

Proceedings of the First International
Conference on Geoparks

第一届世界地质公园大会论文集

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Li Minglu Zhao Ting

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Editors of the Proceedings of the First International Conference on
Geoparks

ZHAO Xun, JIANG Jianjun, DONG Shuwen, LI Minglu, ZHAO Ting

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Foreword

The First World Geoparks Conference Co-sponsored by the Ministry of Land and Resources of the People's Republic of China and the UNESCO is due to inaugurate soon .

Meanwhile, the first group of world geoparks named by the UNESCO will be open to public ! This is a significant milestone in the conservation of geological relics .

Geological relics are important evidence for mankind to know the Earth's history and its evolution, therefore it is our historical duty to protect them .Now geologists all over the world who are concerned with the conservation of geological relics gather together in Beijing to discuss the protection of geological relics and promote the construction and development of world geoparks . It will be a mobilization meeting for the conservation of geological relics, and also a meeting to discuss the measures, achieve a common understanding, make clear our goals and promote cooperation, and so it will certainly be recorded in the history of earth sciences .

The construction of geoparks is aimed at protecting the geological relics, rehabilitating the geoecological environment and popularizing knowledge on earth sciences, and will contribute to the sustainable development of local economy and creation of employment for local residents through the protection and rational utilization of the geological relics .

The geopark is a newly emerging thing .Its construction has a long and tough road to go .We shall cultivate and water it so that it can develop healthily .

I sincerely wish the First World Geoparks Conference all the success .

Sun Wensheng

Minister of Land and Resources of PRC

Honorary Chairman of the First International Conference on Geoparks

15 June, 2004

前 言

由中国国土资源部与联合国教科文组织共同召开的第一届世界地质公园大会开幕在即。

由联合国教科文组织命名的首批世界地质公园即将正式开园！

这是地质遗迹保护工作的重要里程碑。

地质遗迹是人类了解地球历史,了解地球演化的重要佐证,保护地质遗迹是历史赋予我们的责任。全球关心地质遗迹保护工作的地质学家汇聚中国北京,共商地质遗迹保护大计,推动世界地质公园的建设和发展。这将是一次保护地质遗迹的动员大会,是一次探讨措施、取得共识、明确目标、推进合作的大会,必将载入地球科学史册。

地质公园的建立以地质遗迹保护、地质生态环境的恢复和推动地球科学知识普及为目的,并通过地球遗迹的保护与合理利用,为地域经济的可持续发展,为当地居民增加就业机会服务。

