UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION

Man and the Biosphere (MAB) Programme and International Geosciences Programme (IGCP)

Expert Meeting on “Biosphere Reserves and Earth Resources”

UNESCO Headquarters, Paris, Room XIV (Bonvin Building)
15 February 2011

Meeting Summary

Through the collaboration of the MAB Programme and IGCP, an expert meeting on “Biosphere Reserves and Earth Resources” was held at UNESCO Headquarters on 15 February 2011. The meeting was attended by more than 30 invited experts in the fields of earth resource extraction and protected areas management, members of the International Advisory Committee for Biosphere Reserves, members of the IGCP Scientific Board, and members of the UNESCO-MAB and UNESCO-IGCP Secretariats (List of Participants provided in Annex 1 to this report).

The meeting was designed to provide a forum for government, industry, researchers and natural resource managers to share their experience of mining and biosphere reserves. Participants were encouraged to begin with the perspective that geological resources are an important element of development and that biosphere reserves are more than just protected areas. Accordingly, biosphere reserves can potentially be sites for land/seascape-level sustainable development and therefore should incorporate best practices of technology, application and human partnerships.

The meeting investigated the theme of earth resources across three sessions. Session I: Earth Resources and Sustainability introduced the International Council on Mining and Metals’ Sustainability Framework for the mining industry and presented a successful example of a partnership with the mining sector between the Manicouagan-Uapishka Biosphere Reserve and Alcoa Canada. A subsequent panel discussion tackled the role of earth resource extraction in sustainable development by presenting the perspective of the UNEP World Conservation Monitoring Centre and some of the tools available for assisting the management of biodiversity; the experience of the chair of the Earth Resources Theme on the IGCP Scientific Board that emphasized the importance of learning to work in a given country and the application of the Equator Principles; and the experience a MAB International Advisory Committee member from the Smithsonian Institution in partnering with mineral and oil and gas companies. A presentation on the Business and Biodiversity Offsets Program as another potential tool for the management of biodiversity and earth resources was delivered.

Similarly, Session II: Earth Resources and Biosphere Reserves, featured keynotes on the intensifying problem of artisanal mining in Central Africa and a presentation on building a platform for the discussion of sustainable mining in the Espinhaço Range Biosphere Reserve in Brazil. This was followed by a panel discussion to identify the main issues to be addressed regarding mining in biosphere reserves. The panel included an update from the Permanent Delegation of Ecuador on the innovative scheme to prevent oil drilling in Yasuni National Park by using compensatory payments from the international community; an acknowledgment from the IUCN Business and Biodiversity Programme that good practice guidance exists but mining in protected areas remains a problem and that conservation must be paid for; reflections from a MAB International Advisory Committee member on the power of regional planning in the biosphere approach; and an overview of earth resource extraction and biosphere reserves in Africa from a former member of the IGCP Scientific Board.

Finally, Session III: The Next Steps, sought to move forward with a considered response to earth resource extraction in biosphere reserves. A working group composed of members of the MAB Advisory Committee, the Scientific Board of the IGCP and invited experts was proposed. Both secretaries of MAB and IGCP agreed that the meeting heralded the start of an important new dialogue at UNESCO.

It was agreed that the zoned structure of biosphere reserves comprised of nationally protected ‘core’ areas surrounded by ‘buffer’ and ‘transition’ zones allows for controlled best practice commercial and industrial activity. This zoning allows for planning at the landscape level and means that biosphere reserves can aim to operate as learning sites for sustainable development activities that may include mineral extraction activities. It was highlighted that no guidelines exist specifically for other economic activities in biosphere reserves and
many guidelines have already been developed on sustainable mining in general. *It was strongly recommended that it would not be possible to develop global guidelines for mining in biosphere reserves, as conditions depend on the local environment and the relationships between involved parties.*

It was acknowledged that, although mineral extraction in biosphere reserves has traditionally been viewed as a threat to biodiversity conservation, current trajectories for development rely heavily on mineral resources and biosphere reserves must strive to emulate best practices and forge public–private partnerships.

