

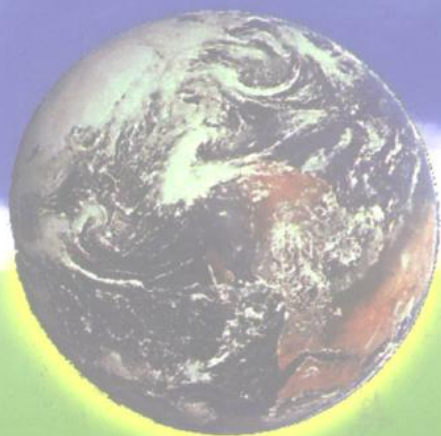
The Ecological Economics Series

生态经济丛书

主编 王文学

自然物流的一角

李振吾 李建国 丁永齐



山西经济出版社

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自然物流的一角

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《生态经济丛书》总序

(一)

世纪之交正向我们走来。在中国的大地上奏响了两个时代的强音。一个是来自国际社会的声音：世界人民将迈着怎样的步伐走向 21 世纪？1992 年 6 月在巴西里约热内卢召开的“环境与发展”世界首脑会议，通过的《里约宣言》和《21 世纪议程》，表明各国政府达成了一个共识：经济发展必须与环境保护相协调，必须加强国际合作，全面实施全球的可持续发展战略。中国在上世界上率先履行这项国际责任和义务，1994 年 3 月 25 日国务院通过了《中国 21 世纪议程——中国 21 世纪人口、环境与发展白皮书》。中国人民将以实际行动积极参加国际合作，与世界各国人民共同保护好地球环境，创造一个能让人类安居乐业的家园。另一个是来自中国社会的声音：中国人民将以什么样的姿态迎接新时代？1995 年 9 月 28 日中国共产党第十四届中央委员会第五次全体会议通过的《中共中央关于制定国民经济和社会发展“九五”计划和 2010 年远景目标的建议》，提出了全面实现达小康目标的第二步战略任务，并向第三步战略目标迈出重大步伐，为下世纪中叶基本实现现代化奠定坚实的

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基础。这个纲领性的文件，为中国人民展示了跨世纪的宏伟蓝图，指明了迎接新时代的方向。

生态与经济协调发展，是当今国际社会普遍关注的重大问题，也是人类生存和社会前进的永恒主题。可持续发展战略的目标，就是要把世人梦寐以求的这个主题，通过能够遵循的纲领，能够实施的方案，能够执行的政策，能够操作的方法，实现既能满足当代人的需求而又不满足后代人需求的能力构成危害；既能满足一个国家、一个地区的需求，而又不对其他国家和地区的需求造成危害的新时代。

这套《生态经济丛书》（下简称《丛书》）就是为了响应时代强音的呼唤，面向广大群众，宣传普及当代最新的一门科学知识——生态经济学，希望有更多的人掌握这门科学，为实现中国的现代化目标乃至全球的可持续发展战略目标而努力奋斗。这就是我们组织编写这套《丛书》的宗旨。

（二）

生态经济学是现代科学技术进步的象征。

它是由生态学和经济学相互交叉、渗透、有机融合而成的一门新兴综合性学科。它的研究对象是生态经济系统。它把自然生态系统与社会经济系统视为一个整体并揭示其相互作用的规律性。这是人类认识客观世界的一个飞跃。本世纪 50 年代以来，世界性人口猛增、环境污染、食物短缺、能源紧张、资源破坏等，形成了令人震惊的环境问题，向人类敲响了环境危机的警钟。随之世界上出现了第一次为拯救人类生存环境危机的科普宣传高潮。在短短的 20 年里，一大批论述人口、环境、资源方面的科普著作和理论专著，如《寂静的春天》、《封闭的循

环》、《只有一个地球》、《2000 年的忧虑》、《立足于地球》、《增长的极限》、《一门科学——生态经济学》、《我们需要一门新的经济学》以及《生存的蓝图》等相继问世。同时形成了广泛动员和广泛参与的大讨论，并且对人类未来前景的看法，大体形成了比较悲观的和比较乐观的两种思潮。不同观点的争论归结到一点：人类能不能从环境危机中拯救自己而且生活得更好。生态经济学就是在这样的国际社会背景下应运而生的。

