on the working group area of the NFMSD website, have been included in the inventory without changes.

Around half of the initiatives included are initiated by industry; only seven were entirely government driven. Some 15 of the approaches could be classified as promoting community development, including five initiatives which were not classified according to the categories as indicated in the template, but fit well in this category. The majority of these initiatives (13) were on instigation of industry, in two cases together with local authorities. The focus was mainly on capacity building (to provide tools to solve local problems) and creation of trusts, aiming to provide specific services to the community. A specific subcategory was medical services.

The respondents were asked to assess the success of an initiative as strong, weak, failed or unknown. 16 submissions were considered to have been very effective, while three were evaluated as weak. The initiatives, which were assessed as affective, are included in Appendix 3. The effectiveness of the other initiatives was reported as “not known”, or not evaluated at all. Similar to the evaluation of the

effectiveness of the SD drivers, it is not clear which criteria were used to qualify the success of the CE approaches.

Some examples (particularly those on medical services) included indicators, which could be used as a basis for assessing the success of an initiative (lead blood levels, the amount granted to special programs). From the submissions it is not clear if criteria were established and whether or not they were met.

### **Working Group Meeting in Toronto**

The presentations confirmed the findings from the inventory that community engagement can be driven by various stakeholders in both developing and developed countries. Governments can promote community engagement at national level, but also on regional and local level. It can also be based on court decisions, particularly findings that confirm obligations from governments to consult with “first nations” and those addressing landowner rights. Industry can initiate community involvement on a company level, but also on an industry wide basis. Effective community engagement requires capacity building from all parties involved, but the overriding prerequisite is trust.

Mining projects are temporary, and preparing for closure should already start in an early stage of the project. Provisions will have to be made for site rehabilitation, but communities should also prepare in an early stage for a life without the mining operation. To engage communities in an early stage was considered to be essential to prepare for such a big change.

## **6. CONCLUSIONS**

The databases on both SD drivers and EC approaches are limited, and do not provide a comprehensive overview of what is driving SD, respectively how communities are engaged in projects. However, they are assumed to give at least a representative overview, with some gaps: regional coverage (few entries from developing countries in the SD drivers inventory) and stakeholders (NGOs, industry). A few of these gaps have been filled by the presentations and discussion during the face-to-face meeting.

Both inventories provide information on who started the initiatives, the scope and the drivers. They also contain an assessment of the effectiveness of the initiative. The rating of success is based on personal observations and interpretation of the respondents. Indicators and criteria on which these assessments are based have not been provided for most of the initiatives. A few examples of community engagement, particularly those addressing medical issues, do include some indicators. In the submissions it was not clear whether these indicators were used in assessing the initiatives or if other indicators or criteria were applied.

A wide range of tools to assess the effectiveness of specific initiatives in terms of sustainability exists, and is further developed. However, most current indicators and criteria still consist of a mixture of quantitative and qualitative measures, and particularly triple bottom line criteria are not yet available, certainly not those which

take “future needs” into consideration. Therefore it is difficult to evaluate objectively the effectiveness of specific initiatives in contributing to sustainable development. Moreover, at the Toronto meeting it was emphasized that general indicators and criteria do not meet the needs of the mining and minerals industry, including the non-ferrous metals industry.

To visualize the current trade off between the three pillars of the SD concept, the co-chairs applied a ternary diagram, which is included in Appendix 4. Although useful, this diagram cannot show all the possible effects of an initiative. It is realistic to consider a wide variety of potential outcomes, ranging from direct compromises to significant synergistic benefits, depending on local conditions and priorities of the SD policy makers.

The financial sector is potentially an important driver for SD in the mining and minerals industry, as was revealed at the Toronto meeting. To date, it has been difficult to demonstrate directly the link between adhering to specific SD principles and the benefit to a company in terms of easier or lower cost access to finance. Although studies indicate that companies which show a high score on “SD indicators” tend to outperform the industry averages, this cannot be attributed unambiguously to incorporating SD principles in the strategy of a company. Clearly, further work is required to establish the nature of the financial institutions’ role as a driver of improvement in the environmental and social performance of mining and metal companies.