To this end, the experts suggested that a joint working group between MAB and IGCP could focus on:

- Better communicating the purpose and structure of biosphere reserves to foster a broader understanding of how they could function as learning sites for sustainable mineral extraction;
- Collecting and disseminating a body of case studies showing sustainable practices of Earth resource extraction and alerting extractive industries to existing guidelines and conservation tools;
- Improving communication and the transparent flow of information between stakeholders to ameliorate the co-ordination of open policy dialogue at all levels, stressing the role of biosphere reserves as places for dialogue.

The expert meeting was followed by simultaneous, multiday, annual meetings of the MAB International Advisory Committee and the Scientific Board of the IGCP. These subsequent programme meetings further developed the ideas discussed at the expert meeting. Some of the proposed, near-term action items include:

- Develop proposals for the structure of the proposed MAB-IGCP working group and request all meeting participants to join working group.
- Pursue the proposal of the IGCP Scientific Board to request IGCP project proposals on the topic of mining in biosphere reserves for the next round of funding (applications due September 2011).
- Follow-up with UNEP DTIE on collaboration to incorporate the topic of mining and biosphere reserves into discussions for the upcoming Rio+20 summit in June 2012.
- Create a webpage on the UNESCO website dedicated to the topic and that includes case studies of earth resources extraction in protected areas.
Through the collaboration of the MAB Programme and IGCP, an expert meeting on “Biosphere Reserves and Earth Resources” was held at UNESCO Headquarters on 15 February 2011. The meeting was attended by invited experts in the fields of earth resource extraction and protected areas management, members of the International Advisory Committee for Biosphere Reserves, members of the IGCP Scientific Board, and members of the UNESCO-MAB Secretariat and UNESCO-IGCP (List of Participants provided in Annex 1 to this report).

The purpose of the meeting was to discuss the launching of a new initiative at the intersection of ecology and earth sciences and to develop the connection between the Earth Resources Theme of the IGCP and the Biosphere Reserve model of the MAB Programme. The meeting was designed to provide a forum for government, industry, researchers and natural resource managers to share their experience of mining and biosphere reserves. Participants were encouraged to begin with the perspective that geological resources are an important element of development and that biosphere reserves are much more than just protected areas. Accordingly, biosphere reserves can potentially be sites for land/seascape-level sustainable development and therefore should incorporate best practices of technology, application and human partnerships. The expert meeting addressed these issues to make recommendations for further consideration by a joint MAB-IGCP working group in the future.

In keeping with the collaborative spirit of the meeting, Mr. N. Ishwaran, Secretary of the MAB Programme, and Mr. R. Missotten, Executive Secretary of IGCP, opened the meeting and welcomed all participants. Mr. Ishwaran spoke of the biosphere reserve zonation structure versus the reality of land use on the ground. He further emphasized that at least 20 biosphere reserves have mining or oil and gas extraction and that the conversion of first- and second-generation biosphere reserves (those designated before the Seville Conference for Biosphere Reserves held in 1995 that introduced the zonation structure) to third generation biosphere reserve (post-Seville) has proven challenging. A fuller understanding of what a biosphere reserve is and the creation of a forum to continue the discussion are important. Mr. Missotten presented the record of good science of the IGCP, emphasizing the need for a multidisciplinary approach and the shift, since 2007 towards IGCP projects with greater societal relevance. He further presented the Earth Resource Theme of IGCP, noting its focus on mineral resource occurrence and exploitation, and emphasized that the recent increase in the price of mineral resources has similarly increased the relevance of the geological sciences. He stressed the need for a better understanding of the simultaneous appearance of biological and geological resources and new approaches in management that are more transparent.

The participants introduced themselves and Ms. Vivi Vajda (Chair of the IGCP Board) was appointed Chairperson of Session I: Earth Resources and Sustainability. The expert meeting adopted its provisional agenda without any modifications (meeting agenda appended as Annex 2 to this report). A list of further resources that came out of the meeting is appended as Annex 3 to this report. The expert meeting concluded its deliberations, as planned, the evening of 15 February 2011.

