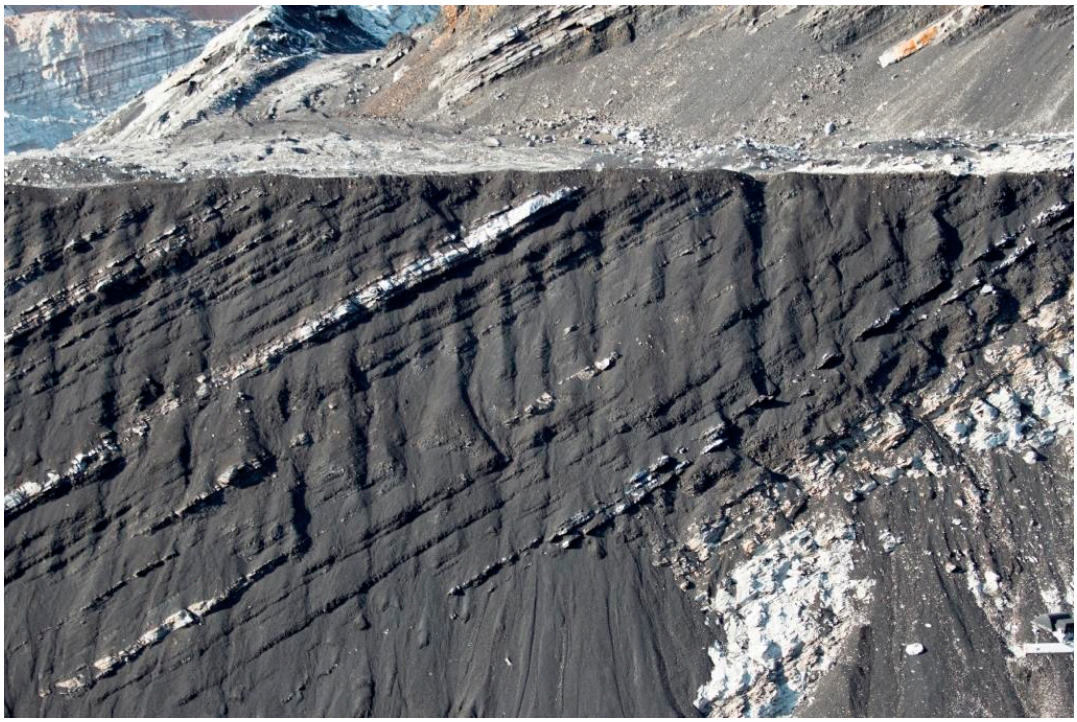
# UNECE and responsible mining

UNECE promotes responsible mining as part of a green economy through a range of largely separate sectoral activities and instruments that are described below. In addition, and taking a cross-sectoral approach, mining was one of the thematic issues addressed by the fourth (and final) Regional Implementation Meeting on Sustainable Development (Geneva, 1-2 December 2009). Relevant extracts from the background note and the report of the Meeting are provided in annex.

More recently, in 2016, mining was included among the sectors covered by the Pan-European Strategic Framework for Greening the Economy[1]—developed by the UNECE Committee on Environmental Policy with support from the UNECE secretariat jointly with UNEP and in close cooperation with OECD, the European Environment Agency and other partner organizations—and its Batumi Initiative on Green Economy (BIG-E). As of May 2017, mining was indicated some 20 times in the 116 actions on green economy.[2] For example, OECD commits to assisting countries of the Caucasus, Central Asia and Eastern Europe in accelerating environmental policy reforms, with particular reference to the environmental impacts of mining.