地质公园是一个新生事物,地质公园建设任重而道远,我们愿为它培土浇灌,使之更加健康发展。

我衷心祝贺第一届世界地质公园大会圆满成功！

中华人民共和国国土资源部部长
第一届世界地质公园大会名誉主席



二 四年六月十五日

CONTENTS

The Global UNESCO Network of Geoparks	(1)
Geological Heritage Protection and National Geopark Construction in China	Jiang Jianjun Zhao Xun(4)
The National Geopark Construct and Local Economy Development	Li Minglu Tian Mingzhong(9)
Geoscience: the Basis of Geopark Establishment	Zhao Xun Zhao Ting(12)
Status Quo of the Development of National Geoparks in China and Their Prospects	Chen Anze Jiang Jianjun Li Minglu(20)
On the Standing of Geoparks and Responsibility and Obligation That Geological Institutions and Geologists Should Fulfil	Chen Anze(21)
Heritage Geology of Yuntaishan world Geopark , China Zhao Ting Wang Anjian Gao Lingzhi Zhao Xitao Ma Yinshen Wu Zhonghai	Yang Shouzheng Wu Zhenhan Zhao Xun(24)
Geological Historical Remains and Geological Background In Yuntaishan World Geopark Gao Linzhi Zhao Ting Ma Yinsheng Wu Zhonghai Wu Zhenhan Zhao Xitao	Yang Shouzheng Zhao Xun(30)
The Neotectonic Activity and Tectonic Background of Yuntaishan World Geopark Ma Yinsheng Zhao Xun Zhao Xitao Zhang Yueqiao Gao Linzhi Wu Zhonghai	Zhao Ting Yang Shouzheng Wu Zhenhan(36)
Strategic Plan for Development of Yuntaishan World Geopark in China	Li Jiangfeng Fan Kefeng Fang Shiming Zhang Liqin(47)
Construction of the Yuntaishan World Geopark and Jiaozuo Phenomenon	Ye Zhaohe Wang Jianping Fan Kefeng Ma Changming Zhang Huizhong(52)
Formation of Scenery of Yuntaishan World Geopark in Jiaozuo City, Henan Province, China Zhao Xitao Wu Zhonghai Ma Yinsheng Gao Linzhi Zhao Ting Wu Zhenhan	Yang Shouzheng Zhao Xun(56)
Resources for Geotourism in Southern Taihangshan Area and Construction of Geoparks	Wang Jianping Zhang Zhonghui Ma Ruishen Wang Fengyun(57)
Let Mount Songshan Global Geopark Head for the World	Yi Qunli(62)
Review of Protection and Benefits of Yunnan Shilin Geopark of China	Li Yuhui Li Zhengping Geng Hong He Yongbin(66)
Stone Forest: the Legend behind the Scenery	Li Zhengping Liang Yongning(72)
Plant Persistence and its Significance on Vegetative Maintenance and Regeneration	

in Shilin Geopark, Yunnan, PR China	Shen Youxin Li Yuhui Liu Wenyao(76)
Main Geological Landscapes in UNESCO Lushan Geopark	
.....	Yin Guosheng Yang Minggui(84)
Perfect Union of Geological Remains and Cultural Resort	
——Three precious validities of Lushan World Geopark	Li Yanguo(94)
Geological Relics and Values of Popular Science on Wudalianchi Volcanoes World	
Geopark in Heilongjiang Province, Northeast China	
.....	Meng Huiquan Wang Liying(99)
Experience on the Construction of Wudalianchi World Geopark	Meng Xiangquan(105)
The Policies on the Exploitation and Protection of the World GeoPark Tourism	
Resources in Wudalianchi	Chen Tienan Liu Dedong(109)
Instructing Conservation and Utilization of Geological Relics by Scientific and Developing	
ideas, Promoting the Sustainable Tourist Economic Development of Mount Huangshan	
.....	Wang Cheng(114)
The Geological Evolution History of Zhangjiajie Geopark and the Formation	
Process of Sandstone - peak Forest in Wulingyuan	
.....	Zhang Yongzhong Hu Nengyong Wang Mingyan(119)
Academic Values of Danxiashan Geopark and the Significance of the International	
Comparison of Danxia Geomorphology	
.....	Peng Hua Zhang Ke Liu Shangren Wu Zhicai(123)
Contribution of Surface Geophysical Techniques to The Development and Environmental	
Protection of Tell Basta Archaeological site, Egypt	Ahmed Samir(131)
National Geoparks and Geotourism in Germany: Framework and Case Study Baden-	
Wuerttemberg and Swabian Alb	(138)
Langkawi Geopark: Development Concept, Strategic Planning and Implementation	
Approach	Anwar Abd Rahman Mazlan Othman Ibrahim Komoo(140)
Method for Landscape Evaluation within the Framework of Geopark: A Case Study	
in Central Mexico	(141)
The Study of the Geomorphosites in Middle Atlas (Morocco)	(143)
Geoparks and Tourism Management Issues in E . Slovakia	
.....	G .M .Timcak M .Culakova N .Hancinova(144)
Geoparks as a Focus for Communicating Geoscience Issues	
.....	Godfrey S .Nowlan Peter Bobrowsky John Clague(145)
The First International Conference on Geoparks	(150)
Austrian Geoparks——Alps Forgotten Paradises	(151)
Developing a Concept Plan of Geopark for Jinguashin Disused Mine Area	
.....	Hsu Shanyu(153)
Initiatives of the Institute of Geology and Mineral Explorations of Greece for the	
Establishment of Geoparks in Cooperation with Local Authorities and UNESCO ...	(154)