**Session I: Earth Resources & Sustainability**

Ms. Anne-Marie Fleury (International Council on Mining and Metals) presented the ICMM Sustainability Framework for the Mining Industry. ICMM is an industry association with 18 member companies present in all mining jurisdictions. The framework has three parts: principals, reporting and procedure/assurance. Of particular importance to the expert meeting is **Principle 7 to Contribute to the Conservation of Biodiversity**. This includes the consideration of World Heritage sites as “no-go” zones. The reporting system includes significant biodiversity elements in a Global Reporting Initiative that was developed in 2005 and is updated regularly. Assurance is an annual, independent check on the parties carried out by a third party that assesses whether indicators are accurate and what systems (reiterative loops) are in place to track biodiversity. Ms Fleury further presented ICMM’s Good Practice Guidance, a joint project with the IUCN that covers good practices for the mining sector. The document was published in 2006 and was well received. Ms Fleury stated that the biosphere reserve concept aligns well with ICMM, but she identified as significant issues a general lack of knowledge regarding biosphere reserves and the false assumption that mining could never contribute positively. Ms Fleury stressed that there is already a lot of existing guidance for the mining sector and not much appetite by industry for new guidance. The real gap is implementation and the dissemination of good practices.
Mr. Messier asked whether ICMM member companies work in biosphere reserves and Ms. Fleury confirmed that they do. She further clarified that many mining operations, including some ICMM member companies, may not be aware that they are in fact inside a MAB site; the proximity of such operations to national parks or other similarly protected core areas is generally well known, but many operators do not necessarily appreciate the wider MAB designation. Mr. Thirouin asked if government ministries can become members of ICMM. Ms. Fleury replied that no such members exist, but some members are national mining associations and that these organizations have relationships with their respective governments. She further noted that ICMM is moving toward more regional type of work and entering into mining partnerships for development. Mr. Dallmeier commented that standards within the industry vary and that very small, family-scale operators can have a very large impact. Ms. Fleury reiterated that ICMM does not have a mandate to represent the entire industry. Mr. Dallmeier followed with calling for a library of site-specific case studies that could fill knowledge gaps and make existing guidelines available to governments.

Mr. Jean-Philippe Messier (Manicouagan-Uapishka Biosphere Reserve) and Mr. Luc Bourassa (Alcoa Canada) presented a biosphere reserve model of sustainable development: building partnership with the private sector. Mr. Messier provided a summary of the Manicouagan-Uapishka Biosphere Reserve and stressed the community’s need to create a dynamic social environment, including a strong voice for indigenous people living in the biosphere reserve. He further emphasized the mining exploration situation in the biosphere reserve. Mr. Bourassa stated that a strong engagement with stakeholders is very important to Alcoa, the world’s largest producer of aluminum. Mr. Messier stressed that sustainable development is contextual and place-specific and therefore guidelines for partnership must be developed locally. Biosphere reserves need more resources to increase capacity as described by the MAB Programme’s Madrid Action Plan. This can be accomplished through communicating with corporations and establishing partnerships.

Ms. Barcellos Harris inquired as to the transferability of such partnerships. It was responded that biosphere reserves occur in diverse contexts and what is transferable is the promotion of the purpose and structure of biosphere reserves. The particulars of partnership can vary from one biosphere to another. Mr. Li asked how the UN can help biosphere reserve managers scale-up. Mr. Messier replied that the UN can reinforce the network of biosphere reserves, make it more accessible, and increase collaboration between sites.

Panel Discussion: What is the role of earth resource extraction in sustainable development?

