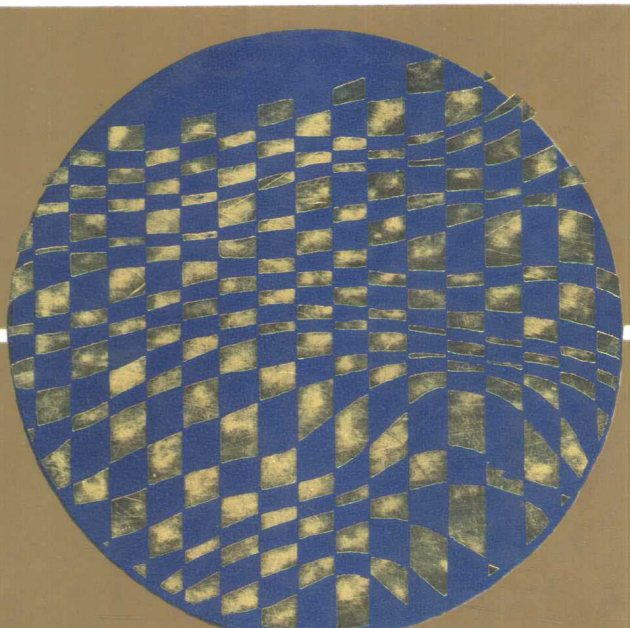
MINERAL RESOURCES OF CHINA

中国矿产

中国地质矿产信息研究院 主编

EDITED BY CHINESE INSTITUTE OF GEOLOGY
AND MINERAL RESOURCES INFORMATION



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《中国矿产》简介

由中国地质矿产信息研究院主编、中国建材工业出版社出版的《中国矿产》一书，首次向国内外全面系统地介绍中国矿产资源的现状和形势，并论述现已探明储量的149种矿产中的68种主要矿产的储量、资源及其在世界上的地位；矿产地理分布、矿床主要类型及地质特征；开发利用条件、生产、需求和进出口状况。书中不仅对能源、金属和非金属矿产作了概括总结和科学分析，而且从中国实际出发，提出了矿产资源的开发对策。

全书60万字、43幅矿产分布图。"总论"为中、英文对照版。"能源矿产"、"金属矿产"和"非金属矿产"的三篇概述和64节，均附有详细英文摘要。本书内容丰富、资料翔实、数据权威可靠，不仅为国内外从事矿产资源研究、开发的科研设计部门、大专院校提供了丰富的矿产资源背景资料，而且为投资公司和矿业公司准确了解中国矿产资源形势、合作勘查和开发中国矿产资源提供了可靠的依据。本书的出版还将为世界矿产资源数据库、矿产资源年报和年评，以及为致力于矿产资源战略分析的报告、论文提供丰富的信息。

A Brief Account of Mineral Resources of China

The new book Mineral Resources of China, edited by the Chinese Institute of Geology and Mineral Resources Information and published by China Building Materials Industry Press, comprehensively and systematically presents, for the first time, the current status and situation of mineral resources in China to readers at home and abroad, and discusses separately the reserves and resources of 68 of China's 149 mineral resources with explored reserves, their positions in the world, their geographic distribution, major types and geological features of relevant mineral deposits, conditions for their exploitation and utilization, related production, demand and imports and exports. This book not only summarizes and scientifically analyses energy, metallic and nonmetallic mineral resources but also puts forward the strategy and policies for the exploitation of mineral resources.

The book comprises 600,000 words and 43 figures depicting the geographic distribution of minerals. The full text of the "General Introduction" is written both in Chinese and English; the outlines of the three parts (i.e. "Energy Minerals", "Metallic Minerals" and "Nonmetallic Minerals") and 64 chapters of the book all have an attached detailed English abstract. This book is characterized by rich content, abundant materials for reference, authoritative and reliable data and objective and in-depth analysis, not only offering plentiful background data of mineral resources for departments at home and abroad engaged in the study, exploitation and designing of mineral resources but also providing Chinese and foreign investment and mining companies or corporations with a reliable basis for accurately understanding the situation of mineral resources in China so as to cooperate with each other in exploration and development of the resources. The publication of the book will supply a lot of information for the data bases, annual reports and reviews of the world's mineral resources as well as strategic analysis of them.

If you would subscribe to this book, please fill and post the subscription order form overleaf.