Geoheritage Conservation and its Potential for Geopark Development in Asia-Oceania	Ibrahim Komoo(156)
Kinabalu Plateau: Geological Monument within a Natural World Heritage Site	Lamri Ali Jamili Nais Ibrahim Komoo(157)
Enhancing Community Participation in Geoparks Planning and Management - A Framework for Developing and Evaluating Community Participatory Forums	Kuang Chung Lee Shin Wang(158)
Geoparks—A Saudi Arabian Perspective	Dr Maher H .Idris(159)
Information System for Geoheritage Resources Management: Study Case of Langkawi Islands	Marilah Sarman Ibrahim Komoo Lim Choun Sian(161)
An Edutainment - Geopark as National Identity - Point in Sweden	(162)
Climatic Changes and their Impact on Coastal Areas in Egypt	Samir Riad Mohamed Adel Yehia Halah Mohamed Adel(163)
Geopark for Conserving the Geological Heritage of Sri Lanka—A case study	(165)
Geoforest Park: An Innovative Approach toward Geological Heritage Conservation within Malaysian Forest Reserves	Shaharuddin Mohamad Ismail Ibrahim Komoo Mohd Shafeea Leman(167)
Columnar Basalt Geopark and Earth Heritage Conservation on the Penghu Islands	Shin Wang Ling-Yuh Sheu(168)
International Network of Geoparks and Ecuatorial Eletrojet	Teodosio Ch vez Campos Israel Chavez Sumarriva(169)
Preliminary Investigation of Geological Heritagess (Geosites) in Vietnam	Sc .Trinh Danh(170)
Shestakovo—A New Location of Cretaceous Dinosaurs and Other Vertebrate Fauna in the South - East of Western Siberia	Vera M .Podobina(171)
Australian - Pacific Network for UNESCO Assistance to Geoparks	(173)
The Role Tertiary Institutions in the Identification and Conservation of Geoparks in Kenya	Kianji K .G Prof .Barongo J .O Prof Opiyo-Akech N(175)
Dugi otok Island, Adriatic Sea (Croatia), A Potential Coastal Karst Geopark	Mladen Juracić Donat Petricioli(176)
The Birth of Langkawi Geopark	Ibrahim Komoo Mohd Shafeea Leman(178)
Potential Geoparks in Australia	NSW(182)
Proposal for a Australian and Pacific Geoparks Network	UNESCO Assistance Geoparks Scheme(189)
Geological Heritage Types and Tour Resources Exploitation of Arxan Geopark , Inner Mongolia	WU Fa-dong Tian Ming-zhong Sun Hongyan Zhang Keyu(191)
Geological Heritage Types in Hexigten National Geopark of Inner Mongolia and Their Research Value	Sun Jimin Tian Ming-zhong Wu Fa-dong Sun Hong-yan Gu Guojun(196)