After a break, the expert meeting reconvened with a panel discussion to address the role of earth resource extraction in sustainable development. Ms. Monica Barcellos Harris presented the United Nations Environmental Programme’s World Conservation Monitoring Centre (UNEP-WCMC) perspective. UNEP-WCMC’s mapping analysis suggests that three to four percent of national protected areas contain mining sites. She further presented the A to Z of Biodiversity website, an online glossary that explains things like protected areas and gives links for more information. According to current data, 96% of biosphere reserves are in the WDPA but only 34% have boundaries. Better data from UNESCO is required to improve this situation. Ms. Barcellos Harris concluded with a call to refine maps of the footprint of the extractive industries; she stated that there are a number of tools available and that this meeting can help with their dissemination; and stressed that quality of information is key.

Mr. André asked about the quality of the data for Central Africa and asserted that much of the mining in the region is illegal and therefore not well recorded. Mr. Ishwaran inquired as to the certainty of the data regarding mining reported in the core zones of biosphere reserves and emphasized that transition and buffer zones are more impacted.

Mr. Andor Lips (IGCP Board) presented his perspective as a geologist with a broad employment history. He confirmed that demand for mineral resources is up and that this brings exploration in new areas, and with it, ethical conflicts. He stressed that societal impacts must be considered if the mining sector is to be perceived positively. He further presented some examples of mining projects that were developed in a positive way and emphasized the importance of learning to work in a given country. Mr. Lips also maintained that the inclusion of the Equator Principles as part of the loan agreements that fund mining projects is an important means of ensuring that projects happen in the best possible way.

Mr. Missotten asked if the World Bank’s drive, of 15 years ago, to modernize mining legislation, had an impact. Mr. Lips responded that this effort was a right step forward. Mr. Crespi inquired into the banking industries best practices for mining. Mr. Lips answered that these are the Equator Principles that a have been adopted by over 70 institutions. It was further noted that this includes monitoring by a third party.
Mr. Francisco Dallmeier (MAB Advisory Committee) presented his experience at the Smithsonian Institution working in partnership with oil and gas companies. This included the Energy and Biodiversity Initiative in Ecuador and Peru and the Global Tiger Initiative of the World Bank and the Inter-American Development Bank. He pointed out that it is difficult for a scientific organization to maintain a neutral position and that it is important to identify the partners and the most significant issues to be addressed at the start of any conservation and development project. A high-level buy-in will ensure the development of a collective vision. Mr. Dallmeier further presented a landscape approach that identifies sustainable development opportunities and considers offset projects while investing heavily on relationship building. He concluded by remarking on the societal expectation for low cost materials and the desire of society to see mining companies held to a high standard. He suggested the solution lies in identifying the best practices for the mining sector, documenting successful processes and sharing the lessons learned.

Ms. Barcellos Harris presented biodiversity offsets (on behalf of Ms. Kerry ten Kate). She summarized the BBOP program and stressed that offsets are not a license to trash. Biodiversity offsets were explained as a transparent means to produce measureable conservation outcomes. The potential for a pilot project with MAB that would apply the concept of ‘no-net loss’, was presented.

The Chairperson, Ms. Vajda, closed Session I by questioning the need for different schemes in different places. She asserted that the ultimate goal should be the same global standard applied uniformly and assented that the question remains of how to disseminate guidelines and make companies apply them.

**Session II: Earth Resources & Biosphere Reserves**

Mr. Ghassann Ramadan-Jaradi (MAB Advisory Committee) served as Chairperson for Session II: Earth Resources and Biosphere Reserves. He opened the session and commented on the potential for innovative solutions to earth resource extraction in biosphere reserves.