发展矿业
造福人类

朱训 一九九三年

发展建材
地矿先行

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《中国矿产》编著委员会

《中国矿产》编辑出版委员会

前　言

本书是中国地质矿产信息研究院奉献给中外读者的一部迄今最全面、最系统介绍中国矿产资源的专著。编者力图用准确而权威的资料、简练的笔墨，勾画出中国矿产资源特点及其开发利用形势，论述现已探明储量的149种矿产中的67种主要矿产的储量、资源及其在世界上的地位；矿产地理分布，矿床主要类型及地质特征；开发利用条件、生产、需求和进出口状况。充分反映出中国百万地矿工作者丰硕的找矿成果。本书是中国地质矿产信息研究院多年矿产资源研究的结晶。参加本书编写的共有26位同志：尹惠宇、文世澂、项仁杰、陈刚、单昌昊、刘吉祥、张楚安、穆炳涛、王秀芳、王鸿秋、娄成、付庆云、刘增洁、苏文清、马建明、尹丽文、毛廷科、钟志凯、刘雅蓉、曹新元、葛振华、秦雯、王淑玲、张莓、孙永健、彭利生。本书的插图由张英存同志负责地理底图的编绘和全部图件的清绘工作。金威虎、叶岚、刘爱群等人为本书做了大量的编务工作。

中国地质学会的蒋敏喜、费振壁、刘林群、孙社平等同志承担了本书的英文翻译工作。

最后衷心感谢朱训部长为本书题词，并撰写了总论。感谢关心和支持本书出版的各位人士。

由于编者水平有限，加之编写匆忙，定有不少缺点错误，恳请读者批评指正。

《中国矿产》编著委员会

1992年9月

序

新中国成立43年来，第一次将幅员辽阔、矿藏丰富的中国矿产资源公诸于世，这是作为中国矿产资源信息载体的本书肩负的光荣使命，是中国改革开放方针在地矿业、出版业的生动体现。

众所周知，矿产是人类赖以生存和发展的物质资源，是人们生产资料和生活资料的重要来源，是进行现代化建设的重要物质基础，也是国际政治、经济、贸易乃至科技、文化交往的重要物质手段。人类社会从远古至现今，经历了一个从野蛮到文明，从落后到先进，从低级到高级的发展过程。这个过程，是以人们不断地向大自然开掘、索取矿产资源的活动相伴随的。唯物主义历史观认为，人类社会“历史破天荒第一次被安置在它的真正基础上；一个很明显而以前完全被人忽略的事实，即人们首先必须吃、喝、住、穿，就是说首先必须劳动，然后才能争取统治，从事政治、宗教和哲学等等，——这一很明显的事实在历史上应有的权威此时终于被承认了。”“物质生活的生产方式制约着整个社会生活、政治生活和精神生活的过程。”（《马克思恩格斯选集》第3卷第41页，第2卷第82页）这里所说的劳动和物质生活的生产方式，都直接或间接地离不开开发矿业、发掘矿产品这一伟大实践。纵观人类历史的发展进程，可以得出这样一个结论：人类的文明程度，人类社会的进步程度，相当地决定于矿产资源开发利用的程度。因为，没有矿产资源，就没有金属和非金属产品，就没有能源；而没有金属和非金属产品、没有能源的支持，就没有今人类的一切。

伟大的中华民族在自己的土地上繁衍生息，曾经依赖对矿产资源的开发利用，创造过闻名全球的古代文明，为人类的发展做出过重大贡献。然而，更加令人鼓舞、感奋的，是新中国成立后的40余年，特别是实行改革开放方针后的10余年。通过系统的矿产勘查工作，在中国的土地上，已发现163种矿产，探明有储量的矿产有149种，以及地下水和矿泉水等。已发现矿床、矿点20余万个，经详细工作的近两万处。我国矿产资源在世界上占有举足轻重的地位。我国矿产储量和产量居于世界前列的矿种有20余个，其中不少矿产在国际上享有盛誉。我国煤资源十分丰富，埋藏2000米以浅的煤预测资源总量为5.06万亿吨，探明保有储量9544亿吨，1990年产原煤10.8亿吨，居世界之首；我国石油资源也较丰富，1990年产原油1.38亿吨，使我国成为世界上少数几个产油大国之一。我国储量居于世界前列的金属矿产有钛矿、钨矿、锑矿、锡矿、铋矿、稀土矿、钒矿、钼矿、汞矿等。其中，钨矿、锑矿是中国瑰耀在世界的优势矿种，无论储量和产量，均遥居世界之首；我国拥有世界上最大的铋矿山——湖南柿竹园钨锡