## United Nations Framework Classification – A global system for responsible management and development of mineral and energy resources

The United Nations Framework Classification for Resources (UNFC) is a comprehensive tool for consistent and coherent classification and sustainable management of all mineral and energy resources. It applies to all minerals, petroleum, uranium and thorium, geothermal energy and for injection projects for geological storage of $CO_2$. Significant progress has been made to broaden UNFC's application to other renewable energy systems, including bioenergy, solar, hydropower and wind power. As many major mining companies have decided to produce and use renewable energy in remote mining sites, UNFC provides a valuable tool for integrated management of mineral and renewable energy resources. Key challenges to responsible mining today are (a) declining productivity; (b) mounting waste issues; (c) managing environmental externalities; (d) integrating technology innovations; and (e) providing net social benefits to project impacted communities. UNFC has developed (or is developing) specific guidelines to address

[1] http://www.unece.org/fileadmin/DAM/env/documents/2016/ece/ece.batumi.conf.2016.6.e.pdf

[2] The commitments are also presented on the Green Growth Knowledge Platform at http://www.greengrowthknowledge.org/big-e

all the above issues, in particular to accommodate and integrate social and environmental considerations and delivery of the Sustainable Development Goals (SDGs) in minerals, petroleum and renewable energy projects.

Support for attaining "zero waste" is being provided through standards for managing anthropogenic resources, which includes secondary resource recovery and utilization of mining wastes and tailings. UNFC is a flexible tool that can be adapted for diverse national and regional requirements. While a number countries and companies have adopted or applied UNFC for their own use, the Nordic countries (Norway, Sweden and Finland) have developed a set of common subregional guidelines for applying UNFC to the minerals sector, with a view to making "green mining" a reality and to provide a pathway for demonstrating carbon emissions reduction. Similarly, all countries in Africa, through the African Minerals Development Centre (AMDC) and with support from the United Nations Economic Commission for Africa, have decided to adopt UNFC as the sustainable management tool as part of the realization of the Africa Mining Vision and attainment of the SDGs.

## Effective Methane Drainage and Use in Coal Mines

Large-scale coal production will continue for many years to come. Coal production, transportation, storage and use account for approximately 40% of global greenhouse gas emissions. The health, safety and environmental impacts of methane released during coal mining need to be addressed. Methane creates unsafe working conditions in many underground coal mines around the world, with human fatalities being an unacceptable consequence of many methane-related accidents. Ensuring the safe extraction, transport, and use of methane throughout the coal mine life cycle is one of the primary goals of UNECE. Methane is also a potent greenhouse gas with a 100-year global warming potential 25 times that of $CO_2$. As coal mines are the fourth largest source of methane emissions, after the oil and gas, landfill and livestock industries, minimizing the environmental impacts of coal production constitutes another of UNECE's priorities. Safe extraction of methane saves the lives of miners, and efficient use and destruction of the valuable gas provides an affordable but cleaner burning fuel for the communities that surround mining complexes.

While technological advances have made it possible to significantly reduce methane emitted even from the gassiest mines, deployment of these technologies and movement towards zero methane-related fatalities and lowered methane emissions to the atmosphere is not universal, and may be impeded by a lack of awareness of the guiding principles for methane drainage and use in coal mines. In this context, UNECE has developed *Best Practice Guidance on Effective Methane Drainage and Use in Coal Mines.* The document presents recommended principles and standards on coal mine methane capture and use in a clear and succinct way, providing decision-makers with a solid base of understanding from which to direct policy and commercial decisions. The *Best Practice Guidance* neither replaces nor supersedes laws and regulations or other legally binding instruments, whether national or international. The principles outlined therein are intended to complement existing legal and regulatory frameworks and to support development of safer and more effective practices where industry practice and regulation continue to evolve. At the same time, being envisioned primarily as a tool to support performance- and principle-based regulatory programmes, the *Best Practice Guidance* can also complement more prescriptive regulation and support the transition to performance-based regulation.