- A New Type of Stone Forest ——Inner Mongolian Stone Forest
 Wu Fa-dong Tian Ming-zhong Sun Hong-yan Sun Jimin Gu Guojun(201)
- New Views on Origin of Granite Mortars in the Hexigten National Geopark, Inner
 Mongolia
 ... Hongyan Sun Ming zhong Tian Fadong Wu Zhizhong Zhao Xiaohong Liu(205)
- Discovery of Quaternary Cirque in Hexigten of Inner Mongolia and Their Implications
 Tian Mingzhong Wu Fadong Sun Hongyan Sun Jimin Gu Guojun(212)
- Strengthen Effective Protection and Raise Comprehensive Benefits
 Chen Xiandong(216)
- The Protection and Exploitation of Zigong Dinosaur Fossil Resources
 Ye Yong Peng Guangzhao Zhong Ling(220)
- The Characteristics of the Paleontology Geoparks and Their Developing Directions
 Peng Guangzhao Ye Yong Zhong Ling(225)
- The Landscape Features and Origin of Danxia Landform of Mount Dragon and Tiger
 in Jiangxi, China
 Guo Fusheng Zhou Zuoming Kong Youren Tan Tianming Yang Zi(228)
- A Discussion on Tactics to Protect the Geological Traces of the World Natural Heritage:
 Three Parallel Rivers Belt Yang Shiyu(232)
- Development and Protection of the Chaya Mountain National Geopark
 Fang Jianhua Xie Junqing Liu Baozhu Cheng Shengping Zuo Zhengjing(236)
- Prospect on the Geological Landform Landscape and Its Tourism Exploitation of Xinyi
 National Geopark Li Xingzhong Wang Liting(237)
- Analysis of Space Evolutionary Pattern in Xingwen Karst National Geopark, Sichuan
 Wang Tong-wen Yuan Pei-pei Xie Ping Zheng Wen-jian Liu Wei-Li
 Zhang Shun-zhi(240)
- A Brief Talk on Scientific Travel Attractiveness of Geopark
 Zhou FeiFei(245)
- The Significance of Geological Relics in the Yesanpo National Geopark and Control Role
 of 4-stage-structural Joint Sets
 Liang Dingyi Zhao Chonghe Nie Zetong Song Zhimin(249)
- Gorge Curiosity in North China: The Origin and Formation of Baili Structural-Erosion
 Gorge in Yesanpo, Hebei
 Song Zhimin Nie Zetong Zhao Chonghe Liang Dingyi(261)
- Zhijin Cave Present Situation and Developing Prospect (269)
- The world 's highest river terrace, largest number of terraces, complete profiles of
 river 's evolution and thickest loess: their protects and Geopark reconstructs
 Yang Liankang(270)
- The Marvelous Xingwen Stone Sea Yu Guolong Lan Xiangyi(272)
- “ A GIS - oriented method for landscape evaluation within the framework of Geopark

A case study of the ‘ Pico de Tancítaro ’ area in central Mexico ”	
..... Arturo Garrido-Pérez Abbas Farshad Alejandro Vel zquez(273)	
The Réserve Géologique de Haute - Provence, Twenty Years of Protecting the Geological	
Heritage in the Land of the Memory of the Earth	Jean - Simon Pagès(288)
Geological Heritage of India-A Window for Geotourism	N .K .Agarwal(296)
中国的地质公园建设	姜建军 赵 逊(300)
国家地质公园的建设与地方经济的腾飞发展	李明路 田明中(304)
地球科学是地质公园建立的基础	赵 逊 赵 汀(306)
中国国家地质公园发展现状与展望	陈安泽 姜建军 李明路(311)
论地质公园的地位和地质机构,学者应尽的责任和义务	陈安泽(319)
中国云台山世界地质公园的遗产地质学	
赵 汀 王安建 高林志 赵希涛 马寅生 吴中海 杨守政 赵 逊 吴珍汉	(321)
中国云台山世界地质公园地学遗迹和地学背景	
..... 高林志 赵 汀 马寅生 吴中海 吴珍汉 赵希涛 杨守政 赵 逊	(327)
中国云台山世界地质公园形成的构造背景	
马寅生 赵 逊 赵希涛 张岳桥 高林志 吴中海 赵 汀 杨守政 吴珍汉	(332)
中国云台山世界地质公园规划研究	李江风 樊克锋 方世明 张丽琴(342)
中国云台山世界地质公园建设与焦作现象	
..... 叶昭和 王建平 樊克锋 马长鸣 张忠慧	(346)
河南焦作云台山风光之形成	
..... 赵希涛 吴中海 马寅生 高林志 赵 汀 吴珍汉 杨守政 赵 逊	(349)
南太行的旅游地质资源与地质公园建设	王建平 张忠慧 马瑞申 王凤云(354)
让嵩山走向世界	弋群立(358)
中国云南石林地质公园保护和效益述评	李玉辉 李正平 耿 弘 何永彬(361)
石林——风景后面的地质传奇	李正平 梁永宁(365)
中国云南石林地质公园植物的生存持久性及其对植被维护与恢复的意义	
..... 沈有信 李玉辉 刘文耀	(368)
庐山世界地质公园的主要地质景观	尹国胜 杨明桂(369)
地质遗迹与文化名胜的完美结合	
——庐山世界地质公园珍贵的三大价值	李延国(375)
黑龙江省五大连池世界地质公园火山地质遗迹及其科普价值	孟祥全 王力英(379)
中国五大连池世界地质公园发展建设初探	孟祥全(384)
五大连池世界地质公园旅游资源开发与保护对策	陈铁男 刘德东(387)
用科学的发展观指导地质遗迹的保护与利用推动黄山旅游经济的持续发展	
..... 汪 诚	(391)
张家界地质公园的地质演化简史及武陵源砂岩峰林地貌形成过程	
..... 张永忠 胡能勇 王明艳	(395)
张家界砂岩峰林世界地质公园的科学内涵	张永忠 胡能勇(398)