## **7. CO-CHAIRS RECOMMENDATIONS**

Based on the conclusions of the Working Group on Non-Ferrous Metals Production to date, it is suggested that the Forum considers the follow-up activities outlined below:

1. Develop criteria for evaluating the effectiveness of the various Sustainable Development initiatives and Community Engagement approaches collected by the working group and compiled into the two inventories;
2. Draw out the common threads from the work done to date on the Sustainable Development Drivers and the Community Engagement approaches to assist in focusing the work of the working group moving forward;
3. Possible new areas of focus to be developed:
  - Identify where governments are most successful in promoting policies that support sustainable development in the mining and metals sector and what impediments they face;
  - Assess the potential of the financial sector in promoting sustainable development in the mining, mineral and metals industry;
  - Identify possible ways to integrate the Community Engagement approaches identified as effective in 1. above into the work of the Product Stewardship Working Group.

The co-chairs of the Production Working Group would like to thank the International Nickel Study Group secretariat for all the work they have done to date in supporting this initiative. We recognize that they are facing increasing pressure on their time and resources and we are therefore keen to establish the degree of support among the working group for each of the elements outlined above. At the annual meeting in the Hague, we will be seeking to prioritize these projects and to establish if we can find a more effective way of drawing on the working group members' participation over the coming year to move the agreed agenda forward.

## Appendix 1

### SD INDICATORS FOR NFM PRODUCTION

Below you will find a summary of some key issues for each pillar of the SD concept, which could be used to indicate the contribution of the non-ferrous metals industry to SD, and could provide a basis for criteria to evaluate the effectiveness of specific actions.

The set of indicators could be used for different purposes:

- a) Historical series: the composition of the quantitative indicators on the three pillars of SD over time is extremely useful to assess the SD performance of a company (or industrial sector), with objective tools (provided there is a common agreement on the definition, the data collection and the meaning of the suggested figures). It is also possible to make comparisons between different metals and with other industrial sectors, either at fixed dates or dynamic. To evaluate the effectiveness of a specific action, thresholds can be assigned to indicators (criteria).
- b) Cross indicators: providing data on mixed-indicators is also very interesting for specific companies or industry that wishes to enhance its SD approach. Examples are:
  - Energy consumption/production;
  - Water consumption/production;
  - Number of casualties/output;
  - Emissions/level of output.

Here again, comparison over time and with other industrial sectors may serve as a corporate target or even become the basis for a “criteria” defined on a voluntary basis or by regulation to measure or to promote SD performance.

#### Economic

- Profit operation;
- Production/output;
- Energy consumption;
- Investments: R&D, exploration, maintenance, plant expansions;
- Contribution of company to local budget;
- Other financial contribution:
  - Current activities;
  - Future activities: after closure of the operation;
- Transport infrastructure

**Social:**

- Employment: direct and indirect (total and as proportion of total workforce);
- Occupational injuries and casualties;
- Contribution to local health care (which may fit into national or international campaign such as fighting HIV/AIDS in South Africa);
- Training and education:
  - For current positions;
  - For post operation positions;
- Road infrastructure;

**Environment:**

- Energy consumption;
- Water use;
- Land use;
- Mine site rehabilitation;
- Emissions: to water, air;
- Waste generation and handling;

Social Local Y Strong  
 Environmental Regional N Weak  
 Economic National Unclear Failed  
 Soc/Econ Trade Area Still Active Unknown  
 Soc/Env UN  
 Econ/Env Site  
 Triple Bottom In Other

APPENDIX 2

Effective Sustainable Development Drivers in the Metals Sector  
 An inventory of policy, regulatory and voluntary instruments and initiatives

