

中国人口环境资源与可持续发展学术讨论会论文集

# 中国人口与环境

人口与环境社会学研究会 编

第4辑



CHINA POPULATION AND ENVIRONMENT

The 4th Volume

Symposium on China Population, Resources,  
Environments and Sustainable Development

Edited by the China Population  
and Environment Society

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PDG

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1. 中国人口、资源、环境与可持续发展学术讨论会 1997 年 12 月 15 ~ 16 日在北京举行

2. 第八届全国人大常委会副委员长雷洁琼出席了讨论会, 图为雷老在会议签到处签到



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3. 国家计生委党组书记、常务副主任张维庆在会议开幕式上发表讲话

4. 国家环境保护局副局长王庆在会议开幕式上发表讲话



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5. 人口与环境社会学研究会理事长沈益民主持了讨论会



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6. 雷洁琼副委员长为论文一等奖获得者颁奖



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7. 出席讨论会的有关领导及德国驻华使馆科技参赞H. 魏瀚慈先生给论文获奖者颁奖

8. 部分论文获奖者合影

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## 序 一

改革开放近 20 年来，我国国民经济高速增长，创造了巨大的物质财富和社会文明，取得的成就为世人所瞩目。但值得注意的是，中国是在人口基数大，人均资源少，经济和科技水平都比较落后的条件下实现经济快速发展的，这必然会使本来就已经短缺的资源和脆弱的环境面临更大的压力。由于我国人口总量庞大，我国在世界上属人均自然资源贫乏的国家之一，我国人均国土面积不足世界的 1/3，人均耕地面积不足世界的 1/4，人均淡水资源是世界平均水平的 1/4，人均森林资源是世界平均水平的 1/9，人均拥有矿产资源不足世界平均水平的一半，“地大物博”再也难以真正让中国人感到自豪；庞大的人口数量和不高的人口素质以及一些企业先污染后治理的粗放经营模式，已使我国的环境污染相当严重，我国 500 多条江河，多数已被污染，一部分江河湖水已不能饮用，大多数城市空气中所含的有害粉尘都超过了环境允许的标准，城市噪音和垃圾已经成为一种公害。同时从中国未来人口的增长情况看，根据专家的预测，以人口的有效控制为前提，中国人口在达到 16 亿时才可能实现零增长。也就是说中国的人口还要增加将近 4 亿人，为现在的 12 亿人口和新增的 4 亿人口提供生产生活资料，同样是一个十分严峻的问题。在这种形势下，我国政府只有遵循可持续发展的战略思想，从国家整体的高度上，协调和组织各部门、各地方、各社会阶层和全体人民的行动，才能顺利完成已经确定的第二步、第三步发展战略目标。

人口与环境问题关系到我们国家的繁荣富强和中华民族的生死存亡，实施可持续发展战略是中国在未来和下一世纪发展的自身需要和必然选择。而对于中国来说，实施可持续发展战略，发展是前提，环境是基础，人口问题至关重要。正如江泽民同志所指出的：必须把经济发展与人口、资源、环境结合起来全盘考虑，统筹安排，努力控制人口增长，合理利用资源，切实保护好环境，确保经济持续、快速、健康发展和社会全面进步。

应该说实施可持续发展战略，促进人口、资源、环境的协调发展主要是政府行为，但动员全社会的力量，形成一个人人都关心人口与环境问题的良好氛围，同样是十分重要和必要的。由中国社会学中国社会学学会人口与环境社会学专业委员会主持召开的“中国人口资源环境与可持续发展学术讨论会”，从人口、资源、环境等不同方面论述了可持续发展的内涵以及我国可持续发展战略的对策，提出了许多宝贵的意见和建议，具有较高的参考价值。近期这次学术讨论会的优秀论文又即将结集出版，我想这必将进一步提

高全社会的人口和环境意识，对我国实施可持续发展战略产生积极影响。

張雅慶

1998年4月

## Preface I

China has experienced remarkable economic development, material prosperity, and social civilization in past twenty years since the economic reform and open policy. These achievements are well-known to the world. Which deserves more attention is that the economic development is based on large population, limited natural resources per capita and comparatively low economic and technology level. We are facing more pressure of diminishing resources and fragile environment in maintaining rapid economic development.

