



矿产资源 战略评价体系研究

李金发 吴巧生 编著



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摘 要

党的“十六大”报告明确提出我国在 21 世纪初期实现全面小康社会的宏伟目标：“……可持续发展能力不断增强，生态环境得到改善，资源利用效率显著提高，促进人与自然的和谐，推动整个社会生产发展、生活富裕、生态良好的文明发展道路。”全面小康目标的实现需要通过走新型工业化道路来完成，需要持续、稳定、安全的矿产资源供应体系作保障，需要与社会主义市场经济体制相适应、面向可持续发展的矿产资源战略评价提供科学决策的信息支持。本书的研究目的就在于，从战略管理的角度出发，以可持续发展为基本原则，在对矿产资源战略评价系统进行深入研究的基础上，探讨如何建立矿产资源战略评价的理论基础、评价模型和方法体系，选择湖北省作实证研究对象，并提出湖北省实现全面小康目标的矿产资源可持续利用对策。

矿产资源是自然资源的重要组成部分，是人类赖以生存和发展重要物质基础。目前，我国 90% 以上的能源和 80% 左右的工业原料都取自矿产资源，每年消耗的矿物原料超过 50 亿 t，矿产资源支撑了占我国 GDP 70% 的国民经济的运转。经过建国 50 多年来的大力建设和发展，我国已形成了比较完善的矿业体系，创造了巨大的经济效益和社会效益，现已成为仅次于美国的世界第二矿业大国。

虽然我国矿产资源种类较多，但仅有稀土、钨、锡等少数用量不大的金属矿产和部分替代性较强的非金属矿产资源储量居世界前列，而富铁矿、铜矿、石油、钾盐等支柱性矿产严重短缺或已探明储量严重不足。而且，我国人口压力巨大，矿产资源人均拥有量仅为世界平均水平的 58%，在人口增长和经济发展的双重压力下，资源短缺的状况日益突出。我国矿产资源分布和赋存状态也不甚理想，石油、天然气和铜等重要矿产资源主要分布在西部地区，而我国生产力布局则以东部为主；已发现矿产地中，大型特大型矿床少、中小型矿床多，易采易选冶者少、难采难选冶者多。这也给矿产资源的开发利用带来一系列问题。由于我国矿业领域改革开放严重滞后，矿产勘查投入严重不足，随着找矿难度不断增大，新增资源储量速度降低，而消耗速度却不断加快，供矿中断的危机已迫在眉睫。而且，现有生产矿山数量多、规模小、工艺技术落后、破坏浪费惊人，有用矿物回收率比国外平均低 20%~30%。再加上我国现有矿业领域体制不顺、重复建设、秩序混乱、市场不稳、盲目开采、管理低效、经营粗放等问题，更加剧了矿产资源短缺的严峻性。

据权威机构分析，到 2020 年，我国将超过美国而成为世界上最大的矿产资源消费国。为保证国民经济持续高速发展，必须对我国矿产资源的现状和未来

重新认识,合理地利用矿产资源,不能以巨大的资源消耗和环境破坏为代价来保持经济的高速增长,而是要树立矿产资源忧患意识,充分认识矿产资源的重要性、稀缺性和不可再生性,要依据国家经济可持续发展的战略需要,建立与社会主义市场经济体制相适应、面向可持续发展的矿产资源战略评价体系,以便为矿业生产和合理开发利用资源提供宏观和微观指导,为政府和矿政管理部门制定相关政策和法规提供科学决策依据。

我国传统矿产资源评价仅考虑技术和经济两个因素,无法适应经济社会可持续发展的要求,无法保障国民经济持续高速增长对矿产资源的供给需求,也无法解决日益加剧的因采矿而引发的矿山生态环境问题。矿产资源战略评价则以经济和社会的可持续发展为目标,充分利用“两种资源、两个市场”,着重解决矿产资源的安全供给和与环境协调发展问题,对实现传统矿业向非传统矿业的转变具有重要的作用。

本书首先介绍了矿产资源战略评价的由来,提出矿产资源战略评价系统的理论,然后从矿产资源战略评价的理论基础、模型和方法学3个方面论述了矿产资源战略评价问题,初步建立起矿产资源战略评价的体系,再以湖北省为实例对矿产资源战略评价的应用进行了尝试,并提出湖北省矿产资源可持续利用的对策。