## Environmental instruments

Mining – and mineral resources – are often addressed by country reviews carried out under the UNECE **Environmental Performance Review** (EPR) Programme. On many occasions, an EPR has gone into more detail and, for example, about eight EPRs included a chapter dedicated to mineral resources, accompanied by a series of recommendations. Progress with implementing the recommendations is then checked in the following EPR. The recommendations address matters such as the adequacy of the legal and regulatory basis for the sustainable management of mineral resources (e.g., mineral exploration, exploitation, processing, mine closure, post-closure (maintenance) and mineral waste recycling and recovery; and liability and financial guarantees), the introduction of new technology to improve environmental performance, the mapping of mineral industry hot spots and the drawing up of a programme to manage them, the introduction of good environmental management in the mining industry including through education and training establishments, better monitoring, the creation of a national geological survey and the development of environmental assessment and auditing in the mining sector. In some other EPRs, the integration of environmental requirements in mining and quarrying sector has been covered by a chapter on "Industry and Environment". Mining waste is addressed by a chapter on "Waste management" in almost all EPRs.

The **Convention on Environmental Impact Assessment (EIA) in a Transboundary Context** (Espoo Convention) and its Protocol on Strategic Environmental Assessment (SEA) both include major mining activities in their scope, thus requiring impact assessment, effective opportunities for public participation, the consultation of relevant authorities and other elements of environmental assessment. In 2013-2014, the UNECE secretariat to the Espoo Convention and its Protocol assisted Belarus and Ukraine in the implementation of a pilot project on post-project analysis of the transboundary EIA of the exploitation of the *Hotislavskoe* chalky deposits in Belarus, located just 250 meters from the Belarusian-Ukrainian border, involving also the establishment of a bilateral working group by the two countries for the implementation of a joint monitoring programme. The project was funded by the Environment and Security Initiative.

In 2014-2016, an SEA pilot exercise in Armenia (SEA of the National Strategic Development Plan, Road Map, and Long-Term Investment Plan for the Solid Waste Management Sector of Armenia – carried out with EU (EaP GREEN) funding) addressed mining waste to a certain extent. The draft SEA report recommended inter alia Armenia to "Address the contamination of soil and water due to leakages from tailing ponds. In many areas of the country the pollution associated with mining significantly exceeds the maximum allowable concentrations and is the main source of contamination. It is necessary to conduct rehabilitation of the tailings". Mining was also discussed during the EU (EaP GREEN) funded study tour the secretariat organized in December 2014 in the Czech Republic for representatives of Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova and Ukraine, with it being one of the main economic activities of the Moravian-Silesian region that was visited. Mining and its environmental consequences were also referred to in the discussions regarding SEA of the National Energy Policy of the Czech Republic.

Tailings Management Facilities (TMFs) store large amounts of mining waste that is generated as a by-product when extracting minerals. As such, they can pose serious threats to humans and the environment, especially in case of their improper design, handling or management. Thus, a failure may result in uncontrolled spills of tailings, dangerous flow-slides or the release of hazardous substances, leading to major environmental catastrophes. Under the **Convention on the Transboundary Effects on Industrial Accidents**, UNECE promotes effective TMF management across the pan-European region. Several projects on improving TMF safety have been or are being implemented in Eastern Europe (Ukraine) and the Caucasus (Armenia and Georgia), based on the UNECE Safety Guidelines and Good Practices for Tailings Management Facilities.[3] The Convention has also taken special note of the need to improve tailings safety in Central Asia, where the risk of accidents caused by a natural disaster or infrastructure failure is very high. UNECE has initiated and works through an inter-agency coordination group on industrial and chemical accidents to strengthen institutional and capacity development for industrial accident prevention, preparedness and response.

The **Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters** (Aarhus Convention) and its Protocol on Pollutant Release and Transfer Registers (PRTRs) provide solid frameworks for provision of access to information, public participation in decision-making and access to justice in environmental matters, which are essential for ensuring the protection of the rights of every person to live in a healthy environment. The objective is that the public can access timely and adequate information and participate in the decision-making regarding policies, plans or programmes, including, for mining activities. Effective access to information and public participation are prerequisites for responsible mining as they contribute to the promotion of sustainable management of resources, which ultimately reduces the impact of related activities on the environment and on human health. In this regard, the Convention's Parties are obliged to effectively provide information, identify and notify the public concerned about proposed activities and provide early public participation when all options, including the "no activity" option, are open. Such participation should embrace also marginalized groups, including women, indigenous peoples and the elderly.