钼钚矿山，是世界上独一无二的超大型矿床；我国素有“稀土王国”之称，稀土储量占世界总储量的五分之四。我国非金属矿产储量居世界前三位的有10余种。其中石膏、石墨、萤石、滑石、硅灰石、膨润土、芒硝、菱镁矿等居世界第一、二位。1990年我国石墨产量68万吨，占世界总产量的二分之一以上；滑石产量250万吨，占世界总产量的三分之一；我国是世界菱镁矿最大资源国、生产国和出口国，1990年保有储量28亿吨，Ⅰ级品储量占总储量的将近一半。事实无可争议地说明，中国是矿产资源丰富、品种齐全、储量大、配套程度高的少数几个国家之一。我国已经实现了从解放初期的矿业小国到矿业大国的飞跃，从能源、原材料工业小国到能源、原材料工业大国的飞跃。

本书是世界矿产博览会的最大展台，荟萃了中国能源矿产、金属矿产、非金属矿产的精华；本书是熟谙中国地下宝藏的寻矿向导，带领人们跋山涉水，在960万平方公里的陆地上和300万平方公里的海域里，去查看检阅令人憧憬、陶醉的多彩多样的中国矿产资源；本书是迄今为止第一个服务于中外用户、读者的中国矿产资源数据库和信息库，供人们检索、调阅；本书还是地学学者、研究人员活动的舞台，使他们得以施展从理论和实际的结合上阐发地学理论的才华。

本书的编辑出版，得到了中华人民共和国地质矿产部朱训部长和国家建筑材料工业局局长王燕谋博士的关怀和支持。他们在百忙中，为本书题了词。朱训部长还为本书撰写了总论。本书由中国地质矿产信息研究院《中国矿产》编写组编写，中国建材工业出版社出版发行。

本书在1993年7月出版，将是所有从事地质矿产工作的人员、矿业投资者、对中国矿产有兴趣的中外读者的一件幸事。

开卷受益。开此卷，受大益。亲爱的读者们，我断定，你们拿到此书，会如获至宝，爱不释手。

作为中国建材工业出版社的总负责人，本人受《中国矿产》编写组之重托，撰写了以上一些话，权当奉献给国内外广大读者、学者、专家、地学师生、矿业投资者、企业家、图书收藏家以及从事地矿、能源、冶金、有色金属、建材、化工、非金属矿工业的所有同仁们的“见面礼”，深感荣幸！如果本书能够得宠于诸君，将是对本书作者、出版者的最大安慰！预致谢忱！

尹志山

1992年9月

Preface

It is a glorious mission undertaken by this book as an information carrier of the mineral resources in China as well as a vivid expression of China's policy of reform and opening to the outside world in the geological and mineral sector and the publishing sector to make known to the public, for the first time in the 43 years since the founding of the New China, the available data on the mineral resources of China, a country with a vast territory and a wealth of mineral resources.

As is known to all, mineral resources are the material resources mankind relies on for survival and development, an important source of the means of production and subsistance of people, an important material base for modern construction, and an important material means in international political, economic and trade relations as well as scientific, technological and cultural intercourses. From remote antiquity to the present, the human society has grown out of nothing and has experienced a process of development from small to large, from savage to civilized, from backward to progressive, and from elementary to advanced. This development process is accompanied by man's constant activities in exploiting and extorting mineral resources from nature. Historical materialism considers that "History was for the first time placed on its real basis; the palpable but previously totally overlooked fact that men must first of all eat, drink, have shelter and clothing, therefore, must work, before they can fight for domination, pursue politics, religion, philosophy, etc. — this palpable fact at last came into its historical right." (Friedrich Engels, 1879). "The mode of production of material life conditions the general process of social, political and intellectual life" (Karl Marx, 1859). Both the "work" and "the mode of production of material life" referred to herein are directly or indirectly inseparable from the great practice of mineral exploration and development. From a comprehensive analysis of the development course of the history of mankind one may naturally arrive at such a conclusion: the civilization of the mankind and the progress of the human society are considerably determined by the development and utilization of mineral resources. This is because without mineral resources there would be no metallic and nonmetallic products and energy, and without the support of the metallic and nonmetallic products and energy, nothing would exist for the present-day human beings.