As the country with the largest population in the world, China is one of the countries with the most limited natural resources. Compared with the average per capita level, territory per capita is of one third, cultivable land per capita is of one fourth, freshwater per capita is of one fourth, forestry per capita is of one ninth, mineral resources per capita is less than one half. Therefore, when considering natural resources per capita, Chinese need to think more seriously about "vast territory and abundant natural resources".

As a result of large population, low social education level, plus rough developmental model of pollution first, curbing last, environmental pollution has been very serious in China. Among five hundred rivers in China, most of them are polluted, some water in lakes and rivers is not capable of drinking usage any more. Harmful suspended dust in most urban areas has exceeded environmental standard, noise and trash is now becoming public hazard in cities.

As predicted by experts, the Chinese population will continue to increase until it reaches the level of 1.6 billion, which means there will be of 0.4 billion more than that of the present level. Consequently, providing basic living material for such a large population will be a huge problem for China. For all of the above reasons, central and local governments and all Chinese people ought to continue the strategy of sustainable development in order to fulfill the second and third strategic national developmental goals.

The issue of population and environment is of great importance to economic prosperity and national vitality. Implementing the strategy of sustainable development is unavoidable and necessary for Chinese development in the future. As to China, development is the prerequisite, environment is the foundation, and population problem is the most important. As President Jiang Zeming pointed out, "For the sake of maintaining economic sustainable development and social progress, we ought to take economic development, population, resources, and environment as a whole into consideration. We ought to manage macro-control of population, make reasonable use of resource, therefore, protect the environment.

Though governments take the primary responsibilities of implementing sustainable development strategy and promoting coordinated development of population, resources, and envi-

ronment, mobilizing social forces for the issue of population and environment is also essential and necessary. In the seminar on population, resources, environment, and sustainable development, which organized by the China Population and Environment Society, experts from different fields held a variety of discussions on the meaning of sustainable development. They put forward a lot of proposals with high reference value. Here all excellent papers are now published. I think it will be helpful to raise the public awareness of population and environment, and will have positive influence on implementing the strategy of sustainable development.

Zhang Weiqing

Minister

State Family Planning Commission

*April, 1998*

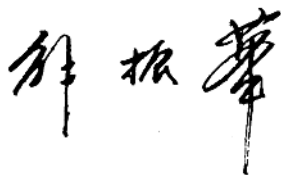


## 序 二

中国是一个发展中国家，中国的现代化是在人口基数大，人均资源相对紧缺，经济发展和科学技术水平较为落后，环境污染比较严重，生态环境脆弱的背景下进行的。不改变发展模式，不改变资源利用不合理和生态环境恶化的状况，发展将难以为继。走可持续发展之路，是中国现在和未来发展的自身需要和必然选择。

《中华人民共和国国民经济和社会发展“九五”计划和2010年远景目标纲要》，将可持续发展战略列为重要指导方针。在“九五”期间中国经济体制将从计划经济向社会主义市场经济转变，经济增长方式将从粗放型向集约型转变。使资源更合理地配置，用较低消耗，产生较高的效益。把生态问题列为今后必需高度重视，下大力气解决的关系全局的重大问题之一。在提出经济发展目标的同时，提出了环境保护目标，决定控制污染物排放总量，实施大规模环境整治工程两大环境保护措施，以及重点治理三河（淮河、辽河、海河）、三湖（太湖、巢湖、滇池）、两区（酸雨控制区和SO<sub>2</sub>控制区）的任务，将可持续发展战略落实到经济建设、体制改革和环境保护的具体计划之中。