美国经济学家肯尼斯·鲍尔丁是国际生态经济学的创立人，他在 60 年代发表的《宇宙飞船经济学》一文中，把人类赖以生存的地球比喻为茫茫宇宙中的一个渺小的太空船，警告人们：不能继续贪得无厌地消耗它的自然资源了，否则它就会很快失去控制！他提出的节约地利用资源，控制好飞船航向的主张，引起了世界的巨大反响，涌现出包括前苏联经济学家梅林斯基，和英国生态学家爱德华·哥尔德史密斯、罗马俱乐部创始人意大利奥雷利奥·佩西博士、中国经济学家许涤新教授、日本池田大作博士等一代国际著名生态经济学家。

当代科学技术的巨大进步，人类认识世界的不断突破，推动了生态经济学的发展。从 1984 年 10 月联合国环境发展委员会召开首次会议，提出《从一个地球到一个世界》的报告，到 1990 年 5 月成立国际生态经济学会，人们达到了一个共识，就是人类必须建立一个持续发展的经济社会。生态经济学的理论核心就是持续发展思想。这就为人类解脱生态环境危机提供了新的发展思维和新的发展对策，从而改变了人们对世界未来的悲观看法。

最值得庆幸的是，联合国把可持续发展战略作为全球的共同战略，纳入了国际决策，变成了世界各国政府的行动纲领，这

标志着生态经济学已经成为当代乃至 21 世纪的主流经济学科。与此相适应，第二次环境与发展的科普宣传高潮也在到来。这次宣传的重点，将由唤醒世人危机的警钟，转为鼓舞世人进军的号角，在拯救环境危机中创建美好家园。

我们推出这套《丛书》就是为了顺乎时代潮流的昭示，参与第二次环发科普宣传新高潮，充当向新世纪进发鸣锣开道的号角，启迪和引导人们走上以生态经济科学为指导的可持续发展之路。

(三)

传播和普及科学知识、科学思想和科学方法，提高全民族科技文化素质，是推进中国现代化建设、实施可持续发展战略的前提，也是中华民族强盛的基础。这套《丛书》就是为了适应这一需求，采用喜闻乐读的形式和题材，从多角度、多侧面、多方位，阐述评介生态经济学的产生背景、思想渊源、观点论据、理论核心、战略对策以及实证案例。从而达到用这门科学理论武装人们，提高环境意识和生态觉悟，鼓舞人们自觉自愿地投身到保护生态、保护环境、发展经济、创建未来的伟大事业中去。

这套《丛书》放眼世界、面向未来。它是在当代生态经济学理论研究成果的基础上，借鉴吸收了生态农业、生态工业、生态城市、生态技术、生态伦理、生态教育、生态哲学、生态医学以及人口生态学、灾害经济学等多分支学科的思想精华和实验结晶，综合归纳而成的一部比较全面、比较系统的理论探讨与实证分析相结合的科普专著。特别是把中国和山西省域作为实证案例，既充实丰富了《丛书》的内容，又突出显示了它的

特色。世人皆知，中国是地球家园中的一个最大的古老家族，山西省域又是中华民族的摇篮，这两个案例不仅在人类文明与环境演变方面具有代表性，而且在现代社会与生态资源循环作用方面也具有典型意义。中国正处于传统社会向现代社会全面推进的转型时期，经济社会的迅速发展，使得环境、生态和资源面临着巨大的压力。在中国，特别是在以煤炭能源工业为主导产业的山西省域，把保护环境、生态和资源与经济增长方式的根本转变紧密结合起来，尤为重要和迫切。

这套《丛书》的内容结构包括 10 个方面或侧面，也就自然构成了相互联系又相对独立的各有侧重的 10 册专著。虽然每册专著都保持了各自的内涵、外延和风格，但是它们都具有理论性、知识性、经验性、政策性和资料性的共同特点。所以，可供领导决策、科学研究、理论教学、业务工作以及广大读者参考阅读。

(四)

生态经济学作为一门新兴的学科进行科学实验，在国际上仅仅有 20 多年，在中国也不过 10 多年的历史，虽然已经取得了丰硕的理论成果和实践经验，而且被世人公认为当代和未来的主流经济学科，但是，它毕竟是一个正在成长积累过程中的年轻学科。在理论和方法的诸多领域，还有待于开拓和深入，需要继续完善和发展。在《中国 21 世纪议程》公布之后，中国科学院于 1994 年 6 月编制了《中国 21 世纪议程中国科学院优选项目计划》，初步确定了 11 个优先领域、140 多个优选项目。中国社会科学院于 1995 年 5 月也成立了生态与环境经济研究中心。这就标志着生态经济学研究，从哲学思辨进入了应用研究