(1)第一部分从我国矿产资源现状的介绍入手,重点研究和归纳了矿产资源产业发展中面临的可持续发展问题——长期以来,资源分配上的指令配置模式导致矿产资源区域开发不合理,最终影响区域的协调发展;大规模、高速度的开采导致矿产资源耗竭速率过快,直接冲击国民经济的持续、快速、健康发展;矿产资源开发对生态环境产生重大影响,直接破坏土地、森林、草地等自然资源,并造成环境污染。在问题分析的基础上,论述了我国目前的矿产资源产业的发展环境,提出矿产资源评价的内涵——从战略管理的角度出发,以可持续发展为基本原则,应用包括3S技术在内的最新技术与方法,充分考虑矿产资源可持续利用的资源-环境-经济技术条件,通过对矿产资源战略评价的理论和方法的揭示,寻求实现我国全面小康目标的矿产资源保护与持续利用对策。同时,对矿产资源战略评价的重要意义和作用进行了详细阐述,并将矿产资源战略评价与矿产评估作了对比。

(2)第二部分首先揭示了矿产资源战略与可持续发展相互作用的内在机制,指出两者是目标与手段的关系,矿产资源战略是区域系统有意识地、自觉地走可持续发展之路的重要保障。然后,根据两者相互作用的动力机制和协同机制,提出了保证区域矿产资源战略实现区域可持续发展目标的对策,总结出基于可持续发展的矿产资源战略的主要目标就是,建立与社会经济发展相适应、无害环境的矿产资源供应体系和消费模式。在此基础上,详细论述了矿产资源

战略评价系统思想,指出从系统论的角度,矿产资源战略评价的目的就是着眼于整个矿产资源生命周期,采取系统措施实现矿产资源开发利用及保护子系统与区域可持续发展系统的协同进化。再者,重点论述了矿产资源战略评价的系统思想——由于作为矿产资源战略评价系统研究对象的区域可持续发展系统具有系统性、综合性、非线性和不确定性等特点,矿产资源战略评价也就具有了阶段性、层次性、动态性和综合性等性质。最后,简要介绍了矿产资源战略评价的3种基本类型——矿产资源战略需求评价、矿产资源战略控制评价和矿产资源战略后评价。

(3)第三部分对矿产资源战略评价的四大理论基础进行了归纳和总结,初步建立起矿产资源战略评价的理论体系。第一个理论基础是系统理论,对系统论、灰色系统论、模糊系统论、非线性系统论和开放的复杂巨系统理论进行了简要介绍,指出矿产资源战略评价的对象——区域可持续发展系统就是一个开放的复杂的巨系统。第二个理论基础是可持续发展与新型工业化经济增长理论,由于人类生存性矛盾由供给不足危机向生存危机的嬗变,人们的资源与发展观念也发生了深刻变化,可持续发展理论逐步得以形成和发展。与此相适应,党的“十六大”提出了新型工业化的科学理论,新型工业化的实质就是依靠科技进步和创新,充分发挥人力资本优势,以信息化带动工业化,降低自然资源消耗水平,减少环境污染,协调经济发展与人口、资源、环境之间的关系,通过对新型工业化经济增长模型的推导,说明了矿产资源战略评价对协调资源与环境、经济、社会发展关系的重要作用。第三个理论基础是矿产资源估价及核算理论,首先介绍了矿产资源估价的6种基本方法——现值法、净价格法、再生产补偿费用法、EI-Serafy方法、可持续价格法和交易价值法,然后结合我国准备实行的自然资源核算体系,提出了矿产资源核算研究应注意的问题。第四个理论基础是矿产资源可持续开发利用理论,在对侯太龄定律进行简单介绍后,重点论述了矿产资源开发利用的生产函数模型、矿产资源开发速率与开采时间关系模型、矿产资源动态优化配置模型和矿产资源最适耗竭模型。