人口与环境社会学研究会在编制《青山、绿水与蓝天的呼唤》科教录像片，在广泛开展人口与环境宣传教育基础上开展征文活动，在去年12月召开了“中国人口、资源、环境与可持续发展学术讨论会”，并将全部论文编印成《中国人口与环境》第四辑。选择可持续发展的命题，开展学术研究和交流很重要。研究会是一个民间学术团体，成立5年多来，团结各学科的专家、学者，协助政府做了大量工作，取得了很大的成绩，架起了沟通专家、学者与环境保护主管部门的桥梁。希望今后通过学术研究和交流，使人口控制、环境保护两项基本国策和可持续发展的宣传教育更加广泛深入，推动全民的人口、环境与可持续发展意识的提高再做贡献，把洁净、优美的环境带给21世纪。



1998年4月

## Preface II

China is a developing country. China's modernization is based on large population, relatively tight natural resources per capita, and comparatively low level of economic and technology standard. China is now facing worsening environmental pollution and fragile ecological surroundings. The economic development could not be maintained if development model was not changed, the problem of non-economic usage of natural resources was not reconsidered and the worsening of ecological environment was not curbed. The path of sustainable development is the only way for China's development at present and in the future. It is what China needs and what China should undergo.

According to the "Ninth Five-year Plan on National Economic and Social Development and Projected Goals for Year 2010", sustainable development was stipulated as the development strategy and guiding principle for China's future economic development. During the ninth five-year period, China will be experiencing the transition period from central planning to socialist market economic system. Instead of emphasis on economic development alone, effective usage of energy and energy saving are becoming more and more important. To achieve the goals for more rational allocation of resources, increasing the input and output ratio and decreasing the energy usage, the environmental and ecological problem is listed as one of the most important, urgent problems in the near future. This problem is closely related to other problems, and if not properly solved, it would influence the entire economic development plan.

Except for the economic development goals stipulated in the plan, other objectives closely related to the environment are also raised, such as controlling the total emission of wastes, large scale environmental protection projects, and continuation of two major projects. Tasks like cleaning-up of three most polluted rivers (Huai River, Liao River, and Hai River) and three lakes (Tai Lake, Chao Lake, and Dian Lake), Pollution control of two regions (the acid rain region and SO<sub>2</sub> regions) are clearly stated as well. The actual adoption of these plans will relate sustainable development with economic development, systemic reform and environment protection in China.

Research on the sustainable development, including organizing seminars and academic exchanges is of great importance as well. In December, 1997, the China Population and Environment Society organized a series of seminars on China Population, Resources, Environment, and Sustainable Development. Through Strict selection process, all the papers are now put into A Special Volume (Volume IV) For China Population and Environment. The China

Population and Environment Society is a non-governmental organization. During the past five years since it was established, it has filmed a popular video named "A Call From Green Hills & Blue Waters", widely organized activities of publicity and education on population and environment. It has facilitated the cooperation of experts from different research areas, bridged the government with the experts and scholars; therefore, has helped the government to do many specific work.

I sincerely hope that through academic research and exchanges, two basic national policies—population control and environmental protection will be more widely publicized, and publicity and education on sustainable development will be deeply rooted in China. The China Population and Environment Society will contribute more to public awareness of population, environment, and sustainable development. We together are looking forward to and are now working for a clean and beautiful environment in the twenty-first century.

Xie Zhenhua  
Director-general  
National Environmental Protection Agency  
*April, 1995*

## 序 三

——为中国人环境资源与可持续发展学术  
讨论会论文集的出版而作

德国目前正以极大的兴趣关注着中华人民共和国的发展，这个国家以其无以伦比的经济变化而受人注目，而经济上的变化在很大程度上是由人口带来的。在这个过程中，环境问题对公众健康会有实质性的消极影响，以致影响到劳动力因素和工业制造业，所以，它对可持续发展构成了严重的威胁。正因为如此，必须在环境保护领域采取全面行动。《中国 21 世纪议程》为此指明了正确的方向。

长期以来，德中两国关系的发展涉及各个领域，包括环境保护、经济合作和发展、科学和研究以及双边和多边环境政策。

在《德中环境联合协议》的框架内，国家环境保护总局和德国联邦环境、自然保护和核能安全部之间的合作逐渐增多了。这一协议的目标是，在政府及其专家之间，在所有主要组织之间，并且和他们一道，加强经验交流。因为实现可持续发展是所有成员都必须共同面对的挑战。