Timeframe for Example	What is the specific incentive or disincentive to meeting SD objectives	Who initiated this initiative?	Who were the target of this initiative?	What was the objective of the initiative?	What instigated or caused this initiative?	Who was involved in making this initiative happen	What was the focus? (Note categories of choices above)	At what level did the initiative apply?	Is this initiative completed	What was the effectiveness of this initiative in meeting SD objectives	Reference	Further Comments
apr-98	Landfill Tax	UK Government - Treasury	Industry/ Local Authorities/Service sector	Reduce waste to Landfill/increase recycling	EU policy on waste minimisation	UK Government	Econ/Env	National	Still Active	Strong	http://www.defra.gov.uk/environment/waste/strategy/pdf/report.pdf	Strong impact in terms of reducing amounts of waste going to landfill. Question mark over increased costs for recyclers.
1992 to date	Waste Classifications	Various agencies: OECD bodies & National	National Governments	Safeguard developing countries from the uncontrolled dumping of hazardous waste from developed countries	OECD	National Governments	Triple Bottom line	Other	Still Active	Strong	<a href="http://www.basel.int">http://www.basel.int</a>	Problems with waste definition are a barrier to SD
1992	Integrated Pollution Control Licensing	Irish Government	Large potentially polluting industries	More effective licensing system applying Best Available Technology not Entailing Excessive Costs	Government initiative responding to popular concerns	Government, Civic society, Industry	Econ/Env	National	Still Active	Strong	http://www.epa.ie	
1990	Environmental Impact Assessment	Irish Government	Projects with potentially significant environmental impacts	Identification of environmental, social and economic impacts; mitigation of potentially adverse impacts	EU Directive	Government	Triple Bottom line	National	Still Active	Strong	Directive 85/337/EEC: European Communities (Environmental Impact Assessment) Regulations, 1989 to 1988	
Ongoing	Package of measures encouraging responsible exploration	Irish Government	Exploration companies	Ensuring responsible exploration	Response to anti-mining lobby and Government policy to encourage mineral development	Exploration and Mining division Dept. of the Marine and Natural Resources	Triple Bottom line	National	Still Active	Strong		
2001	Schools environmental project	The Lisheen Mine	Local schools	Increased environmental awareness by local children	Company policy	The Lisheen Mine management	Soc/Env	Local	Y	Strong		
Ongoing	Requirements in permits for infrastructure to mitigate impacts, e.g. road remedial water supplies	Permitting agencies	Developers	Ensure that projects bear related costs	Local pressures	Permitting agencies	Triple Bottom line	Local	Still Active	Strong	Minerals Development Acts; Local Government (Planning & Development) Acts.	
1992	Environmental Impact Assessment System	Chilean Government	Large potentially polluting industries	Identification of environmental, social and economic impacts; mitigation of potentially adverse impacts	The Chilean law	Government, Civil society, Industry	Triple Bottom line	National	Still Active	Strong	http://www.conama.cl	
Since 1992 to 1998	Environmental decontamination Plans (5 Plans)	Chilean Government	To reduce emissions of some pollutants (Sulfur dioxide, PM10)	To comply with air quality standards of the country (primary and secondary standards)	The Chilean law	Government and industry	Soc/Env	National	Still Active	Strong	Supreme Decree 185 of the Mining Minister (1991); Environmental Law 19300; <a href="http://www.conama.cl">http://www.conama.cl</a>	
Since 1995 to 2001 (Ongoing 6th Plan)	Process to establish national environmental standards for air, water and residues	Chilean Government	National standards prioritized annually	To protect human health and ecosystem	Response to Government policy to encourage the quality of the environment of the country	Government, industry and civil society	Triple Bottom line	National	Still Active	Strong	http://www.conama.cl	



Social Local Y Strong  
 Environmental Regional N Weak  
 Economic National Unclear Failed  
 Soc/Econ Trade Area Still Active Unknown  
 Soc/Env UN  
 Econ/Env Site  
 Triple Bottom In: Other

APPENDIX 2

Effective Sustainable Development Drivers in the Metals Sector  
 An inventory of policy, regulatory and voluntary instruments and initiatives

Timeframe for Example	What is the specific incentive or disincentive to meeting SD objectives	Who initiated this initiative?	Who were the target of this initiative?	What was the objective of the initiative?	What instigated or caused this initiative?	Who was involved in making this initiative happen	What was the focus? (Note categories of choices above)	At what level did the initiative apply?	Is this initiative completed	What was the effectiveness in meeting SD objectives	Reference	Further Comments
1996 and ongoing	Social programs to support initiatives related to health, job and education, and to encourage social groups (like indigenous groups, unions, neighboring groups)	Minera Escondida Foundation is an independent non-profit institution that was created by Minera Escondida Limited in the second region (province of Antofagasta) of Chile	Sectors living in poverty conditions. Six areas of working: micro-entrepreneurial development programs; labour insertion; support of educational programs; support to health conditions; indigenous communities; social institutions	Improving the standard of living from communities	Corporate policy	Non profit institution	Soc/Econ	Local	Still Active	Strong	www.bhp.com	
September 2001	Open house for local schools	OMG Harjavalta Nickel	Local Community and Government	Facilitating dialogue with community	Outsourcing activities	13 various companies together	Soc/Env	Site	Y	Strong		
Spring 2001	Meetings with community political decision makers	OMG Harjavalta Nickel	Local Community and Government	Facilitating dialogue with community on environmental permits	New plants to be built	Harjavalta Community, OMG Harjavalta Metals	Soc/Env	Local	Still Active	Strong		
1995	Mine Environment Neutral Drainage (MEND) program	Canadian Government	Mining industry	Prevent, mitigate and reduce harmful effects of acid rock drainage	High liability costs for remediation	Canadian mining companies and provincial and federal departments	Environmental	national	Still active	Strong	http://mend2000.nrcan.gc.ca/default_e.htm	
1995	Mine Environment Neutral Drainage (MEND) program	Canadian Government	Mining industry	Prevent, mitigate and reduce harmful effects of acid rock drainage. The key to MEND 2000 is technology transfer. That is, to provide state-of-the-art information and technology developments to users via workshops, reports and online services.	High liability costs for remediation	Canadian mining companies and provincial and federal departments	Environmental	national	Still active	Strong-Through the MEND program, Canadian mining companies and provincial and federal departments have reduced the liability due to acidic drainage by at least C\$400 million. This is an impressive return on an investment of C\$17.5 million over 8 years.	http://mend2000.nrcan.gc.ca/default_e.htm	