(4)第四部分先从4个不同方面分别论述了矿产资源战略评价的基本模型,然后在此基础上集成出矿产资源综合评价模型,最终形成矿产资源战略评价的模型体系。第一类基本模型是矿产资源地质属性模型,并进一步将其分为矿产资源潜力评价模型和矿地价值评估模型;第二类基本模型是矿产资源技术经济评价模型,在对传统矿产资源技术经济评价缺陷分析的基础上,分别论述了矿产资源市场需求预测模型和区域矿产资源价格数学模型;第三类基本模型是矿产资源环境影响评价模型,首先提出两类环境影响评价数学模型——环境指数模型和环境质量综合评价模型,然后探讨了环境影响评价的指标体系;第四类基本模型是矿产资源社会效益(需求)评价模型,首先提出社会需求评价矩

阵与模型和社会影响评价矩阵与模型,然后以油气资源为例重点论述了矿产资源安全战略评价模型。以上述4类模型为基础,建立了地质-技术经济-环境-社会动态评价系统,集成出矿产资源区域综合评价模型,包括区域矿产资源优势评价模型和区域矿产资源整体竞争力评价模型。

(5) 第五部分归纳了矿产资源战略评价的基本框架,提出矿产资源战略评价的工作程序,包含准备评价工作、制定评价方案、实施评价过程和检验评价结果4个阶段。然后,简要分析了矿产资源战略评价的一般方法——复杂系统分析方法和层次分析方法。

(6) 第六部分对湖北省进行了矿产资源战略评价的实证研究,在湖北省矿产资源现状分析的基础上,对湖北省矿产资源进行了矿产资源优势评价和矿产资源产业优势比较分析,还以煤炭和石油为例进行了变量相关关系检验分析,最后提出湖北省矿产资源可持续利用的对策。

本书的主要成果和创新之处在于:

(1) 提出了矿产资源战略评价系统思想。由于矿产资源战略评价尚处于酝酿阶段,本书关于矿产资源战略评价的许多观点和思路都属于首次提出。择其重点,第一个主要创新之处就是将系统论引入矿产资源战略评价领域,提出矿产资源战略评价系统的思想,并总结出矿产资源战略评价系统的4种性质。有许多学者在矿产资源评价领域从事研究,取得的成果也很丰富,但就其评价对象而言只是矿产资源战略评价系统中的局部要素而非矿产资源系统整体本身,在研究中也存在着以局部代替整体的问题和倾向。根据系统论最基本的“整体大于各部分之和”的整体性原理,急需在对各要素研究的基础上开展对矿产资源评价系统的研究。

(2) 总结了矿产资源战略评价的理论体系。矿产资源战略评价是一项综合性极强的工作,这就决定了其理论基础也很庞杂,如何从中确定出对矿产资源战略评价具有关键性作用的理论还是需要一定的洞察力。本书结合我国目前相关理论的最新研究进展,提出矿产资源战略评价的四大理论基础,初步建立了矿产资源战略评价的理论框架,为今后的研究奠定了基础,拓宽了思路。

(3) 构建了矿产资源战略评价的模型体系。模型研究是矿产资源战略评价研究的精华所在,如果想要实现矿产资源战略评价的科学化和更具可操作性,就必须构建科学可行的矿产资源战略评价模型。由于矿产资源战略评价对象——区域可持续发展系统是一个开放的复杂的巨系统,这就决定了矿产资源战略评价模型也将形成一个体系。本书从地质因素、技术经济条件因素、环境影响因素和社会需求因素4个方面总结了矿产资源战略评价的各类模型,最后集成出矿产资源战略评价的综合模型,较好地构建了矿产资源战略评价的模型体系。

关键词: 矿产资源 战略评价 体系 理论 模型

ABSTRACT

The report of the 16th National Congress of Communist Party of China proposes clearly that our country should realize the grand goal of the well-off society in an all-round way in the initial stage of 21st century: "...the ability of sustainable development is strengthened constantly, the ecological environment is improved, the efficiency of resources' utilization is raised notably, the harmonious relation between people and natural is promoted, to accelerate the civilization development path of whole social in which the production is developed, the life is rich, the zoology is good." The realization of the goal of the well-off society in all-round way needs to be finished through taking the new-type industrialized road, needs to be guaranteed by the lasting, steady, safe supply system of mineral resources, needs the system of strategic evaluation of mineral resources which is in conformity with socialist market economy system and faces sustainable development to offer information for scientific decision. The research purpose of this thesis lies in, proceeding from the angle of strategic management, taking sustainable development as basic principle, on the basis of further investigation of the system of strategic evaluation of mineral resources, discussing how to set up the theoretical foundation, evaluation model and method system of strategic evaluation of mineral resources, selecting Hubei Province as research object and putting forward the countermeasure of mineral resources' sustainable utilization for realizing the goal of the well-off society in an all-round way.