每当制定政策时，德国政府都要请求公众参与。这是因为政府所公认的任务之一，即是要与社团保持对话，就它们在向可持续发展方向努力过程中的作用和贡献交流意见，并且为此提供更多的动力。因此，在我们的社会中，环境保护组织在提高环保意识和促进有进步意义的环保政策行动方面起着重要的作用。许多环境保护组织得到了广大公众的大力支持。由于这些组织在提高环保意识和实行个别环境项目方面具有丰富经验，他们成为许多国家不断增多的非政府组织的重要合作伙伴，如中华人民共和国。

1997 年 8 月我在北京拜访了我的同事解振华局长。这使我有机会与来自环境保护组织的许多代表会面并交换意见。这些组织的环保意识和对教育大众保护环境做出的承诺，给我留下了深刻印象。

因此，我深感荣幸，我们能够支持去年 12 月在中国北京举办的“人口、资源、环境与可持续发展学术讨论会”。这一盛会是由“中国人口与环境研究会”组织的，它成为德中两国环境保护组织之间进行更密切合作的第一步。

Angela Merkel

安吉拉·默克尔博士

联邦德国议会议员，  
环境、自然保护和核能安全部部长

## Preface III

Publication of the Results of  
the Symposium on Population, Environment and Sustainable Development in China

Germany is currently following with great interest developments in the People's Republic of China, a country marked by an economic change which is without parallel and in most parts brought about by the population. In this process environmental problems that may have a substantial negative impact on public health and thus the factor of labour and industrial manufacturing, constitute a serious threat to sustainable development. As a consequence comprehensive action must be taken in the area of environmental protection. The Chinese Agenda 21 is pointing into the right direction.

For a long time Germany and China have had relations in areas such as environmental protection, economic cooperation and development, science and research, and bilateral and multilateral environmental policy.

Within the framework of a joint German-Chinese Environment Agreement cooperation between the State Environmental Protection Administration (SEPA) and the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety has gradually increased. The goal of the Agreement is an intensified exchange of experience, not only between governments and their experts, but also between and together with all major groups. Making sustainable development a reality is a challenge all stakeholders must face together.

Whenever policies are shaped the German government asks for public participation, since one of its assumed tasks is to keep up a dialogue with community groups, also on their role and contribution in the process towards sustainable development and to provide additional impetus. Within our societies environmental organisations have a vital role to play when it comes to raising environmental awareness and furthering progressive environment policy action. Many environment organisations are heavily supported by the general public. Their experience in environmental awareness raising and in implementing individual environment projects makes them an important partner for the increasing number of non-government organisations in countries such as the People's Republic of China.

When I visited my colleague, Minister Xie Zhenhua in Beijing in August 1997, I had an opportunity to meet with various representatives from environmental organisations for an exchange of opinion. I was very impressed by the awareness of these groups and by their commitment to inform the general public.

I therefore very much appreciate it that we were able to support the Symposium on Population, Environment and Sustainable Development in Beijing, China, in December last year,

an event organised by "the China Population and Environment Society " (CPES) which constitutes a first step towards closer cooperation between German and Chinese environmental organisations.

A handwritten signature in black ink, which appears to read "Angela Merkel". The script is cursive and fluid.

Dr Angela Merkel, Member of Parliament  
Federal Minister for the Environment,  
Nature Conservation and Nuclear Safety

## 前 言

《中国人口与环境》第四辑汇集了 1997 年 12 月 15~16 日在北京召开的“中国人口、资源、环境与可持续发展学术讨论会”论文共 51 篇，同时辑录了参加会议开幕式的国家有关部门负责人讲话、人口与环境社会学研究会负责人致的开幕、闭幕词，及其他来宾讲话共 10 篇。