Social Environmental Economic Soc/Econ Soc/Env Econ/Env Triple Bottom Lin Other  
 Local Regional National Trade Area UN Site  
 Y N Unclear Still Active  
 Strong Weak Failed Unknown

APPENDIX 2

Effective Sustainable Development Drivers in the Metals Sector  
 An inventory of policy, regulatory and voluntary instruments and initiatives

Timeframe for Example	What is the specific incentive or disincentive to meeting SD objectives	Who initiated this initiative?	Who were the target of this initiative?	What was the objective of the initiative?	What instigated or caused this initiative?	Who was involved in making this initiative happen	What was the focus? (Note categories of choices above)	At what level did the initiative apply?	Is this initiative completed	What was the effectiveness of this initiative in meeting SD objectives	Reference	Further Comments
1996	Minerals & Metals Policy of the Government of Canada	Federal Government Departments, Minerals and Metals industry		Affirms provincial jurisdiction over mining; delineates a role for Government in minerals and metals; Government to pursue partnerships with stakeholders.	To fulfill Departmental mandate to promote the sustainable development of Canada's natural resources.	Canadian government.	Triple	national	Still active	strong	<a href="http://www.nrcan.gc.ca/mms/sdev/policy_e.htm">http://www.nrcan.gc.ca/mms/sdev/policy_e.htm</a>	
1995	The Mining Association of Canada Environmental Policy	Association member companies operating in Canada and the rest of the world.		Commit to sustainable development, in all jurisdictions, in addition to complying with legislative requirements, member companies will diligently apply technically proven and economically feasible measures to advance protection of the environment throughout exploration, mining, processing, manufacturing and closure.	To promote sustainable development practices within association member companies.	Canadian mining industry	Environmental	national and international	Still active	strong - developed by the environmental managers of major mining companies in Canada and endorsed by their Chief Executives. The Mining Association of Canada was the world's first national mining body to adopt an environmental policy.	<a href="http://www.mining.ca/english/initiatives/enviro.htm">http://www.mining.ca/english/initiatives/enviro.htm</a>	
1996	International Lead Management Center, Inc.	International lead industry		The International Lead Management Center is charged with the implementation of a voluntary Industry Lead Risk Management Project.	Industry response to the Environment Ministers of the Organisation for Economic Cooperation and Development (OECD) 1996 Declaration on Risk Reduction for Lead.	International industry - BHP Cannington, M.I.M. Holdings Limited, The Doe Run Company, Pasminco, Umicore, Industrias Perfiles, S.A. de C.V, Teck Cominco, ASARCO, Boliden Limited, Noranda Inc.	Environmental, human health	international	Still active	strong - multistakeholder pilot programmes established in Philippines, Mexico, Russia and Peru.	<a href="http://www.ilmc.org/">http://www.ilmc.org/</a>	

Social Environmental Local Regional Y Strong  
 Environmental National N Weak  
 Economic National Unclear Failed  
 Soc/Econ Trade Area Still Active Unknown  
 Soc/Env UN  
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1995	Mines Ministries of the Americas (Conferencia Anual de Ministerios de Minería de las Américas - CAMMA)	Minister of Energy and Mining of Venezuela invited all other Mines Ministers of the Americas to discuss mining political aspects. During this meeting, Ministers Arrieta (Venezuela) and Teplizky (Chile) developed the idea of CAMMA.	Governments, mining industry	CAMMA is the only high-level forum in the hemisphere to address sustainable mining development issues. CAMMA recognizes that mining contributes decisively to the economies of all mining countries and reinforces the importance of hemispheric cooperation.	To work on a common approach and coordinate policies on sustainable development, work on a common approach and coordinate policies on the safe use of minerals and metals and monitor the degree of progress in the priority areas indicated in the conclusions of the Meeting of Experts held in Santiago, Chile.	Mining Ministries in the Americas	Triple	International	Still active	strong	<a href="http://www.camma.org/">http://www.camma.org/</a>	