The mineral resources are important components of the natural resources and the important material base that the mankind depends on for existence and development. At present, more than 90 % of the energy and about 80 % of the industrial raw materials in our country are taken from the mineral resources, the mineral raw materials consumed every year exceed 5 billions, the mineral resources support the operation of the national economy which accounts for 70 % of the GDP in our country. Through the energetical construction and development since the foundation of the state about over 50 years ago, our country has already formed more perfect mining industry system, have created the enormous economic benefits and social benefit, has already become the second big country of mining industry of world, only second to U.S.A. now.

Though there are more kinds of mineral resources in our country, only tombbarthite, tungsten and tin which are metal mineral products in a few consumption, and nonmetal mineral products which have strong substitutability have the forefront reserve in the world, and the pillar mineral resources such as rich iron ore, copper mine, petroleum, sylvine are seriously scare or not enough of verified reserves. And the pressure of population in our country is enormous, the owning amount of mineral resources per human is only 58% of the average level in the world, under the double pressures of population growth and economic development, the state of resources is in short outstandingly day by day. The state of mineral resources' distribution and deposit in our country is very ideal, important mineral resources, such as petroleum, natural gas and copper, etc. are mainly distributed in the western region, the productivity overall arrangement of our country relies mainly on east; in the mineral products ground that have already found, there are few large-scale or super-huge mineral deposits, medium and small-scale mineral deposits are main, which is easy to exploit, mill and smelt is lack, which is difficult to adopt difficult to exploit, mill and smelt is more. This brings a series of questions to exploitation and utilization of the mineral resources too. Because the reform and opening-up in the domain of mining industry of our country lag behind seriously, the expenditure of prospect for mineral reserves is seriously insufficiently, and with the constant increase of the degree of difficulty to find deposit, the speed to find newly-increased resource reserves reduces, but the speed to consume accelerates constantly, the crisis of ores to cut off has been already extremely urgent. And the quantity of the existing mine which is in produce is too large, the average scale is too small, the craft and technique is too backward, the destroy and waste of mineral resources is surprising, the reclaim rate of useful mineral is lower by 20% ~30% on average than foreign countries. In addition, the existing domain system of mining industry of our country is not suitable, repeated construction, confused order, unsteady market, poor-efficiency management, extensive and blind managing, all of them have aggravated the shortage of mineral resources further.

According to authoritative organization analysis, by 2020, our country will exceed U.S.A. and become biggest mineral resources consumption country in the world. In order to guarantee the rapid development of national economy, we must re-recognize the current situation and the future of mineral resources in our country, reasonably utilize mineral resources, and can't absolutely keep economic in high growth at the cost of the tremendous consumption of mineral resources and the

destroy of environment, but should establish the suffering consciousness of mineral resources, fully realize the importance, rareness and non-renewable of the mineral resources, should be according to the strategic demand of national economic sustainable development, set up the strategic evaluation system of mineral resources in conformity with socialist market economy system and facing sustainable development, in order to guide the production of mining industry, offer macroscopic and microcosmic guide for reasonable utilization of mineral resource, put forward scientific decision basis to government and ore policy administrative department for making up relevant policy and regulation.

Traditional appraise of mineral resources in our country only consider two factors of technology and economy, and is unable to meet the needs of economic and social sustainable development, it is unable to ensure the supply demand of mineral resources continuously in national economy which is caused by growth at top speed, unable to solve mine ecological environment problems caused by mining that are aggravating day by day either. Strategic evaluation of mineral resources and regards sustainable development of economy and society as the goal, fully utilize "two kinds of resources, two markets", solve the security supply of the mineral resources and coordinate the development problem with the environment emphatically, is important in function to the transform from traditional mining industry to the non-traditional mining industry.

This thesis introduce the origin of strategic evaluation of mineral resources at first, put forward the theory of the system of strategic evaluation of mineral resources, study the theoretical foundations, models and methods of strategic evaluation of mineral resources, set up the system of strategic evaluation of mineral resources tentatively, take Hubei as an instance of attempt in strategic evaluation of mineral resources, and put forward the countermeasure of sustainable utilization of mineral resources in Hubei.