The implementation of the **PRTRs Protocol** helps to raise awareness of potential risks emanating from releases to or transfers of pollutants through land, air or water and to take the required actions accordingly. Both treaties thereby help to recognize that if the public is able to participate in decision-making from the outset, it is likely that the final outcome of a mining activity will be more acceptable to them and less harmful to the environment. It also means that hidden or unexpected aspects of a proposed activity can be uncovered early, helping to avoid costly mistakes. To assist the implementation, intergovernmental and expert bodies under the Convention and its Protocol, are addressing a number of priority subjects identified by Parties. To pursue the work on the ground, the

[3] Produced by the Joint Expert Group on Water and Industrial Accidents, under the UNECE Water and Industrial Accidents Conventions.

secretariat works closely with a number of partner organizations to raise awareness, build capacity of different stakeholders and provide mechanisms for governments and civil society to address important matters.

## Land management

In line with its principal areas of activity—research and development, policy exchange and advice relating to legislative, institutional, financial, procedural and technical issues of land administration systems— the UNECE Working Party on Land Administration has built a pan-European knowledge base and researched land administration systems across the UNECE region. This work has included the drafting of a series of guidelines, inventories and other papers to assist the development of land administration systems in the UNECE member States. Included in the work on inventories is the monitoring of countries that have registers with features such as **mining rights**. The Working Party collects and disseminates data on those countries regarding whether they operate and/or regulate systems to monitor these rights. The importance of a formal system of land tenure and rights can be used as the basis for economic activities and to engage policymakers in the UNECE region in the social and economic importance of good land administration in their programmes to improve the well-being of citizens. It is critical for member States to have effective systems of land registration, as good land registration promotes an active land market and productive land use and promotes economic development. To illustrate registry systems for mining, examples from Austria and Finland are provided:

In Austria, mining rights as immovable property are subject to registration in the *Bergbuch* (book for mining), which is situated at the local court. The *Bergbuch* is published in the respective Federal Law. Mining in Austria is generally governed by the Minerals Act. According to the act, the Federal Minister for Science, Research and Economic Affairs has to keep records of all mining workers and overview maps and to process certain data for the Internet in a suitable form. The data are also available as a Web Map Service of the Open Geospatial Consortium. The following maps are currently offered: exploration areas, mine permissions, Federal mineral raw materials, recovery operation plans, authorizations obtained and mining rights.

In Finland, in addition to recording mining rights (*usus fructus*) in the Cadastre, the National Land Survey of Finland carries out cadastral surveys for defining and mapping the new mining area in the terrain, inclusive of valuation of compensation for mining rights for landowners and other land possessors. The Survey also determines compensation for neighbours, if the mining company owns the land where a mine is situated, has legal responsibilities with regard to expropriation for mining.

## Public Private Partnerships

The UNECE currently works in the area of the policy framework for public-private partnerships (PPPs), developing best practices and standards for people-first PPPs. The work is relevant to responsible mining though there has not been a focus on the mining sector. PPPs, including concessions, are identified in SDG 17 (Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development) as one of the mechanisms for meeting SDGs. Traditionally, PPPs have been used in infrastructure as a value-for-money tool. But to become fit for purpose for the 2030 Agenda for Sustainable Development, a new social and developmental model will be needed that engages all stakeholders and that involves projects that are transformative, replicable, scalable and increase access of essential services to the unserved and socially and economically vulnerable members of society. To this end, UNECE is developing guiding principles on people-first PPPs for the SDGs and has prepared recommendations on a zero-tolerance approach to corruption in procurement in PPP. These recommendations include a check list by which policymakers can self-assess whether their practices comply with these recommendations. UNECE covers many sectors in PPP related to the SDGs.

UNECE further mobilizes interest in the people-first PPP concept by challenging both public and private sectors to develop and showcase projects that are consistent with people first criteria. It launched in 2017 a programme to achieve 500 people-first PPPs by the end of the year. In addition, the UNECE PPP Business Advisory Board, consisting of representatives of the private sector involved in projects, helps governments to implement projects through the holding of consultative visits and technical assistance. Recently, the Business Advisory Board and a UNDP technical assistance programme concluded support to Belarus in setting up a new law and a PPP unit and brought several actual projects to the market. Finally the UNECE PPP programme seeks to develop an evaluation methodology to identify the extent to which infrastructure projects can be seen to be people first.