和实证分析的新阶段。技术创新理论、产权经济学、制度经济学将成为解决和解释生态经济问题的主要工具；能量转换中的价值流分析将成为生态经济学的核心问题。诸如此类的新动态、新成果和新观点，没有也不可能都写进《丛书》中去。

编写这套《丛书》的倡议，是在 1993 年初山西省生态经济学会成立暨首次学术讨论会上提出来的，随即得到了山西省领导同志和富有经验的老领导、老专家的大力支持；中国生态经济学会、中国林学会、中国农经学会、中国科学院、中国社会科学院、中国人民大学等学术权威单位的著名学者、专家和教授热情鼓励、精心指导；山西经济出版社的领导热心帮助策划；山西省 20 多个单位的 60 多位领导、专家和学者鼎力合作，经过一年酝酿筹划，两年撰写、统编，基本完成了《丛书》的编写出版任务。在此特向所有为《丛书》编写出版付出辛劳的各位女士和先生，表示衷心感谢。

这套《丛书》无论在理论观点和知识体系方面，还是在论据资料和引证案例或其他方面，都会有错误、疏漏和不当之处，恳请广大读者批评指正。

《生态经济丛书》编委会

1996 年 1 月

THE ECOLOGICAL ECONOMICS SERIES

PREFACE

I

At the turn of the century, strong voices of two centuries are echoing on the land of China. One voice comes from the international society: At what pace will the people of the world march toward the 21st century? The Rio Declaration and the 21st Century Agenda passed at the world summit on "Environment and Development" in Rio de Janeiro, Brazil, in June, 1992, indicate that all governments of the world have arrived at a common understanding: Economic development must be in coordination with environmental protection. International cooperation must be strengthened so as to carry out the global sustainable development strategy. China took the lead to carry out this international responsibility and obligation. On March 25, 1994, the State Council passed the "21st Century Agenda—A White Paper on China's Population, Environment and Development in the 21st Century". The Chinese people will take active part in international cooperation, so as to protect

the environment of the earth with other peoples of the world, and create an ideal society in which all people of the world can live in peace and work happily.

Another voice comes from the Chinese society: What an attitude will the Chinese people take to meet the new era? The CPC Central Committee's Proposals on Making the Ninth Five-year Plan for the National Economy and Social Development and the Future Aims by the Year 2010, passed by the 5th Plenary Session of the 14th Central Committee of the CPC on September 28, 1995, put forth the second-step strategical task for the full realization of the Objective of a relatively comfortable life, and take significant steps toward the third-step strategical objective, thus to lay a firm foundation for basically realizing China's modernization by the middle of next century. This programmatic document exhibits for the Chinese people a magnificent blueprint spanning two centuries, and points out the direction to meet the new era.

The coordinative development of economy with ecology is a major issue attracting the general attention of modern international society, and is also an eternal theme about human existence and social progress. The objective of sustainable growth strategy is just to realize this long-cherished dream of world people through feasible and practicable programs, guiding principles, policies, plans, and methods, so that it can meet the needs of contemporaries as well as the needs of posterity, can meet the needs of a particular country or region, yet if will not

cause damage to other nations or regions.

This Series is designed to respond to the call of the voice of the times, to propagandize and popularize to the masses a newest science of our time, i. e. ecological economics. It is our hope that more people will master this science and strive to realize the objective of China's modernization as well as the objective of global sustainable growth. This is our purpose of compiling this Series.

I

Ecological economics is symbolic of the advance of modern science and technology. It is a new comprehensive science organically integrating ecology with economics. The object of its study is ecological economic system. It treats the natural ecological system and the social economic system as a whole, and discloses the law of their interaction. This means a big leap of man's knowledge about the objective world. Since the 1950's, the sharp rise of world population, environmental pollution, food shortage, energy crisis, and devastation of resources, etc. have posed shocking environmental problems, and have tolled the alarm of environment crisis to mankind. Consequently comes the first upsurge of the propaganda of popular science in order to save mankind from environmental crisis. In less than 20 years a great number of popular science writings and theoretical monographs have been published, such as SILENT

SPRING, CLOSED CYCLE, ONLY ONE EARTH, WORRIES ABOUT THE YEAR 2000, STANDING ON THE EARTH, THE LIMIT OF GROWTH, A SCIENCE— ECOLOGICAL ECONOMICS, WE NEED A NEW ECONOMICS, A BLUEPRINT FOR EXISTENCE, etc. At the same time, heated discussions have been held with extensive mobilization and participation.