(1) The first part: Proceeding from introduction of the current situation of mineral resources in our country, the thesis has studied and summed up the sustainable development problems which is faced by industry's development of mineral resources especially—for a long time, the collocation mode by dictated plan in the allocation of natural resources have caused unreasonable development in the exploitation of mineral resources between different areas, and influenced the development in harmony of the area finally; the exploitation at a high speed and large scale have caused the exhaustion of mineral resources at too fast speed,

impacted the sustainable, fast and sound development of national economy directly; the exploitation of mineral resources exerted a great influence on the ecological environment, destroyed natural resources, such as lands, forests, meadows, etc. directly, and caused the environmental pollutions. On the basis of the analysis of these questions, this part describes the development environment of our country's present mineral resources industry, puts forward the basic connotation of strategic evaluation of mineral resources—proceeding from angle of strategic management, regarding sustainable development as the basic principle, use the latest technologies and methods including 3S technology etc., fully considering the natural resources' - the environmental - the eco-technological conditions of the sustainable utilization of mineral resources, through the opening up of the theory and methods of strategic evaluation of mineral resources to seek the countermeasure of the protection and sustainable utilization of mineral resources in the process of realizing the goal of the well-off society in an all-round way in our country, explaining the important meaning and functions of strategic evaluation of mineral resources in detail, and comparing it with the mineral resources' assess.

(2) The second part: Have announced the interactive inherent mechanism of sustainable development and strategic evaluation of mineral resources at first, pointed out that they are in relations between goal and means, the regional mineral resources' strategy is the important guarantee of taking the road to sustainable development consciously and automatically. Then, according to interactive power mechanism, this part putted forward the countermeasure to guarantee the regional strategy of mineral resources to realize the goal of regional sustainable development, summarized main goals of strategic evaluation of mineral resources on the basis of sustainable development, which is to set up the supply system and consumption mode of mineral resources which is in conformity with social and economic development and harmless to the environment. On this basis, have expounded the system thoughts of strategic evaluation of mineral resources in detail, pointed out that from the angle of system theory, the purpose of strategic evaluation of mineral resources focuses on whole life cycle of mineral resources, take the systematic measures to realize evolution in coordination between the subsystems of exploitation, utilization and protection of mineral resources and the subsystem of the regional sustainable development. Then expound the system thoughts of strategic evaluation of mineral resources especially—because of the characteristics of regional sustainable development system that is systematic comprehensive, non-linear and

uncertainty, the strategic evaluation of mineral resources have the characteristics of being phased, hierarchy, dynamic and comprehensive. Finally, the thesis introduced three kinds of basic types of strategic evaluation of mineral resources briefly—the evaluation of strategic demand of mineral resources, the evaluation of strategic control of mineral resources the post-evaluation of strategic evaluation of mineral resources.

(3) The third part: The thesis summed up and summarized four major theoretical foundations of strategic evaluation of mineral resources, and set up the theoretical system of strategic evaluation of mineral resources tentatively. The first theoretical foundation is the systematic theory, which includes a brief introduction to system theory, gray systematic theory, fuzzy system theory, non-linear systematic theory and opened and complicated huge system theory, pointing out that the target of strategic evaluation of mineral resources—the regional sustainable development system is a opened and complicated huge system. The second theory foundation is the sustainable development theory and new-type industrialized economic growth theory, because the contradiction for human has changed from the crisis for insufficient supply to the crisis for survival of the human, the deep change has taken place in the people's ideas on resources and development, the theory for sustainable development can be taken shape and developed progressively. In conformity with this, the 16th National Congress of Communist Party of China has put forward the scientific new-type industrialized theory, the new-type industrialized essence is to depend on the scientific and technological progress and innovation, take full advantage of manpower capital, promote industrialization by informationization, reduce the consumption of natural resources, reduce the environmental pollution, coordinate the economic development with population, resources, and environment, through the derivation of new-type industrialized economic growth model to prove the important role of the strategic evaluation of mineral resources to coordinate the relation between the resources, environment, economy and social development. The third theoretical foundation is the theory for mineral resources' assessment and the theory for mineral resources' check and calculation, this part also introduced 6 kinds of basic methods of mineral resources' assessment at first—the current value method, net price method, compensating expenses for reproducing method, EI-Serafy method, sustainable price method and trade value method. Combined with the system of check and calculation of natural resources in our country, this part put forward the questions that should be paid attention to in research of the check and

calculation of mineral resources. The fourth theoretical foundation is the theory of sustainable utilization of mineral resources, after brief introduce of hotelling rule, this part expound the production function model of exploitation and utilization of mineral resources, the relation model between the speed and time for the exploitation of mineral resources, the dynamic optimization and collocation model of mineral resources and the most optimized exhaustion models for mineral resources especially.