# Annex

# Regional Implementation Meeting on Sustainable Development (Fourth meeting, Geneva, 1-2 December 2009)[4]

## Extracts from the background document on transport, mining, chemicals and waste management, and sustainable consumption and production patterns: achievements, trends and challenges (ECE/AC.25/2009/3)

### A. Trends and achievements

### 1. Trends

74. European countries with developed economies used to be large producers of a wide-range of minerals. Sustained mining over the centuries depleted many known mineral deposits, and locating new deposits has become increasingly difficult, with the exception of common construction minerals. The increased globalization of commodity markets has reduced policymakers' perception of that it is a necessity to achieve national self-sufficiency in minerals. The substantial growth of environmental awareness has made mining less popular to both the public and politicians. For these and other reasons, policies that provided various subsidies, protection and economic incentives to the mineral sector have been increasingly eliminated or substantially scaled back. While coal and base metals production has declined, the industrial mineral sector has prospered. The production of sand, gravel, clay and dimension stone now constitutes the main part of mining activity in most Western European countries. Many of these operations are small, although some large operations also exist. There has been a trend to decentralize regulatory control, at least in part, of these industrial mineral operations to local government.[5]

75. The United States and Canada are major mineral-producing countries with good to excellent geological prospectivity. The United States is a net importer of minerals while Canada exports more than it consumes. Mining has been and continues to provide a substantial contribution to the economy of Canada. In the United States and Canada, an increasingly large area is being closed to mineral claim-staking. The largest of these land areas are places of significant natural beauty or areas that are particularly environmentally sensitive. There has been a clear trend over the past decade to accord mining a lower land-use priority. Furthermore, environmental policies developed over the past two decades have led to the implementation of regulations, permitting procedures, and controls (such as effluent standards) that impose significant costs on industry. In some instances, these costs have acted as an incentive for companies to develop new, more environmentally sound technologies that have significantly lower costs than previous technologies (e.g. in the recovery of copper).[6]

76. While the share of mining has tended to drop over the last two decades in Central European countries, it has increased (production of petrochemicals and minerals) in several countries of Eastern Europe, Caucasus and Central Asia. Over the past 10 to 15 years, Western as well as Central and Eastern European economies have increasingly imported raw materials moving the environmental burden associated with their extraction to other parts of the world. At the same time, the Eastern European, Caucasian and Central Asian countries have become major exporters of raw materials to the European Union and have had mixed success in bringing about a shift towards less resource-demanding industrial sectors.

### 2. Achievements

77. A number of international organizations and bodies are actively assisting Governments in their sustainable development efforts in the mining sector. Among these are UNECE, the United Nations Enviroment Programme (UNEP),[7] the United Nations Conference of Trade and Development (UNCTAD), the United Nations Industrial Development Organization and the World Bank.

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[4] Full documentation available at http://www.unece.org/index.php?id=13387#/

[5] J.M. Otto, Mining, environment and development, 4. Mineral policy, legislation and regulation, UNCTAD.

[6] Ibid.

[7] (http://www.unep.fr/scp/metals/mining.htm).

78. Several activities at UNECE address specific problems related to mining activities: The *Safety Guidelines and Good Practices for Tailings Management Facilities*,[8] developed in 2008 under the UNECE Industrial Accidents Convention and UNECE Water Convention,[9] aim at supporting Governments and stakeholders' efforts with a view to limiting the number of accidents at tailings management facilities and the severity of their consequences for human health and the environment.