APPENDIX 3

- Environmental assessment
  - Community development promotion
  - Cross cultural communication
  - Access to information
  - Operational monitoring
  - Consultation evaluation tools
  - Other
- Y Strong
  - N Weak
  - Unclear Failed
  - Still Active Unknown

**Effective Community Engagement Strategies in the Metals Sector**

*An inventory of corporate, government, NGO, and community efforts to promote meaningful community participation*

Timeframe for Example	What is the specific community engagement program	Who initiated this program?	Who is involved in this program?	What was the objective of the program?	What instigated or caused this program to be established?	Who was involved in making this program happen	What was the focus? (Note categories of choices above)	Is this program still active?	What was the effectiveness of this program?	Reference
1999/2000 and 2001/2003	Movement of the mining workers and families to non-affected local areas (from the Potrerillos and the Chuquicamata operations)	Chilean Government	Government, mining workers, industry	To avoid population surrounding mining sites are exposed to pollutants	To comply with the Decontamination Plan	Industry	Environmental assessment	Still Active	Strong	<a href="http://www.codelcochile.com">www.codelcochile.com</a>
mei-96	National and Regional Councils of Advisors on the Environment	Chilean Government	Scientists, business community; NGOs, labour unions, governmental officer	To coordinate environmental efforts at the regional level and to comply with others functions entrusted by the law. To pronounce upon questions on the environment at each region of the country.	The Chilean Basic Law on the Environment	Chilean environmental agency (CONAMA)	Environmental assessment	Still Active	Strong	<a href="http://www.conama.cl">http://www.conama.cl</a>
2001	Indigenous Partnerships Program	Australian Government	Government, industry community	Establish and maintain sustainable business relationships with indigenous communities	Establishment of sound relationships recognizing cultural differences and opportunities for economic independence	Government, industry and indigenous communities	Cross cultural communication	Yes	Strong	<a href="http://www.isr.gov.au/resource/s/indigenous-partnerships/">www.isr.gov.au/resource/s/indigenous-partnerships/</a>

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1999 - present	Strategic Framework for Mine Closure	Australian Government, Minerals Council of Australia	Government, industry community	Provide best practice framework for mine closure	Encouragement of the development of comprehensive closure plans	Government, industry, NGO's and community	Environmental assessment	Yes	Strong	www.isr.gov.au/resource/s/anzmec/mine_closure.html
1989-present	Falconbridge Foundation Inc.	Falconbridge Dominicana, C. por A.	Local Community, Government and Industry	Mission is to promote equitable, responsible and participatory self development in the provinces of Monseñor Nouel and La Vega, Dominican Republic	To enhance the educational, cultural and social conditions, local to empower the local community to solve local problems, support programs related to health care and disease prevention in rural communities	Falconbridge Limited, local government, local communities.	Community development promotion	Still Active	Strong - over US\$7.8 million in grants distributed from 1990 to 2000, of which 64% directed towards education, 17% on environment, 10% on health, 7% on cultural programmes	

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1993 - present	Raglan Agreement	Falconbridge Limited	Local Community and industry	To provide a framework for employment opportunities for the local Inuit populations, process for priority bids for contracts, the establishment of a local trust fund and mitigation and monitoring of the environment beyond regulatory requirements.	Sensitivity to the remote northern location and potential for economic, social and environment impacts	Falconbridge Limited, Quebec government, Makivik Corporation and two of its subsidiaries (the Qarqalik Landholding Corporation of Salluit, the Nunaturlik Landholding Corporation of Kangiqsujuak (Wakeham Bay)) and the communities of Salluit and Kangiqsujuak.	Community development promotion	Still Active	Strong- first Canadian mining project to complete an impact/benefits agreement with the local aboriginal people. Falconbridge went received the Quebec First Peoples Business Association Grand Prize in 1997, in recognition of its efforts in native employment, its support of aboriginal business and the Raglan Agreement.	<a href="http://www.falconbridge.com/">http://www.falconbridge.com/</a>