“中国人口、资源、环境与可持续发展学术讨论会”筹措于 1996 年，是年，由人口与环境社会学研究会编制的人口与环境科教录像片《青山、绿水与蓝天的呼唤》在国家有关部门及有关国际组织的支持赞助下顺利完成，并开始在全国范围内组织订购和播映，收到了很好的效果。在此项活动的基础上，研究会号召各地的会员和理事同志们能紧密联系本地实际，认真学习领会党中央、国务院召开的计划生育和环境保护座谈会精神，以宣传两项基本国策为出发点，紧扣人口、资源、环境与可持续发展主题，写出有质量的论文，迎接学术讨论会的召开。此次汇集到专辑中的全部论文，便是各地会员和理事同志们辛勤劳动的结晶。

1997 年 11 月中旬，经时任国家计生委副主任蒋正华教授为评委会主任的评委会评选，对按期送审的 45 篇文章逐一进行了评选，张维平、王绍芳的“论生物多样性与可持续发展”，伍理的“上海的可持续发展与人口规模和城市形态问题”，张树维、魏书慧的“黑龙江省人口对可持续发展的影响及战略选择”3 篇论文荣获一等奖，另评出二等奖 6 篇，三等奖 15 篇，优秀奖 14 篇。此次汇编入册时，本书编委会又另组织人力对文章逐一审查修订，并大体按照文章的性质及所反映与分析的问题特点作了编排，以方便读者阅读。

最后，在本书即将付梓之际，谨向国家计生委张维庆主任和国家环保总局解振华局长两位领导在百忙中为《中国人口与环境》第四辑的出版作序，深致谢意。谨向大力支持和赞助学术讨论会的召开和本书出版的德国环境部及为本书作序的德国环境部长 A. 默克尔博士，以及热心支持和帮助召开这次学术讨论会的德国驻华使馆科技参赞魏瀚慈博士，表示由衷的谢意。德国环境与发展论坛民间组织主任 J. 曼约博士专门为此次讨论会撰写了“联邦德国的环境政策”一文，在此一并致谢。

编 者

1998.4



## Foreword

The 4th volume of CHINA POPULATION AND ENVIRONMENT collects all the 51 papers presented at the Symposium on China's Population, Resources, Environment and Sustainable Development convened in Beijing from December 15 to 16, 1997. It also includes ten speeches made by responsible persons from government departments and leading cadres in charge of the China's Population and Environment Society, as well as distinguished guests at the opening and closing ceremonies of the Symposium.

The Symposium on China's Population, Resources, Environment and Sustainable Development began its preparations in 1996. In the same year, production of the video tape entitled A CALL FROM GREEN HILLS & BLUE WATERS was completed and began to be distributed throughout the country by the China Population and Environment Society with the support and assistance from relevant government departments and international organizations. With the satisfactory achievements made, the Society calls on all its members at large and members of the executive council to study and comprehend, by taking local conditions into consideration, the gist of the National Forum on Family Planning and Environmental Protection sponsored by the Party's Central Committee and the State Council in order to spread the two basic national policies of family planning and environmental protection. They are encouraged to write high-quality papers on population, resources, the environment and sustainable development to meet the convening of the next symposium. All the papers collected in the 4th volume of CHINA'S POPULATION AND ENVIRONMENT are the outcome of hard working by our society members and members of the executive council.

In the mid-November 1997, the 45 papers which were presented as required in time were assessed by the assessment committee with Deputy Minister Jiang Zhenghua of the State Family Planning Commission as the chairman. The three papers entitled "Biodiversity and Sustainable Development" written by Zhang Weiping and Wang Shaofang, "Sustainable Development, Population Size and Urban Formation of Shanghai" written by Wu Li and "The Impacts of Heilongjiang Population on Sustainable Development and the Strategic Choice" written by Zhang Shuwei and Wei Shuhui were awarded the first prize, six papers the second prize, 15 the third prize and 14 the outstanding prize. Before the compilation of the volume, all the papers were revised and edited by the editorial board, and grouped in a sequence according to the characteristics of the topics they studied.

Finally, I am now extending our heartfelt thanks to Minister Zhang Weiqing of the State Family Planning Commission and Director-general Xie Zhenhua of National Environmental Protection Agency who spared time to write prefaces separately for the Fourth Vol-