(4) The fourth part: This part described the basic models of strategic evaluation of mineral resources from four different respects separately at first, then integrated the comprehensive model of strategic evaluation of mineral resources on this basis, formed the model system of strategic evaluation of mineral resources. The first kind of basic model is a geological attribute model of mineral resources, and they are divided into potentiality appraisal model of mineral resources and value assessment model of ore real estate further; the second type model is a technological and economic evaluation model of mineral resources, on the basis of analyzing the defects of traditional technological and economic evaluation of mineral resources, this part described the forecast model of market requirement for mineral resources and the mathematic model of regional price of mineral resources separately; the third type model is an environmental impact appraisal model of mineral resources, proposed two kinds of mathematic models for environmental impact appraise—environmental index model and comprehensive appraisal model of environmental quality, then probed into index system of environmental impact appraisal; the fourth type model is a social benefit (demand) appraisal models of mineral resources, put forward the appraisal matrix and model of social demand and social influence appraisal matrix and model at first, then took oil and gas resource as an example and expounded the appraisal models in security strategy of mineral resources especially. Based on above-mentioned four kinds of models, has set up dynamic geologic-technological and economic-environmental-social appraisal system, integrated out the regional comprehensive evaluation model of mineral resources which is divided into advantage evaluation models and whole competitiveness evaluation model of regional mineral resources.

(5) The fifth part: Have Summed up the basic frame of strategic evaluation of mineral resources, put forward the working routine of strategic evaluation of mineral resources which includes four stages—preparing evaluation, making a scheme of evaluation, exerting evaluation and examining the fruits of evaluation. Then, the

general method of strategic evaluation of mineral resources—analytical method of complicated system and analytical method of the level were analyzed briefly.

(6) The sixth part: The positive research of strategic evaluation of mineral resources has been carried on in Hubei, on the basis of analysis of the current situation of mineral resources in Hubei, this part has carried on the advantage evaluation of mineral resources and comparative advantage analysis of the industry of mineral resources for mineral resources in Hubei, has also taken coal and petroleum as an example to carry on the examine and analysis of the relevant relation of the variable, puts forward the countermeasure of sustainable utilization of mineral resources in Hubei finally.

The main achievements and innovations of this thesis lie in:

(1) Putting forward the systematic thought of the strategic evaluation of mineral resources. Because the strategic evaluation of mineral resources is still at the stage of fermenting, many opinions and ideas of this thesis are brought up at the first time. Selecting the focal points of it, the first main place of innovation is to introduce systematic theory into the field of the strategic evaluation of mineral resources, puts forward thoughts of the system of the strategic evaluation of mineral resources, and summarizes four pieces of characteristics of the strategic evaluation of mineral resources. A lot of scholars are engaged in the research field of the appraisal in mineral resources, the achievements made are very abundant too, but the research objects of them are partial elements of the system rather than the whole, and there is a question and attention to substitute the whole with parts under the study of them. In terms of the most basic wholeness principle of the system theory “the whole is greater than the sum of every parts”, it is necessary to set up the research of the system of the strategic evaluation of mineral resources on the basis of the research of every key element.

(2) Summarizing the theoretical system of the strategic evaluation of mineral resources. The strategic evaluation of mineral resources is an extremely comprehensive work, this determines that its theoretical foundations are very numerous and jumbled too, how to determine the key theories from them needs certain insights. Combined with the latest research of the relevant theories at present in our country, this thesis puts forward four major theoretical foundations of the strategic evaluation of mineral resources, sets up the theory frame of the strategic evaluation of mineral resources tentatively, has established the foundation for the latter research in the future and widened the ideas.