Mr. Luc André (Royal Museum of Central Africa) presented on artisanal mining and biosphere reserves in Central Africa. Mr. André asserted that artisanal mining might be a steady-state traditional system, like the artisanal mining of gold in Tanzania 20 years ago, however, he emphasized that as soon as such a system is destabilized by external pressures that exacerbate poverty in a vicious cycle, artisanal mining becomes an actual ‘poverty trap’. He noted that this includes sad consequences for other interests like biodiversity. Among those pressures, he noted the rising price of gold and copper, and strong pressure by refugees. Mr. André presented a case-by-case description of artisanal mining sites in Central Africa and their impacts. These include deforestation, landslides and water pollution, and heavy metal pollution. Mr. André indicated that the way to alleviate these pressures is to improve the geo-perspective by delineating these various mining pressures. Mr. André then presented maps showing the degree of overlap between exploration permits and protected reserves. The Luki Biosphere Reserve is an example where the whole territory is dedicated to exploration. Integrating the mapping of risk to the cadastral mapping was recommended. He further suggested making information about this situation available online. He stressed the importance of superimposing this information on cadastral maps. Mr. André then presented the lack of geodesic data in Central Africa, particular with regard to rare earths, and emphasized the importance of geo-prospecting and improving the transboundary geology in the region. Mr. André closed with an observation on step ladders, one used by artisanal miners, the other used by refugees to escape to Europe, but both used to escape poverty. He concluded by drawing attention to a touring exhibit of the Museum on ‘fetish modernity’ and by quoting Pliny the Elder’s Natural History that “out of Africa, there is always something new.”

Mr. Dallmeier asked for the proportion of artisanal mining and corporate mining. Mr. André responded that 90% of mineral exploitation in the DRC is artisanal and, beyond this, there are companies that use the artisanal mining situation as a cover. Mr. Missotten inquired whether small-scale mining provides a living to local people and remarked on the need to transition from artisanal to medium-scale mining operations. Mr. André responded that the transition is indeed difficult, but perhaps possible in Katanga province. Mr. Ishwaran asked for clarification between artisanal mining and small-scale mining and stressed the need for a comprehensive taxonomy of mining. Mr. André responded that artisanal mining is done by hand, while small-scale mining has additional small infrastructure. Ms. Fleury noted that fair trade gold went on sale in London this week for the first time.

Mr. Sergio Domingues (Espinhaço Range Biosphere Reserve) presented on building a platform for discussion concerning sustainable practices for mining in the Espinhaço Range Biosphere Reserve. He gave general information about the biosphere reserve and noted that the biosphere reserve contains 11 core areas and
borders on three Brazilian biomes. He recounted that the biosphere reserve is unique in Brazil (a country that has one biosphere reserve for each of its seven biomes) because it is located at the convergence of three distinct biomes. This convergence makes for a rich mosaic of communities in a fragile ecosystem called the Rupestrian Fields. The biosphere reserve was further described to contain 69 protected areas across 3 million hectares and 53 local municipalities in a zoned structure that includes urban areas with a large and culturally diverse population. Espinhaço has a long history of mineral exploration and is emblematic of Brazilian economic exploration. Mr. Domingues continued with an analysis of the main products of exploration since colonization and showed a mineral production graph for Brazil. He noted the price increase for iron ore from $28 per ton in 2000 to $150 per ton in 2010 and forecasted iron ore price to nearly double between 2009 and 2013. Mr. Domingues gave special attention to the southern part of Minas Gerais where mining for iron ore is especially important. In the vicinity of Belo Horizonte, mining permits cover the area. He opined that the laws regarding mining and environmental protection in Brazil are very good, but a discussion on how to best exploit this valuable resource is required. It was estimated that mineral resources will bring over $1 billion in royalties to the region (iron ore comprise more than 60% of the total) and that 65% of this goes to the municipalities. Mr. Domingues asserted that this scenario brings challenges beyond mining. He further noted that the management of biosphere reserves is very difficult as it requires integrating various projects that are shaped by the relationships of many kinds of social sectors. This requires a social dialogue on mining. Mr. Domingues concluded with a proposal to address the paradox between the demand for more sustainable practices and the view, still held by many people, that nature is a primal force that needs to be dominated. He stated that human relations have been marred by a mistrust of diversity and proposed that, instead, diversity should be an opportunity for exchange made possible through creating a platform for discussion that combines perspectives to reach solutions. He concluded by presenting a proposal for a diagnosis of sustainable practices and structuring of a geo-referenced database. He also reinforced the necessity to develop good indicators for monitoring and evaluating of the quality of social dialogue and stated the need to organize regional workshops to build plans of cooperation and international seminars to exchange experiences.