丹霞山世界地质公园的科学价值及其地貌的国际对比意义	彭 华	张 珂	刘尚仁	吴志才	(404)	
内蒙古阿尔山地质公园地质遗迹类型与旅游资源开发	武法东	田明中	孙洪艳	张科宇	(410)	
内蒙古克什克腾国家地质公园地质遗迹类型及其研究价值	孙继民	田明中	武法东	孙洪艳	顾国君(414)	
一种新的石林类型——内蒙古石林	武法东	田明中	孙洪艳	孙继民	顾国君(418)	
内蒙古克什克腾国家地质公园青山花岗岩白成因的新认识	孙洪艳	田明中	武法东	赵志中	刘晓鸿(421)	
内蒙古克什克腾第四纪冰斗群的发现及其意义	田明中	武法东	孙洪艳	孙继民	顾国君(425)	
加强有效保护 提高综合效益.....					陈先东(428)	
自贡恐龙化石资源的保护和开发利用.....	叶 勇	彭光照	钟 玲		(431)	
古生物类地质公园的特点及其发展方向.....	彭光照	叶 勇	钟 玲		(434)	
江西龙虎山丹霞地貌景观特色及成因研究	郭福生	周佐明	孔有任	谭天明	杨 志(437)	
中国三江并流世界遗产地地质遗迹保护策略初探.....					杨世瑜(440)	
嵩岬山国家地质公园的开发与保护	方建华	谢俊卿	刘保柱	程生平	左正金	张 炜(443)
兴义国家地质公园地质地貌景观及旅游开发前景.....				李兴中	王立亭(447)	
四川兴文石海国家地质公园岩溶发育的空间演化模式分析	王同文	原佩佩	谢 萍	郑文鉴	刘维丽	张顺智(450)
浅谈地质公园的科学旅游吸引力.....					周飞飞(454)	
织金洞现状与发展前景.....				周百智	何礼全(457)	
保护古黄河、古长江遗迹,建设一批“全球第一”的国家地质公园.....					杨联康(465)	
神奇的兴文石海				余国龙	兰祥义(468)	



The Global UNESCO Network of Geoparks

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The Geopark concept was developed by several sources, mainly European ones, in strong cooperation with UNESCO about ten years ago . In 1997 UNESCO proposed to launch a ‘ UNESCO Geoparks Programme ’ on a global scale with the aim of safeguarding Earth heritage sites of international importance and enhancing regional socio-economic development . In 2001 however, driven by structural considerations, this programme proposal was suspended .

