ITALY

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A member of the G8 group of industrialised countries and one of the world's richest nations, Italy's economy was sluggish last year and GDP grew by only 0.4%. Purchasing power parity was some US$1,348 billion, or US$25,000 per head of population (58 million). Services contribute about two-thirds of GDP, industry 30% and agriculture some 2.5%. Italy possesses relatively few large multinationals but there are some 35,000 joint stock companies, often quite small and family-owned. They drive the economy and many have secured substantial shares of the global market for niche products.

The mining and extractive industries are dominated by the production of industrial minerals. Italy is one of the largest cement producers in the EU, an important producer of bentonite and monmorillonite clay (both mined mainly in Sardinia) and a significant producer of feldspar and feldspathic clays. These are important constituents of ceramic tiles and Italy accounts for as much as 50% of EU output. Italy is famous for its marble, most notably for the white marble quarried near Carrara in the Apuan Alps of Tuscany, but there are hundreds of quarrying operations spread across Italy exploiting coloured marbles. Other important industrial minerals products include pumice (on the island of Lipari off the north coast of Sicily), pozzolan and talc.

Broadly, a distinction is drawn between inert industrial minerals requiring minimal processing, ie those used directly such as roadstone, sand and gravel, dimension stone, ornamental stone etc, and those industrial minerals that require substantial further processing for their end use, eg fluorspar, barytes, clays for tiles and cement. Total annual extraction of minerals in the first category is estimated at some 400 Mt, including about 10 Mt of ornamental stone.

In the energy sector, Italy is heavily reliant on imports. It has no nuclear generating capacity, and no longer produces coal. (Formerly some lignite had been produced at the state-owned Santa Barbara mine in Tuscany.) It now relies wholly on imports for its coal needs and last year these rose very slightly to the equivalent of 13.8 Mt of oil. It produces modest amounts of natural gas, totalling last year about 13.6 Mt of oil equivalent, but consumed nearer 57 Mtoe. Oil production jumped by almost 30% to 5.4 Mt but consumption was nearer 93 Mt. Some geothermal energy is produced in Tuscany and hydroelectricity is produced at several sites in Alpine valleys in the north of the country and in the Apennines. Total hydroelectricity consumption last year was the equivalent of about 10.9 Mt of oil.

Italy is no longer a significant metal miner but is an important producer of metals based on the processing of imported ores and concentrates. In September 2003, Glencore International AG announced that it will close the

Porto Vesme zinc-lead smelting and refining complex in Sardinia as a consequence of high electricity charges which have forced it to operate at only 80-90% of capacity. The complex comprises an 80,000 t/y capacity Imperial Smelter Process smelter, a 110,000 t/y electrolytic zinc plant, a 90,000 t/y Kivcet lead smelter and a 120,000 t/y lead refinery. Swiss-based Glencore, which purchased the complex from Enirisorse in 1999 as part of Italy's privatisation of the resource sector, said that operations would cease on October 1, 2003, and that employees would be laid off for one year.

Glencore also has a 46% interest in the 1.0 Mt/y capacity Eurallumina alumina refinery at Portoscuso on Sardinia's west coast. The refinery is fed entirely by bauxite from the Weipa mine in Queensland Australia at the rate of about 2.0 Mt/y. Weipa is owned and operated by Rio Tinto's wholly-owned subsidiary Comalco which has a 56% interest in Eurallumina. Alumina produced by Eurallumina provides feed for the 144,000 t/y capacity primary aluminium smelter at Porto Vesme operated by Alcoa Inc., and the 44,000 t/y capacity Fusina operation in northeastern Italy.

Early in 2002, Virotec International of Australia, finalised an agreement with Eurallumina for the supply of red mud residue generated as a by-product of alumina refining. The mud will be used by Virotec to produce its Bauxsol™ acid minewater and heavy metal sequestration treatment material.

In the precious metals sector, Gold Mines of Sardinia Ltd (GMS) posted a 20% increase in gold production at its Furtei mine in 2002, to 20,302 oz (16,782 oz). Some 0.6 Mt of material was moved and the open pit yielded 212,399 t of ore. In addition to gold, 1,247 t of copper was produced. Operations were confined to mining hypogene (primary) ore, the oxide resource having been depleted. Total production costs amounted to US$326/oz.

The copper mineral enargite occurs in the base of the pit but operations at the base of the pit became increasingly difficult during the year, leading to the decision to suspend operations in the final quarter. Consideration is now being given to an underground operation. A significant development during the year was the strategic alliance forged with Canley Developments Inc. of Canada. The latter will spend up to €15 million, funding all exploration costs at Furtei as well as underpinning future mine operating costs. In return, Canley can acquire up to a 45% interest in the mine and its adjacent exploration tenements.

In northern Sardinia, GMS experienced further permitting delays at its Osilo project where some 20 vein sets have been identified of which only five have been drilled. Trial underground mining is planned.

Furtei and Osilo are epithermal gold deposits of Tertiary age. GMS is now excited by the possibility that some of Sardinia's Palaeozoic rock units present potential gold targets and it has high hopes in this regard at the Monte Ollasteddu project where a number of exploration targets are being given high priority.

In November 2002, GMS relocated from Australia to the UK and is now listed on the London AIM market.

Mining law

In Italy, mineral extraction and development is still basically granted by a Royal Decree dating from 1927. It distinguishes between mines and quarries on the basis of the type of minerals. Thus, the extraction of metals, solid fuels, phosphates, potash and magnesia salts, mica, feldspar, kaolin, bentonite etc, are included in the mines category (first category). All substances not included in this category are included in the regime of quarries.