While living and multiplying on the land of China, the great Chinese nation has created the world-known ancient civilization by relying on the exploitation and utilization of mineral resources, thus making significant contributions to the development of mankind. However, what is more encouraging and inspiring is the 40-odd years since the founding of the New China, particularly the 10-odd years after the policy of reform and opening to the outside world was put into effect. As a

result of systematic mineral exploration activities, there have been discovered on the territory of China 163 kinds of mineral resources, of which 149 kinds plus groundwater and mineral spring water have explored reserves. The mineral deposits and occurrences discovered so far amount to over 200,000, of which nearly 20,000 mineral deposits have been explored in detail. In terms of mineral resources, China is now holding a decisive position in the world For more than 20 kinds of mineral commodities China is among the leading countries in the world in terms of ore reserves and production and enjoys high reputation on the international market for a considerable part of these mineral commodities. China is very abundant in coal resources, as its total resources of coal occurring within a depth interval of 2,000 m from the surface is predicted to be 5,060 billion tons and its retained coal reserves proved so far amount to 954.4 billion tons. China produced 1.08 billion tons of raw coal in 1990, ranking first in the world. China is also quite rich in petroleum resources. It produced 138 million tons of crude oil, ranking among the few oil-producing powers in the world. The metallic ores for which China is in the world's front ranks in reserves include those of Ti, W, Sb, Sn, Bi, REE, V, Mo and Hg. Among them, tungsten and tin ores are China's superior ore species that shine like gems in the world and China is far ahead in the first rank in the world in terms of their reserves and production; China possesses the world's largest bismuth mine—— the Shizhuyuan W-Sn-Mo-Bi mine, a unique super-large mineral deposit in the world ; China is known as a "kingdom of rare-earth elements", and its REE reserves account for four fifth of the world's total. In China, there are more than ten kinds of nonmetallic mineral commodities whose reserves are in the first three ranks in the world and China ranks first and second in the world for the reserves of gypsum, graphite, fluorite, talc, wollastonite, bentonite, mirabilite and magnesite. In 1990 China produced 0.68 million tons of graphite, making up more than one half of the world's total output, and 2.5 million tons of talc, which occupy one third of the total of the world; China is the world's largest country in magnesite resources, output and export, and its retained reserves of magnesite in 1990 attained to 2.8 billion tons , of which nearly one half is of magnesite ores of grade 1. Facts irrefutably testify that China is one of the few countries in the world whose mineral resources are abundant in quantity, complete in variety, voluminous in ore reserve, and high in degree of combination. China has achieved a leap from a small mining nation at the early stage after the liberation in 1949 to a mining power as well as a leap from a country with undeveloped energy and raw-processed materials industries to a country with developed ones.

The present book is the biggest item for display on the world's mineral resources fair, which assembles the essense of the energy, metallic and nonmetallic mineral resources of China ; the book is an ore-search guide familiar with China's underground treasures, which leads people in travelling across mountains and rivers to look into and review the intoxicating, colourful and diversified mineral resources of China over its land area of 9.6 million square kilometers and its marine space of 3.0 million square kilometers; the book is the first mineral resources data base and information bank of China that serves both Chinese and foreign users and readers for retrieval and reading; the book is also an arena for geoscience scholars and researchers, where they can put to good use their talents in elucidating geoscientific theories by integrating theory with practice.

The editing and publishing of this book has enjoyed much concern and support from Zhu Xun, Minister of Geology and Mineral Resources of the People's Republic of China , who wrote the inscription and the general introduction for the book in the midst of pressing affairs. The book is written by the Compilation Group for Mineral Resources of China of the Institute of Geological and Mineral Resources Information of China and is published and distributed by the China Building Materials Industry Press.

The book is to be published in July 1993. This would be a good fortune for all the professionals engaged in geological survey and mineral exploration, mining investors, and Chinese and foreign readers interested in mineral resources of China.

Reading is always profitable. Reading this book will be much more profitable . Dear readers, I assert that, as soon as you get a copy of this book and start reading it , you will feel as if you found a treasure, and will fondle it admiringly.

As President of the China Building Materials Industry Press, I feel greatly honoured to be entrusted by the Compilation Group for the Mineral Resources of China to write down the above a few words to serve as "a present given on the occasion of the first meeting "to Chinese and foreign readers, scholars, professional specialists, earth-science teachers and students, mining investors, entrepreneurs, book-collectors, and all colleagues working in various sectors of geological survey and mineral exploration, energy industry, metallurgical industry, nonferrous metals industry, building materials industry, chemical industry, and non-metallic minerals industry. It will be a great consolation to the authors and the publisher if this book is in the good graces of all those mentioned above. In this connexion, I wish to extend hereby my sincere gratitudes.

Sep. 16 1992

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