79. Recognizing the many benefits associated with the coal mine methane (CMM) recovery, UNECE, with support from the U.S. EPA and in close cooperation with the Methane to Markets Partnerships,[10] launched a programme in 2004 to promote implementation of best practices and provide technical assistance to plan, design and finance CMM projects. With UNECE member States producing 38 per cent of the world's coal and generating 40 per cent of coal mine methane emissions, successful project implementation will benefit the regional and global environment and economies in the UNECE region.[11]

80. Improvements in the mining sector cannot happen without active multi-stakeholder involvement. The International Council of Mining and Minerals (ICMM) was established as a platform for industry and other key stakeholders to share challenges and to develop solutions based on sound science and the principles of sustainable development. Its work aims for a respected mining and metals industry that is widely recognized as essential for society and as a key contributor to sustainable development. One of its main activities is enabling the sharing of experiences through good practices in sustainable mining.

## B. Challenges and lessons learned, and the way forward

81. In the countries[12] of Eastern Europe, Caucasus and Central Asia, the legacy of the past is still present in the mining sector. Currently, the main environmental problems in mining are related to: (a) the non-careful design and management of mining operations resulting in severe environmental and social consequences; (b) the use of outdated technologies; and (c) the low efficiency or lack of pollution controls and of the disposal and treatment of waste accumulated around the facilities. The introduction of appropriate water-treatment facilities at mines and ore-processing plants is crucial to reducing or eliminating continuous environmental damage in local ecosystems. Moreover, effluents from mining tailing, particularly from coal, iron and uranium ore mines, are also potential sources of groundwater and soil pollution with heavy metals and radionuclide. In addition, the absence of adequate environmental monitoring makes it difficult to assess present and past pollution from mining activities. As a result, waste composition and volume – and the extent of soil, surface and groundwater contaminations, and its effect on human health – are typically not known.

82. The mining sector is an important contributor to local and national economies in South-Eastern Europe. However, in parts of South-Eastern Europe, it is often characterized by inappropriate planning, and operational and post-operational practices taking place within inadequate regulatory frameworks. Poor or negligible implementation of mine rehabilitation and closure activities has resulted in, and continues to cause, significant adverse environmental and health and safety impacts and related liabilities. Increasing expectations for environmental protection, desires to reduce health risks, competition for land, and the increasing value of the natural environment for recreational space have led to marked improvements in regulatory requirements and mining practices in a number of countries. Furthermore, many mining companies have introduced management policies, practices and technologies that markedly reduce the environmental harm caused by mining. Continued improvement in mining practices can be expected, as can stakeholder expectations for ever higher standards.

83. At the national level, an effective and workable system of environmental management will require an understanding of the concept of sustainable use and development of national mineral resources and a greater participation by those involved in the management of mineral resources. The UNECE EPRs' recommendations related to mining in the reviewed countries from South-Eastern and Eastern Europe, Caucasus and Central Asia include a broad range of measures, inter alia (a) the updating of the legal and regulatory basis for the management of mineral resources, (b) the assessment of mining hot spots and of impacts of existing harmful emissions on the environment and human health; (c) the mitigation of the existing environmental problems; (d) the development of medium- and long-term policy objectives and environmental strategies for the mineral sector; and (e) periodic

[8] ECE/CP.TEIA/2008/9 – ECE/MP.WAT/WG.1/2008/5 (http://www.unece.org/env/teia/).
[9] Convention on Protection and Use of Transboundary Watercourses and International Lakes.
[10] (http://www.methanetomarkets.org/m2m2009/index.aspx).
[11] (http://www.unece.org/energy/se/cmm.html).
[12] UNECE Environmental Performance Reviews on Armenia, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Ukraine and Uzbekistan.

environmental audits by mining companies, to evaluate and stimulate their environmental performance and competitiveness.

## Extracts from the Chair's Summary of the meeting (ECE/AC.25/2009/2/Add.1)

49. The meeting acknowledged the important contribution of mining to society, as it provided essential minerals and was the source of many raw materials. The importance of mining varied across the UNECE region, with the sector being of great importance to the economies of several countries. Participants noted that the region's mines were among the deepest and most efficient in the world, and that it was a leading global supplier of mining technology.