As for the prospects of man's future, generally, there are two trends: one, comparatively pessimistic, another, comparatively optimistic. Arguments of different ideas converge to one point: Can mankind save themselves from the environmental crisis and live a better life? Ecological economics arises just in such an international social background.

American economist Kenneth Bowldin is the founder of international ecological economics. In his *ECONOMICS OF SPACE-SHIP* published in the 1960's, he compares the man-dependent earth to a tiny spaceship in the boundless universe, and warns people not to insatiably use up their natural resources; otherwise, it will go out of control! His idea to use economically natural resources, and to control the direction of the spaceship, has caused enormous responses from many world-famous ecological economists such as former USSR economist Meilinsky, British ecologist Edward Goldsmith, Chinese economist Professor Xu Dixin, Japanese economist Dr. Iketa Otsujuri, etc.

The rapid advance of modern science and technology together with the incessant breakthroughs of man's knowledge about the world have promoted the development of ecological economics. From the first conference called by the UN Envi-

ronment and Development Committee in October, 1984, at which the report "From One Earth to One World" was put forward, to the founding of International Society of Ecological Economics in May, 1990, people of the world have reached a common understanding: They must establish an economic society of sustainable development. The theoretic core of ecological economics is just the idea of sustainable development, thus providing man with new thought and new countermeasure of development to get rid of the crisis of ecological environment, and changing his pessimistic view on the future of the world.

Fortunately, the United Nations has made the strategy of sustainable development as a common strategy of the globe, thus bringing it into the international policy decision, and becoming a program of action for all the governments of the world. This indicates that ecological economics has become the dominant economics of the contemporary age and even of the 21st century.

Correspondingly, the second upsurge of popular science propaganda on environment and development has also come. The emphasis of this propaganda will shift from warning people of the crisis to calling people to march forward to build beautiful homes.

Our purpose of compiling this Series is just to respond to the call of the age, to participate in the new upsurge of the second popular science propaganda on environment and development, to act as a bugle to urge people to march on the road of

sustainable development under the guidance of ecological economics.

alogical cream and experimental crystal of many branches of science, such as ecological agriculture, ecological industry, ecological cities (urban ecology), ecological technology, ecological ethics, ecological education, ecological philosophy, ecological medicine, population ecology, calamity economics, and so on.

Especially, in this Series we use China and Shanxi Province as authentic proofs and real cases, thus enriching its content, and limelighting its features. It is well-known that China is the biggest and oldest nation on the earth, and Shanxi Province is the cradle of the Chinese civilization: These two cases are not only representative of human civilization and environmental evolution, but also are typical of the inteaction between modern society and ecological resources. China now is in the transitional period from traditional society to modern society, in which the rapid development of the economic society has exerted enormous pressure on environment ecology and resources. It is particularly important and urgent that China, especially Shanxi Province, where coal energy industry is the leading industry, should closely integrate economic growth with protection of environment, ecology, and natural resources.

This Series consists of 10 aspects or facets, which naturally constitute 10 mutually connected, yet relatively indepentent monographs. Although each monograph maintains its own intension, extension, and style, yet they all have a common feature: They are rich in theory, knowledge, experience, policy,

and information. So, they provide good reference material for decision-makers, scientific researchers, theoretic teachers, professional workers, and general readers

IV

Ecological economics, as a new branch of science, has a history of only 20 years in the world, and only 10 years in China. Although it has achieved abundant theoretic achievements and practical experience, and has been universally acknowledged as a dominant economic science in the present age and in the future, yet, it is a young branch of science, still in the process of growth. In many aspects of theory and methods, it still needs exploration, improvement, and development. After the publication of CHINA'S 21st CENTURY AGENDA, the Academy of Sciences of China made "The priority projects of Academia Sinica according to China's 21st Century Agenda" in June, 1994, and preliminarily decided on 11 priority fields, over 140 priority projects. In May, 1995, the Academy of Social Sciences of China also established the Research Center for Ecological and Environmental Economics. All these indicate that research on ecological economics has passed from philosophical thinking into a new stage of applied research and authentic proof analysis.

Technical innovation theory, property right economics, and system economics will become main tools for solving and