Mr. Julio Nery stated that an analysis of good and bad practices should be avoided, but it should be considered that mining must be developed according to the best practices of the sector. Bad practices should be avoided by government agents. Mining has a lot to contribute to the generation of employment and income, even in remote areas, and good experiences of this kind, that respect the sustainability of the region, can be seen in both the Canadian operations in Quebec and those developed in Espinhaço. He further suggested a seminar dedicated to mapping economic activities in biosphere reserves and the development of good indicators to identify the best practices to be applied in biosphere reserves.

Mr. Miguel Andrade reinforced the need to develop indicators to ensure good practices in the territories, and a guide to define parameters that demonstrate best practice and bad practice.

Mr. Ishwaran asked if the mining sector in Minas Gerais is progressing in a sustainable way and whether the local people feel that they are benefiting from earth resource extraction. Mr. Domingues responded that it is difficult for people to critically consider mining because of the massive amount of money involved. Mr. Toteu inquired about the taxes generated by mining in the region and it was explained that 30 of the impacted municipalities have a high quality of life courtesy of the taxes paid by the mining companies. It was also noted that a tax structure is not required for such benefits in all regions. Ms. Barcellos Harris asked if there is a specific role for mining companies in the biosphere reserve that is distinct from other industrial sectors. Mr. Domingues confirmed that mining is the dominant industry in the region. Ms. Gaines asked for a comparison of artisanal mining in Espinhaço with artisanal mining in Central Africa. Mr. Andrade responded that the difference is the scale and confirmed that it is good to exchange experience with Africa.

Panel Discussion: What are the main issues to be addressed regarding earth resource extraction in biosphere reserves?

Mr. Marcelo Vazquez (Permanent Delegation of Ecuador to UNESCO) presented an update on the Ishpingo-Tambococha-Tiputini oil field Initiative (ITT Initiative) in Yasuni National Park. He began with a description of the surrounding biosphere reserve, designated in 1989 and covering more than one million hectares. The area has particularly high levels of biodiversity, with more than 655 species in a single hectare, high endemism and the presence of indigenous groups of people. Mr. Vazquez further noted that Ecuador became an oil exporter in 1972 and that considerable oil reserves, estimated to be worth $7.9 billion, are present within the biosphere reserve. The ITT initiative, proposed by the President of Ecuador to the UN, will leave these resources undeveloped through requiring the international community to contribute half the
estimated value of the oil resources, or $3.6 billion. The agreement is voluntary and will be administered as a capital fund by UNDP. The funds raised will be invested in renewable energy projects in Ecuador and will be backed up by guarantee certificates that will become redeemable if Ecuador ever extracts the oil. The ITT initiative will conserve 846 million barrels and 407 million metric tons of carbon dioxide. Mr. Vazquez closed by stating that Ecuador is currently promoting this initiative to the world and relies on the support of the international community.

Mr. Dennis Hosack (IUCN Business and Biodiversity Programme) presented his organization’s perspective on mining and biosphere reserves. He explained that the IUCN is a democratically controlled conservation organization that helped co-draft the World Heritage Convention in 1972 and is an advisory body on World Heritage sites. He further explained that the organization helps with capacity building and holds the World Conservation Congresses every four years. He noted that 2000 World Conservation Congress in Amman, Jordan saw the passage of statues to promote best practices in mining and mineral extraction. These statues call on IUCN member states to prohibit extraction in protected areas (IUCN category I-IV) and accept extraction in IUCN category V and VI protected areas only when deemed compatible. In other words, mining is something to be avoided. Mr. Hosack referenced the similar “no-go” commitment from ICMM member companies with regard to World Heritage Sites. Mr. Hosack further presented the IUCN’s work with Shell and Rio Tinto. He stated that Rio Tinto has a net positive impact pledge and deemed this to be a good public relations move, especially when scientists don’t know how to measure net impact. He said that he gets lots of complaints about mining companies not doing the right thing and stressed that mining in protected areas is possible only because governments give mining concessions in these sites. More and more governments are going to want the money. He asked whether the ‘no-go’ commitment is indeed working and suggested that it works with regard to the 18 companies in ICMM, but there is still mining in World Heritage Sites. He concluded by highlighting the disconnect between ministries of environment and ministries of mining and closed with the observation that someone has to pay for conservation.