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1990-2000	Trail Community Lead Task Force	Cominco Limited, City of Trail	Cominco Limited, Province of British Columbia, City of Trail, local community groups	To develop a strategy for reducing children's lead exposures in the city of Trail.	Studies indicating children's blood lead levels in Trail were significantly higher than those in the nearby communities.	Cominco Limited, City of Trail, British Columbia Ministries of Health and Environment.	Operational monitoring	No	Strong - Task Force completed its original mandate in January 2001 and delivered a series of recommendations to the BC Ministry of Environment	<a href="http://mypaq.e.direct.ca/ltip/">http://mypaq.e.direct.ca/ltip/</a>
2000 - present	Dome Watchful Eye	Local citizens group	Local residents, City of Timmins, local community groups including environment, Chamber of Commerce, Timmins Economic Development Corporation, Dome Mine employees.	To be an informed sounding board in liason with Dome Mine to assist in problem solving and to work towards building a sustainable community.	Formed to support Dome Mine's sustainability Policy	Local citizen groups	Operational monitoring	Still Active	Strong - Dome Watchful Eye committee was bestowed the prestigious Award of Merit presented by the City of Timmins Mayor for it's commitment and dedication to the environment.	<a href="http://www.dome.com/lacerdome.com/">http://www.dome.com/lacerdome.com/</a>

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1999 - present	Mining Vocational Training Institute "Centro Educativo Vocacional El Mochito (CEVEM)"	Industry, local community groups	Breakwater Resources, in partnership with the local Catholic Parish and USAID	To improve the educational level of the company's employees and their families as well as members of the local community.	To improve local conditions and levels of education at El Mochito mine, Honduras.	Local industry, local community and international aid agency.	Community development promotion	Still Active	strong	<a href="http://www.breakwater.ca/respons.htm">http://www.breakwater.ca/respons.htm</a>
1982	Cominco Alaska/NANA Agreement	Industry, local community groups	Cominco Limited, Northwest Alaska Native Association (NANA)	To allow indigenous people to pursue their traditional lifestyle while at the same time provide modern training and employment.	To provide for a schedule of royalty payments, and profit sharing, joint management and advisory committess, training, and employment programmes, as well as environmental protection	Local industry and local indigenous community association	community development promotion	still Active	strong	<a href="http://www.teeckcominco.com/">http://www.teeckcominco.com/</a>
1999 - present	Mozal Community Development Trust	Mozal Shareholders (BHP Billiton, Mitsubishi, IDC & Mozambique Gov't)	All levels of gov't, NGO's, local community (10km) & industry	Small bus dev Education & training Health & environ Culture Infrastructure	Integral part of project development to address social issues	Mozal shareholders	Community development promotion	Still Active	Strong	<a href="http://www.mozal.com/">http://www.mozal.com/</a>



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1980s - present	Billiton Development Trust	Gencor (acquired Billiton in 1994)	All levels of gov't, NGO's, local communities & industry	Socio-economic development of communities	Recognition of shortage of resources from Gov't	Gencor/ Billiton	Community development promotion	Still Active	Strong	<a href="http://www.billiton.com/">http://www.billiton.com/</a>
1990s - present	Fundacion San Isidro	Cerro Matoso SA (Billiton)	Local Communities & Industry	Socio-economic development of communities	Development of local skills	Billiton	Community development promotion	Still Active	Strong	<a href="http://bhpbilliton.com">http://bhpbilliton.com</a>
1988 - present	BHP Community Trust	BHP	Local Communities & Industry	Socio-economic development of communities	Development of local skills	BHP	Community development promotion	Still Active	Strong	<a href="http://bhpbilliton.com">http://bhpbilliton.com</a>
1999-present	Ekati Independent Environmental Monitoring Agency	Government of Northwest Territories (Canada), BHP, and Dogrib First Nation	regional and national government, company, Aboriginal groups	monitoring operational issues at Ekati diamond mine	Follow-up to Environmental Assessment to address outstanding community concerns	company, regional and national government and aboriginal organizations	Operational monitoring	Still Active	Strong	
1997 to present	Environmental Information Programme at Lisheen Mine (Irish Republic)	Anglo American, Environmental Protection Agency, local community	Local Community, EPA, Lisheen Mine(Anglo American)	To provide on-line environmental monitoring information, environmental reports and rapid response to environmental queries from the local community	Local community wanted full access to environmental information	Lisheen Mine(Anglo American), EPA	Operational monitoring	Still Active	Very Good Community Relations	

## Appendix 4

### TERNARY DIAGRAM: A SCHEMATIC REPRESENTATION OF DEVELOPMENT STYLES

