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The MMSD exercise goes a long way towards showing us where we are, where we want to be and where we appear to be going. Through a series of meetings and workshops MMSD has identified and focused attention on the key issues that mining will face in coming decades and has provided an impressive base of information and analysis to guide us along the path to the future. In the process it has also identified some hundreds of concerned specialists throughout the world, given them a taste of the possible and to some extent whetted their appetites for more. We have an Agenda for Change, we have links to the Agents of Change. We do not yet have the Framework for Change within which we can move forward towards this newly defined future.

Not since the President's Materials Policy Commission produced "Resources for Freedom" (the Paley Report) in 1952 has the mineral industry been subjected to such a comprehensive review. Comparing the Paley Report and the MMSD exercise reveals much about the changes over the last 50 years. Each was done in a very short time (the President's Commission was established in January, 1951 and the report was available in June, 1952 – less than 18 months), each drew on a wide range of expertise which in 1950 was heavily concentrated in the US, and each considered the future of the mineral industry, but from very different perspectives.

At mid century there was serious concern that the wartime draw down of the world's limited mineral reserves (as then perceived) would seriously hamper world economic recovery and development. The five volumes of the Paley Report provided the required assurances, and led to the formation of a new generation of groups such as Resources for the Future, Inc. that carried out research to further allay these concerns. Today the view is quite different and we approach Change from a very different starting point.

In 1950 the concepts of sustainable development, environmental impact, governance and stakeholders were just beginning to emerge and these terms don't appear in the Paley Report. In the 1950s the only active stakeholders were government (including the colonial powers who controlled much of the world's mineral wealth) and industry. Labour and academia provided services and support, the United Nations and other International Organizations were still searching for their role, and activist NGOs were in the future. One must agree that "the number of constituencies and their demands are far more diverse today." (3-3)

We look at where we are today, and know that with the accelerating rate of change, the changes in the next one or two decades will be at least as impressive. It seems likely that the approach to the world mining system will be different from what it was even two years ago, in large part due to the success of the MMSD exercise. The MMSD Report has zeroed in on a host of issues that were poorly defined, and has identified goals for a host of researchers for the foreseeable future. What is the framework for promoting, coordinating, implementing, monitoring and evaluating elements of the Agenda for Change as the world mining system moves towards the future?

More on this later. As with many of those commenting on the Report, I have read several Chapters, scanned the rest and have been most favourably impressed. As is noted on page 9, "this effort has brought the issues just past the starting line." but it provides a great point from which to begin. As a start, I would like to touch on a few things that keep recurring in the Draft Report.

The concept of best practices is mentioned a dozen or more times without any very clear definition of what is meant. Perhaps this is a case where we will know it when we see it. The Report identifies a series of critical issues – environment, mine closure, human rights, protected areas, and indigenous peoples, among others. Could a set of short case studies of "best practices" for each of these be collected and put on a dedicated website? There are models for this, and UNCTAD/UNEP have a relevant website at <www.mineralresourcesforum.org>. By the same token it might be useful to have a parallel list of "worst practices."

The World Bank is mentioned in almost every chapter, sometimes several times. Clearly the Bank is a major player in the world mineral system. Is the role of the World Bank generally recognized as being this pervasive and this important? It is interesting that this review comes at the time when the bank is going through its own Extractive Industries Review to see if and how it should continue to be involved in the extractive industries. Those conducting the review should be aware of the critical role that the Bank plays here as a guide and standard setter, and that any decrease in the Bank's level of involvement would be a serious blow to the future of the industry.

Chapter 12 deals with Access to Information, and indeed, much of the report has to do with access to information. What are the major sources of information on mineral development? I could list a dozen or more, but there must be hundreds, many of them obscure and hard to access. Would it be possible to set up a matrix of all the different topics and categories that are identified in the Draft Report, with links to the related websites? Some of this is being done by groups like Infomine <www.infomine.com> Perhaps a first step is an index of information sites.

The MMSD started off with four clearly defined objectives. (p. 3) The first three involved reviewing and assessing the present system, identifying how the various components can contribute to sustainable development and making proposals for improving the system. These objectives are the subject of the hundreds of pages of impressive material with which we have been presented. They provide a remarkable base from which to work but where do we go from here?

The fourth objective is to "build platforms for ongoing cooperation and networking among all stakeholders." Although this is alluded to a number of times in the text, it has not been dealt with directly, and the implication is that the Toronto Conference will take action on it. After reviewing the Report, my greatest, and perhaps only, disappointment is that the Agenda for Change, while identifying in some detail what needs to be done, seems to suggest that a loosely organized Forum on Minerals and Sustainable Development is the mechanism that will allow the process to mature and bear fruit.