(3) Structuring the model system of the strategic evaluation of mineral resources. Model study is the quintessence in the study of the strategic evaluation of mineral resources, if we want to make the strategic evaluation of mineral resources more scientific and easier to perform, we must structure the strategic appraisal model of mineral resources which is scientific and feasible. Because the object of the strategic evaluation of mineral resources—the regional sustainable development system is a opening and complicated huge system, this determine that the models of the strategic evaluation of mineral resources will form a system either. This thesis summarized all kinds of models of the strategic evaluation of mineral resources from four respects including the geological factor, technologic and economic factor, environmental influence factor and social demand factor, integrated the comprehensive models finally, structured the model system of the strategic evaluation of mineral resources well.

Key Words: Mineral Resources Strategic Evaluation System Theory Model

目 录

第一章 矿产资源战略评价的由来	1
§ 1.1 中国矿产资源的现状及产业发展	1
1.1.1 中国矿产资源禀赋特点和勘查、开发利用与保护现状	1
1.1.2 中国矿产资源产业发展中的可持续发展问题	3
1.1.3 目前中国矿产资源产业的发展环境	8
§ 1.2 矿产资源战略评价的内涵、意义和作用	11
1.2.1 矿产资源战略评价的内涵	11
1.2.2 矿产资源战略评价的意义和作用	11
1.2.3 矿产资源战略评价与矿产评估的区别	12
第二章 矿产资源战略评价系统	14
§ 2.1 可持续发展与矿产资源战略	14
2.1.1 可持续发展与矿产资源战略——目标与手段的关联效应	14
2.1.2 矿产资源战略与可持续发展相互作用的内在机制	15
2.1.3 保证矿产资源战略实现区域可持续发展目标的对策	17
§ 2.2 矿产资源战略评价系统	18
2.2.1 矿产资源战略评价系统结构	18
2.2.2 矿产资源战略评价的系统思想	22
2.2.3 矿产资源战略评价系统的基本类型	27
第三章 矿产资源战略评价的理论基础	29
§ 3.1 理论基础一：系统理论	29
3.1.1 关于系统论	29
3.1.2 灰色系统论	31
3.1.3 模糊系统理论	32
3.1.4 非线性系统理论	32
3.1.5 开放的复杂巨系统理论	33
§ 3.2 理论基础二：可持续发展与新型工业化经济增长理论	33
3.2.1 可持续发展观的形成与发展	33
3.2.2 新型工业化经济增长理论	37
§ 3.3 理论基础三：矿产资源估价及核算理论	42

3.3.1 矿产资源价值与估价方法	42
3.3.2 矿产资源核算	46
§ 3.4 理论基础四：矿产资源可持续开发利用理论	49
3.4.1 侯太龄定律	49
3.4.2 矿产资源开发的生产函数模型	50
3.4.3 矿产资源开发速率与开采时间关系模型	52
3.4.4 矿产资源动态优化配置模型	53
3.4.5 矿产资源最适耗竭模型	54
第四章 矿产资源战略评价的模型	56
§ 4.1 矿产资源地质属性模型	56
4.1.1 矿产资源潜力评价模型	57
4.1.2 矿地产价值评估模型	59
§ 4.2 矿产资源技术经济评价模型	62
4.2.1 传统矿产资源技术经济评价及缺陷	62
4.2.2 矿产资源战略评价中的矿产资源技术经济评价模型	65
§ 4.3 矿产资源环境影响评价模型	71
4.3.1 环境影响评价数学模型	72
4.3.2 环境影响经济评价指标体系	75
§ 4.4 矿产资源社会效益（需求）评价模型	77
4.4.1 矿产资源战略评价的社会需求及影响评价矩阵和模型	77
4.4.2 矿产资源安全战略评价模型：以油气资源为例	80
§ 4.5 区域矿产资源综合评价模型	85
4.5.1 区域矿产资源优势评价模型	86
4.5.2 区域矿产资源整体竞争力评价模型	90
第五章 矿产资源战略评价方法学体系	94
§ 5.1 矿产资源战略评价的工作程序	94
5.1.1 准备评价工作	94
5.1.2 制定评价方案	94
5.1.3 实施评价过程	97
5.1.4 检验评价结果	97
§ 5.2 矿产资源战略评价的一般方法	97
5.2.1 复杂系统分析方法	98
5.2.2 层次分析法	99
第六章 湖北省矿产资源战略评价	103
§ 6.1 湖北省矿产资源现状分析	103