Mr. Sergio Guevara Sada (MAB Advisory Committee) presented his ideas as a landscape ecologist regarding earth resource extraction and biosphere reserves. He stated that biosphere reserves can provide the best example of mining and conservation as they incorporate sustainable development. He said that regional planning is the most powerful part of the biosphere reserve approach and explained that biosphere reserves are focused on landscapes more than ecosystems. He said that biosphere reserves show us that we are looking inwards, not outwards, and thereby we are losing the ability to retain some environmental services. He stressed that isolation is the problem and that better connectivity is needed. He further observed that biosphere reserves can be a useful planning tool that can link fragmented landscapes. He closed by stating that mining can modify the geomorphology and bring implications for hydrology and subsequent re-vegetation. He also stressed the importance of timescale and environmental history when considering mining in biosphere reserves.

Mr. Felix Toteu (UNESCO Nairobi Office) presented an overview of earth resource extraction and biosphere reserves in Africa. He noted that only 10% of biosphere reserves in the world network are located in Africa. He confirmed that the continent is currently experiencing a rush on raw materials. He presented examples from Mozambique and Namibia and highlighted the pressures of mining activities. He stressed that the next few years will see greatly increased pressure. He successively presented and discussed the challenges in several biosphere reserves (Lake Malawi and Queen Elizabeth National Park in Uganda; Mount Nimba, a trans-boundary biosphere reserve between Guinea, Ivory Coast and Liberia; and the equatorial rainforest of the Congo basin). He noted that mineral extraction of deposits occurring in forests further accelerates deforestation and also poses a serious threat to the biodiversity contained therein. He also gave special consideration to the problem of abandoned mines and used, as an example, a site in Namibia where an old mine is used to grow crops despite high levels of mercury in the soil. He said that these problems are made worse by governance deficiencies and a poor understanding of the biodiversity issue, natural heritage and their connection with sustainable development, but stated that it is not too late. He concluded with the observation that it is time for (1) an inclusive cooperation between MAB and all the science themes of IGCP, (2) a strong statement on mining and biosphere reserves in Africa and suggested that a connection between the MAB Programme and IGCP is an opportunity to make this statement.

Session III: The Next Steps: Earth resource extraction in biosphere reserves

The final session of the meeting was chaired by Ms. Sarah Gaines (UNESCO). Ms. Gaines asked for recommendations for moving ahead with the earth resources and biosphere reserves initiative.
It was acknowledged that there is a significant distinction between the environmental impact and control of artisanal mining and mining carried out by large companies. Ms. Fleury commented that the direct translation of case studies is difficult and reiterated that much information already exists. Mr. Ishwaran commented in the mining as a “poverty trap” phrased used by Mr. André and inquired whether, if given alternatives, local people would in fact cease mining. Mr. Toteu added that artisanal mining is not, in fact, carried out by local people, but rather it is people from elsewhere, often refugees, that engage in artisanal mining and that this has major social impacts. Mr. Andre agreed that there is new pressure from refugee populations and declared that the solution lies in a policy dialogue at the national level. National governments must implement rules and not allow artisanal mining.

Mr. Messier questioned whether the meeting is seeking guidelines for earth resource extraction in biosphere reserves. He reiterated the group’s shared concern for biosphere reserves and asked if there is a resource available that could help establish linkages between biosphere reserves. Ms. Ridep-Morris stressed the importance of ensuring that local communities benefit from the work. Mr. Andrade agreed that it is good to promote guidelines as people are ill prepared to enter into partnerships with mining companies.