On page 16-29 it is noted that there is "a concern of many that the current focus on sustainable development in the minerals sector would be a 'one off' exercise rather than the beginning of a long-term commitment necessary for real progress." This will continue to be a concern until a specific plan of action is developed along with the framework within which it can be implemented.

We should recognize that we are not alone in this. Other industries have faced similar situations, and many have ended up by establishing umbrella organizations that link the various components (stakeholders) and provide a framework within which industry-wide priorities can be determined and collaborative activities involving multi stakeholders can be carried out. The International Union of Forest Research Organizations and the World Energy Council come to mind.

Setting up a Forum for Minerals and Sustainable Development and a Sustainable Development Support Facility are certainly steps in the right direction, but a more ambitious, yet still modest, goal might be some form of International Union of Mining Organizations with representatives of all stakeholders. There are many models to serve as guides and in most cases they do not involve large and costly bureaucracies. Also there are organizations that have experience in setting up and working with such groups, including the World Bank, UNESCO, UNCTAD and UNEP. As background on this I am attaching an outline of what such a Union might be and what it might do, adapted from a proposal that was prepared some years ago. Take a look.

Finally, many thanks to all who participated in the MMSD exercise. You can be certain that your efforts have impacted all the stakeholders and that the mineral world will be the better for them. To quote from Margaret Mead "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has."

MMSD Follow-Up – An International Union of Mining Organizations?

How do we sustain the impressive momentum that has been built up during the Global Mining Initiative/MMSD set of exercises? What steps should be taken to establish and maintain a continuing international program for mining and sustainable development that would include and draw upon the interests and potential of all of the “communities of interest” in the mineral development system? How can we create a suitable framework? Following are some thoughts on these questions.

Many sectors that work internationally are served by an NGO that represents them at international meetings and serves as a spokesman, or, where appropriate, a lobbyist for the sector. The fact that the Global Mining Initiative created a new body (MMSD) based within a group that is not directly related to the minerals industry (IIED) indicates that there is no recognized international body in the mining sector that can be called upon to play a lead role in initiatives such as this. This may be the appropriate time to create one -- an International Union of Mining Organizations.

At present there are two international groups, the World Mining Congress and the Council of Mining and Metallurgical Institutions, but they have limited mandates and impact. The World Mining Congress www.wmc.org.pl held its 18th Congress in Las Vegas in October of 2000 during the life of the MMSD but this was not widely publicized even within the United States. The Council of Mining and Metallurgical Institutions, an outgrowth of the former Commonwealth Council, will hold its next meeting in Australia in May 2002, shortly after the MMSD Toronto meeting. It does not appear to have been directly involved in MMSD activities, although member bodies of the Council such as the CIM and the SME may have been.

In considering how to deal with MMSD follow-up there are two international NGO coordinating groups working in related areas that can provide models, the International Council of Technical Associations and Organizations (UATI) and the International Council of Scientific Unions (ICSU). These are umbrella organizations that support, link and coordinate the international interests and activities of the various technical and scientific organizations in specific fields or sectors. They work closely with the UN (mainly UNESCO) and provide the UN and the professional public with high-level access to the world scientific and engineering communities. They also serve as a mechanism for carrying out program activities within their areas of competence.

The International Council for Science, the new name for ICSU, links 26 international scientific bodies such as the International Union of Geological Sciences (IUGS) and the International Union of Geodesy and Geophysics (IUGG). The International Union of Technical Associations and Organizations (UATI is the French acronym) links 28 international technical bodies such as the World Energy Council and the International Society for Photogrammetry and Remote Sensing. There is no member body of UATI or ICSU representing mining, and it is on this level that an International

Union of Mining Organizations (IUMO) might be established to represent the mining community internationally

A possible mission statement for the IUMO might be: “The International Union of Mining Organizations, through international cooperation and research and in partnership with related national and regional research and development groups, both governmental and non-governmental, will promote and work towards sustainable development of the world mineral resources based on environmentally sound production and management practices, in ways that enhance the well-being of all people with special concern for the needs and interests of low-income people in developing countries.”