50. At the same time, mining had considerable adverse effects on the environment and society. The main environmental concerns were related to water use and quality, waste rock dumps, tailings storage areas and hazardous materials. The main social concerns were related to land acquisition, indigenous peoples and cultural heritage, and labour and working conditions.

51. Participants noted that the principal challenge of more sustainable mining was to transform mineral resource potential while at the same time creating sustainable benefits, addressing social needs and protecting the environment. Mining could and should contribute to sustainable development, but the industry needed to address environmental and social concerns and promote measures to create lasting benefits. Among the main environmental considerations were land use planning, waste management, ecosystem risk management and mine closure and rehabilitation. In addition, good governance, with transparency and accountability, was an essential prerequisite for sustainable mining practices and for the adoption of corporate social and environmental responsibility approaches.

52. Opportunities for sustainable mining were growing in the region, with increased exploration, improved available data, newer technologies and changed economic conditions. The meeting noted the intention of one country to develop, for the nineteenth session of the Commission, a policy proposal on the contribution of mining to sustainable development. In the UNECE region, the countries of South-Eastern Europe and Central Asia faced the greatest challenges in terms of sustainable mining.

53. The meeting agreed that good practices in mining required multi-stakeholder consultation and dialogue, which, in turn, called for greater transparency, efforts to make information accessible to decision makers and the broader public, and a commitment to ensuring corporate social responsibility and embracing environmental stewardship. With respect to environmental concerns, good practices should include environmental assessments throughout the entire life cycle, long-term monitoring, and protection and enhancement of biodiversity and land. Long-term planning, including strategic environmental assessment, at all stages was the key to successful outcomes.

54. The meeting took note of a number of initiatives promoting sustainable mining. These included the Resource Endowment Initiative and the European Commission guidance on development of mining activities in the Natura 2000 Networking Programme. Several activities had been undertaken at UNECE to address specific problems related to mining activities. Safety guidelines and good practices for tailings management facilities had been developed in 2008 under the UNECE Convention on the Transboundary Effects of Industrial Accidents and Convention on the Protection and Use of Transboundary Watercourses and International Lakes. The guidelines supported efforts by Governments and stakeholders to limit the number of accidents at tailings management facilities and the severity of their consequences for human health and the environment. Recognizing the many benefits associated with the coal mine methane recovery, UNECE, with support from the Environmental Protection Agency of the United States and in close cooperation with the Methane to Markets Partnership, had launched a programme in 2004 to promote best practices and provide technical assistance in planning, designing and financing coal mine methane projects.

55. In the framework of the Environment and Security Initiative, several projects had been launched to assess the security risks of tailings sites in South-Eastern Europe and Central Asia.

56. At the global level, the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development had been established in 2005 to improve, enhance and promote the contribution of mining to

sustainable development. The Forum was working to develop a policy framework for mining that would be delivered to the Commission in 2011.

57. Participants noted that improvements in the mining sector required particular efforts by the mining industry and the involvement of other key stakeholders. The International Council on Mining and Metals had been established as a platform for industry and other key stakeholders to share experiences and develop solutions based on sound science and sustainable development principles. Furthermore, the European Technology Platform on Sustainable Mineral Resources had been established to strengthen minerals sector technology and minimize its footprint.

58. Regarding the measures needed to avoid the spreading to other regions of mining impacts on environment and human health, several solutions were proposed, including: (a) the adoption of national integrated raw-materials policies; (b) the application of integrated cross-sectoral approaches to land-use management; (c) the promotion of a more sustainable raw materials supply within countries; and (d) support for innovation and competition for investment by mining companies.

59. Participants stressed the need for effective and efficient approaches to the funding of mine closures, in particular to ensure the environmental safety of closed mines. Strengthening certification systems in the mining sector and encouraging extractive companies to consider self-regulation would contribute to sustainable development and poverty eradication. Mechanisms should be established to promote capacity-building, the exchange of experiences, the identification and dissemination of best practices and the creation of an appropriate knowledge base on mineral resources. The need to better integrate biodiversity conservation goals into national mineral extraction plans was also highlighted.

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