Mr. Mathevet voiced two basic points about biosphere reserves. First, a biosphere reserve without a core area is not a true biosphere reserve. Second, biosphere reserves managed without regard to the surrounding community are similarly not true biosphere reserves. He stressed that the issue of how to contribute to sustainable development is an ethical matter. He commented on the responsibility of mining companies and stated that it is not enough to produce guidelines as these already exist. He declared that what is needed is transparency and dialogue.

Ms. Barcellos Harris suggested an exchange of experiences on how we can finance conservation. Mr. Debonnet declared that core zones should be ‘no-go’ areas in the same respect as World Heritage sites. He also stressed that, where mining does occur, the secondary impacts (environmental and social) of mining must also be considered.

Mr. Ramadan Jaradi added that the management of buffer and transition zones requires a high level of cooperation and that cooperation agreements are helpful. This is especially so in areas where natural resource managers have little power.

Mr. Li commented that the Session I presentations were encouraging, and that Session II presentations show the difficulty of scaling up. He suggested the best way to move forward is to frame the issue to see what we can do, make use of already existing networks and prioritize appropriately. He submitted that the issue of mining and poverty in Africa could be taken to the upcoming Rio +20 summit.

Ms. Fleury asked if there are guidelines for how UNESCO engages with other industries and reiterated that secondary impacts of mining are more difficult to address. She also repeated that a lot of material (guidelines for mining industry) already exists.

Mr. Ishwaran confirmed that there is confusion about the purpose and structure of biosphere reserves; that the human element is not fully appreciated. He urged that more focus be given to buffer and transition zones and declared that there is no need for industry-wide guidelines. He advocated tackling mining in biosphere reserves by starting small and suggested an online working group that could identify some targeted problematic issues and link mining and sustainability.

Mr. Peter Emil Kaland (University of Bergen, Norway) presented on a proposed biosphere reserve in Nordhordland, Norway. The proposed biosphere reserve encompasses a coastal region with mountains and fjords that support a fishing industry, hydropower and oil and gas production. Recent improvements to infrastructure have resulted in an increase in population, a more modern economy and a sharp decrease in farming. There are two large protected areas in the proposed biosphere reserve and considerable cultural heritage. The proposal has the support of the local municipalities and should succeed if the national government supports it.

Mr. Nery stated his dislike of the distinction between small and large-scale mining and said that the matter of concern is one of policing and good governance. He further suggested a seminar dedicated to mapping economic activities in biosphere reserves.

Mr. André commented that efforts to transition to a green economy require the identification of problem areas where progress is feasible in the near-term. He suggested that artisanal mining is one such area that could be
addressed at the UN level. He further stated the importance of improving the flow of information and geological data between countries.

Mr. Lips stated that mining companies are well aware of the right thing to do and he bemoaned the erroneous expectation that the mining industry will completely develop the areas in which they work. He stressed that a better dissemination of knowledge is required to see that buffer and transition zones are well managed.

Mr. Li suggested that UNEP’s third mining and metals report could focus on the environmental impacts of mining. He further suggested that a special session could be organized during their upcoming meeting in September.

Mr. Missotten made a final comment on behalf of IGCP on the importance of technical studies that could determine things like how core areas will be impacted by drilling from outside and on the general need for practical ideas for future engagement.

Mr. Ishwaran made a final comment on behalf of the MAB Programme on continuing the discussion as a joint initiative of MAB and IGCP. He noted that IGCP has a broader mandate and is well positioned to address the challenge of earth resource extraction in biosphere reserves. He reiterated the objective of sustainable development and the role biosphere reserves can play as learning sites for sustainable development. He further stated that it is good to know where earth resource extraction is occurring and where the potential for future earth resource extraction exists. He closed with a comment on the foreseeable tension between land use sectors and suggested that the initiative should not isolate the mining sector from other industries.