The closest present body to the proposed IUOM is the International Union of Geological Sciences (IUGS) and it can be used as a model. IUGS is one of the largest members of ICSU and has its own small secretariat, hosted by the Norwegian Geological Survey. IUGS has 112 member countries, (in many cases represented by the national geological survey), 10 commissions that deal with topics of concern to the membership, and 36 affiliated organizations. So, even as ICSU is the umbrella for scientific organizations such as IUGS, the IUGS is in turn an umbrella over the geoscience associations. In the case of the IUGS, some of these are close to mining, such as the International Society for Rock Mechanics, the International Association on the Generation of Ore Deposits, and the Association of Geoscientists for International Development. IUGS is a very successful NGO. The list of “individuals cited” on its website is a Who’s Who of the world geoscience community

. Creating international groups such as the IUGS requires initiative, and UN bodies, particularly UNESCO, have played a role in the formation of many of them. However, due to the idiosyncrasies of the UN system, mining and much of engineering fall outside of the mandate of UNESCO. Mining comes under the UN Secretariat, and UN mining programs are run out of New York. Today the UN mining program is very limited, and can provide limited initiative or support. Thus it is suggested that the World Bank might perform a useful catalytic function. .

The World Bank has a positive history in mineral development, including the Collaborative Group for Artisanal and Small-Scale Mining and the World Mines Ministries Forum. The bank has a credible presence in the field and a professional staff with much relevant experience. One of its major successes was the setting up of Consultative Groups in Agricultural Research (CGIAR). A World Bank initiated Collaborative Group on Sustainable Mining with a mandate to set up an International Union of Mining Organizations is one approach that might be considered.

. . There is considerable experience in the construction of mechanisms to promote and monitor regional and international NGOs and for such a meeting the Bank can call upon the top resources in the world.

Following the IUGS pattern, but with greater involvement of industry, a Mining Union would serve as the umbrella for existing international groups such as the ICMM

(industry), the World Mines Ministries Forum (government), the Society of Mining Professors (academe), and would have working links with the Council of Mining and Metallurgical Institutions and the World Mining Council. International bodies representing NGOs, trade unions, mining communities, indigenous peoples and other communities of interest would be fully involved. In many cases these too will have to be created, but they should be created in any case. Affiliates would include existing international technical bodies such as the International Society for Rock Mechanics and regional groups such as the ASEAN Federation of Mining Associations in Southeast Asia. As is the case with the IUGS, the IUMO would have international working groups and committees dealing with the mining concerns and implications in areas including policy and planning, education and training, dissemination of information, and more specific areas such as recycling, land rights, reclamation and rehabilitation, mine closure, small scale mining, women and children, mineral statistics, etc.

In most countries the national members of IUMO would be the national mining association or Bureau of Mines, but in some cases a national union of mining organizations might be established modeled on the IUMO. In the case of IUGS the national geological survey is often the “adhering organization” or national representative but in larger countries special groups have been set up representing the cross-section of geoscientists. In Australia this is in the Australian Academy of Science, in Canada it is the Canadian Geoscience Council and in the US it is the US National Commission on Geology in the National Research Council.

IUMO national members should be identified with great care as mining has many “communities of interest” to be represented. It is estimated that in the United States there are more than 100 organizations that are interested and concerned with mining, and in Canada and Australia more than 50. For a listing of existing mining organizations go to www.mining-technology.com and click on Industry Organizations. As a starting point on the national level it might be appropriate to set up an informal club of mining interests with representatives from industry, government, universities, trade unions, finance, mining communities, mining associations, indigenous peoples, NGOs both pro and con, and the interests of minorities, women and children. Initiative for setting up such a club would could come from any group that has national credibility. .

Once interest is identified and mobilized, the next step on either the international or the national level is to set up small but representative planning committee to identify alternative paths and prepare proposals. There would be advantage to having the international committee based in a somewhat neutral environment, possibly at UNCTAD (Geneva), UNIDO (Vienna).or UNEP (Paris). There is much experience in this, and these organizations, along with UNESCO, can provide useful guidance and even limited support. It might be appropriate for a representative of ICSU (IUGS) or UATI to serve in an advisory capacity. .

ONE ADDITIONAL NOTE.

The proposed International Union of Mining Organizations has an advantage over most organizations that currently exist, because it can be designed to take full advantage of today's information technology. Over recent decades NGOs have adapted to the computer age with considerable success, but most were established before that technology was available. Today it is possible to incorporate the latest innovations in information and communication technology, along with some awareness of where ICT is heading over the coming years, into MMSD follow up. Information specialists should be involved from the beginning, the database should be at the heart of the organization, and the Webmaster and his/her team should be key players now and in the future.

Consider the potential of a computer based multi-dimensional interactive matrix bringing together information on all resources devoted to research related to mining. It would be possible to identify not only the whats, whos, wheres and whens but also how activities can be linked to promote better efficiency and to supplement one another and to identify critical gaps

On the user level, we are well on the way to a wireless web where we routinely make use of a wide range of Internet-enabled devices including cell phones, hand-held computers and even game units to access and input information. This can be built into the design of the IUMO, but it should be done with care and understanding to take advantage of the very real benefits of ICT while minimizing the costs, monetary, human and intellectual.