In response to a decision of UNESCO ’s Executive Board in June 2001 , and in harmony with a recommendation of an International Group of Experts, as well as of the Scientific Board of the *International Geoscience Programme* (IGCP) at its 29th session in February 2001, the Division of Earth Sciences of UNESCO was invited to pursue the general objective ‘ Education in Earth Sciences ’ by promoting Geoparks as multidisciplinary activities, providing UNESCO ’s assistance to national initiatives on an *ad hoc* basis as requested by Member States . UNESCO ’s involvement in the Geopark concept was considered as crucial in raising public awareness of geological heritage issues, in achieving the fullest international recognition, and in securing the most effective political impact .

National Geoparks seeking UNESCO ’s assistance have been invited to send their applications respecting guidelines and criteria agreed upon by a UNESCO International Advisory Group for Geoparks to the Division of Earth Sciences .

The International Advisory Group for Geoparks, was created by UNESCO in consultation with the Scientific Board of the IGCP in the follow-up of the 31st International Geological Congress, Rio de Janeiro 2000 . It consists of geoscientists representing governmental as well as non-governmental organizations from the Americas, Africa, Asia/ Oceania, and Europe, as well as the *International Geoscience Programme* (IGCP), *International Union of Geological Sciences* (IUGS) and *International Geographical Union* (IGU) .

Within the framework of an international meeting, held at UNESCO headquarters in Paris on 13 February 2004, the “ *Operational Guidelines for National Geoparks seeking UNESCO ’s assistance* ” and recommendations were presented in their final version .



A “ *Global Network of Geoparks assisted by UNESCO* ” was established . The aim of this network is to provide a platform of cooperation and exchange between experts and practitioners in geological heritage matters under the umbrella of UNESCO . The network spans all regions of the world and shall bring together groups that share common values, interests, or backgrounds . The International Network of National Geoparks under UNESCO shall serve to develop models of best practice and set standards for territories which integrate the preservation of geological heritage into a strategy for regional economic development .

Geoparks under UNESCO ’s assistance shall:

- 1) preserve geological heritage for future generations (conservation)
- 2) educate and teach the broad public about issues in geological landscapes and environmental matters (education) and provide research facilities for geosciences
- 3) ensure sustainable development (tourism)

The impact on the area is immediate, by improving human living conditions and the rural environment, strengthening identification of the population with their area and triggering cultural renaissance . Respectful of the environment, Geoparks stimulate, for example, the creation of innovative local enterprises, small business, cottage industries and new jobs, generate new sources of revenue (e .g . geotourism, geoproducts) . This provides supplementary income for the local population and attracts private capital .

25 National Geoparks (17 European and 8 Chinese) were evaluated and are at the moment members of the Global Network of Geoparks assisted by UNESCO .

(PR China)

- 1 . Mount Lushan Geopark
- 2 . Geopark Wudalianchi
- 3 . Songshan Geopark
- 4 . Yuntaishan Geopark
- 5 . Danxiashan Geopark
- 6 . Shilin Stone Forest Geopark
- 7 . Zhangjiajie Sandstone Peak Forest Geopark
- 8 . Huangshan Geopark

(Europe)

- 9 . Reserve Géologique de Haute Provence - France



- 10 . Petrified Forest of Lesvos - Greece
- 11 . Vulkaneifel European Geopark - Germany
- 12 . Maestrazgo Cultural Park - Spain
- 13 . Psiloritis Natural Park - Greece
- 14 . Rochechouart Chassenon Astrobleme - France
- 15 . Nature Park Terra Vita European Geopark - Germany
- 16 . Coper Coast - Ireland
- 17 . Marble arch caves & Cuilcagh mountain park - Northern Ireland, UK
- 18 . Madonie Natural park - Italy
- 19 . Rocca di Cerere cultural park - Italy
- 20 . Kamptal Geopark - Austria
- 21 . Nature Park Eisenwurzen - Austria
- 22 . Cabo de Gata Natural Park- Spain
- 23 . European Geopark Bergstrasse-Odenwald - Germany
- 24 . North Pennines AONB Geopark - UK
- 25 . Abberley and Malvern Hills Geopark - UK



Geological Heritage Protection and National Geopark Construction in China

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Summary

A total of 85 national geoparks and 8 world geoparks has been formally set up in China by now . The establishment of these geoparks is favorable not only for protecting the geological heritages, recovering the geological and ecological environment, but also for popularizing the knowledge of Earth science, supporting the sustainable development of local socio-economy, as well as providing new employment opportunities . To set up the World Geoparks marks a new era for geological heritage protection in the World .