In summary, the legal context of mines is as follows:

- development of the mineral deposit is in the public interest;
- the property belongs to the State if private ownership is uncertain or the product is not deemed to be marketable;
- the State can authorise the development of a mineral deposit by the private sector under conditions approved by the Mining Authority, and should ensure the optimum exploitation of the ore deposit.

A modification to the basic mining law (1990) makes environmental restoration obligatory, possibly with State contributions to the exploration or exploitation concessionaires. The current legislation makes no special provision for the possibility of exploiting those areas of a deposit not already mined. Quarrying activities, according to civil law, can be carried out by the owner of the ground but must be officially authorised.

The implementation of such disciplines requires that mining activities, under a concession regime, must be managed by operators possessing suitable professional and financial capabilities, and a technical body is charged with responsibility for adequate controls and vigilance, so as to ensure that exploitation criteria are adhered to and are in harmony with the public interest.

The same organisation is charged with the safety of mine workers and other parties according to the ‘Mining Police Law’ of 1959. This law was updated in 1996 in order to encompass the 92/91/CE and 92/104/CE European Commission directives regulating work safety in quarry activities.

In 1977, monitoring the competence of quarrying activities was assigned to the Regional authorities, who produced regional laws for such extraction activities, despite the lack of a new national framework law. Generally, regional laws aim to reduce the environmental impact of quarrying, limiting new workings in some areas in accordance with Regional Extraction Activities Plans, (so called *PRAE*), which are based on territorial planning criteria and evaluations of regional consumption and production policies.

Also, apart from the environmental and safety problems arising from abandoned quarries, the same laws generally require that, in addition to the so-called ‘exploitation plan’, another plan for environmental restoration of the affected areas should be prepared and approved. To finance environmental

rehabilitation of old abandoned quarries, and as a means of land-maintenance policies, in many regions fees have been imposed based on the volume of material extracted and the type of material exploited.

In addition to quarrying activities, the competencies of mining activities have also been transferred to the Regions in line with so called '*Bassanini Law*' (n. 112/1998). Mines, however, will continue to have a concession regime.

Environmental ties

Apart from the laws that specifically refer to mines and quarries, the management of research and exploitation of mineral substances must conform to the conditions prescribed for environmental conservation, including various kind of ties on the territory, and the provision of an environment impact assessment procedure.

● *Protection of natural beauty* - the basic law of 1939 requires provisions for a series of administrative limitations (panoramic ties), the purpose being to maintain consistency and structure of the sites concerning all those aspects that relate to the quality of natural beauty: authorisations for the modification of locations under this territorial tie; adoption of cautionary provisions; and special legal provisions for the protection of flora and fauna to avoid damage resulting from new mine development.

A 1985 law, for the protection of areas of particular environmental interest, has been integrated with the 1939 law. In addition to recognising that the landscape has an aesthetic quality, the 1985 law also introduces the concept of environmental landscape, with all the implications this has for the ecosystem. In essence, the legislation has imposed a tie that can preserve a series of particularly sensitive zones under aesthetic, environmental and naturalistic points of view.

● *Hydrogeological tie* – all those lands affected by human activities which could destabilise or disturb the water regime, are subject to a hydrogeological tie, under a Royal Decree dating from 1923.

● *Protection of soil* - two laws of 1989 and 1990 make provisions for a wide range of programming, planning and activity realisation, and set out methods and criteria that must be followed.

● *Environmental Impact Assessment* - currently, Italian legislation requires an Environmental Impact Assessment to be carried out for all new extraction activities, assigning competence to the Ministry of Environment for the larger projects (those workings covering an area of more than 20 ha) and to the regional authorities for the smaller projects.

There are many other environmental regulations affecting mining, such as laws about waste management, the preservation of water quality where there is underground mining, and/or where there is a risk of contamination of the groundwater.

Sustainable development indicators

The extractive industries play an important role in Italy's economic development in terms of wealth generation and jobs, and through the production of a wide variety of industrial minerals which are essential, not only for infrastructure and housing, but also for technological development. In our modern society, the expectations of Italian citizens are increasingly demanding in terms of environmental protection and social commitment. In the light of the preceding considerations, the pressures on industry and in particular on basis industries, place obligations on business to develop proactive initiatives that go beyond the legislative framework. New forms of communication are necessary and companies need to reinforce their dialogue with local communities.

In order to enable such a dialogue, it will be necessary to simplify the often complex information, so that it is quantifiable and can be understood and communicated. The challenge of 'Sustainable Development' was explored in the EC communication of May 2000 on 'promoting sustainable development in the EU's non-energy extractive industry'. The communication referred to the social and environmental responsibilities of companies. It also insisted on the need for improved stakeholder dialogue. Indicators that help to explain how things are changing over time and why particular trends are occurring can achieve this.

Sustainable Development (SD) indicators for the non-energy extractive Industries will:

- inform those who are concerned about SD and the environment, ensuring that they receive the correct information about the impact companies have on the environment, together with the social and economic benefits of the extractive business;

- provide early warning of potential environmental and social problems arising from certain activities;

- help to measure the performance of a company or a sector over time and against its competitors;

Launched by the Raw Materials Supply Group the SD indicators for the non-energy extractive industries have been developed recently by experts from industry, EU member States and NGOs under the chair of the European Commission.

Table next page

Selected Industrial Minerals Production 2002

Feldspar	1.8 Mt
Kaolin	60,000 t
Refractory clays	400,000 t
Bentonite	250,000 t
Fluorite	60,000 t
Barite	15,000 t
Cement clays	7.0 Mt
Salt	1.15 Mt
Potash	600,000 t
Asphalt	40,000 t