The geological heritages are referred to the important geological phenomena preserved through the long geological history, and they provide direct and indispensable evidence for us to trace back the evolutionary history of the Earth . All geological products formed in different geological processes are nonrenewable, which are regarded as the geological heritages bestowed by Mother Earth . Safeguarding and treasuring these precious heritages has become a common responsibility of all inhabitants on the Earth .

1 The construction of the national and world geoparks in China

Yan zhenqing, a celebrity and calligrapher in Tang Dynasty, noted that shells remained in high mountains may imply that time brings a great change to the World, from which we get to know that long ago our ancestors realized that fossils preserved in the strata provide important traces and evidences of this great change in the Earth . Between the lines written by him we easily taste the fine wish of our ancients to understand the geological history by geological heritages . Indubitably, with increasing popularization of the modern civilization, on the one hand,



the development of geoscience provides us increasing possibility to understand the geological history by geological heritages; and on the other hand, we have to accelerate protection and rational utilization of the geological heritages due to the need of and damage to the natural resources by the modern social and economic development .

Therefore, as early as in 1985 , Chinese geologists proposed to establish geoparks in those areas with important geological significance and beautiful geological landscapes . From the end of the 1980s, the former Ministry of Geology and Mineral Resources (MGMR) successively put forward and made clear, in the form of sector 's statutes and regulations, the envisagement and relevant stipulations about establishment of natural geological conservation areas . From the end of the last century to the beginning of this century, establishment of the national geoparks put on a regular basis gradually . A leading organization of the national geological heritages (geoparks) and an appraisal committee of the national geological heritages (geoparks) were established successively, and relevant policies, standards and rules regarding application and approval of the geoparks were promulgated . So far, the conditions and requirements for establishing the national geoparks and their application procedures and documents, appraisal requirements and standards have been systematically and perfectly, thus setting the construction and management of the national geoparks on the right track of legal system and providing powerful guarantee for their healthy development in the future .

Because of the great efforts made by the Ministry of Land and Resources (MLR) , various provinces, municipalities and autonomous regions have actively applied for the national goeparks . From 2000 , departments concerned seriously compared, appraised and approved nearly 100 candidates applied by the various parts of the country, and selected 85 geological heritages relatively concentrated as the national geoparks successively in 3 rounds, and then successfully proposed 8 sites including the Mount Huangshan (Anhui), Mount Lushan (Jiang xi), Mount Yuntaishan (Henan), Stone Forest (Yunnan), Mount Danxia (Guangdong), Zhangjiajie (Hunan), Wudalianchi (Heilongjiang) and Mount Songshan Geoparks are proposed as the first-batch of geopark as the first-batch of geopark candidates of world geoparks .

The establishment of the national and world geoparks in China also attracted the great attention of various provinces, cities and counties to protection of the geological heritages . Many local governments also named a number of provincial-and municipal-level geoparks through examination and appraisal . As a result, a distinguishable multi-level protection system of geological heritages is taking shape in China, with the national and world geoparks as the center and provincial and municipal geoparks as the hub . China 's geoparks covered not only stratigraphic, palaeontological, structural geologic, geological and geomorphological, glacial geological, volcanic geological, hydrogeological, geological-engineering and geological hazard heritages etc ., but also the resplendent civilization of the Chinese nation . We may say that the perfect combination of the rich and colorful geological heritages resources with the long history of the Chinese nation is both the characteristics of the geoparks in China and the important conditions allowing China to take the lead in pushing forward the geopark program at country level .