

Strategic Conceptual Plan of Eco-city A Case Study of Mentougou Eco-City

Beijing Montane Ecological Institute of Technology

China Agricultural Science and Technology Press
中国农业科学技术出版社

图书在版编目 (CIP) 数据

生态城战略性概念规划: 门头沟案例 = Strategic Conceptual Plan of Eco-city: A Case Study of Mentougou Eco-city: 英文/张文波主编. —北京: 中国农业科学技术出版社, 2011. 8
ISBN 978-7-5116-0626-6

I. ①生… II. ①张… III. ①生态城市—城市规划—研究—门头沟区—英文
IV. ①X321.13

中国版本图书馆 CIP 数据核字 (2011) 第 162952 号

责任编辑 贺可香

责任校对 贾晓红

出版者 中国农业科学技术出版社

北京市中关村南大街 12 号 邮编: 100081

电 话 (010) 82106631 (编辑室) (010) 82109704 (发行部)

(010) 82109703 (读者服务部)

传 真 (010) 82106636

网 址 [http:// www. castp. cn](http://www.castp.cn)

经 销 者 新华书店北京发行所

印 刷 者 北京富泰印刷有限责任公司

开 本 787mm × 1 092mm 1/16

印 张 25 彩插 22

字 数 725 千字

版 次 2013 年 1 月第 1 版 2013 年 1 月第 1 次印刷

定 价 98.00 元

《生态城战略性概念规划——门头沟案例》

编委会

主 编：张文波

副 主 编：王丙华 孙 楠 苗保河

编写人员：（以姓氏字母为序）

白 鹏 成连文 董 灏 郭 睿 韩永伟 何 永
加雨灵 李 戈 李洪远 刘 菁 刘 宁 苗保河
宋 婷 孙炳彦 孙 楠 孙 泳 拓学森 汪海波
王丙华 吴 丹 吴 晶 徐 峰 徐 践 薛 晶
姚 山 尹春华 张 娜 张文波

Anniina Korkeamäki, Antti Nikkanen, Antti Saravuo,
Eero Paloheimo, Emma Grönholm, Joonas Mikkonen,
Julio Orduna Sanches, Kaisa Junkkonen, Matías Celayes,
Natalie Stratakis, Olli Salmi, Patrick Eriksson,
Pekka Paloheimo, Petrus Laaksonen, Raine Mäntysalo,
Sini Valvisto, Timo Tolvanen, Topi Tiihonen,
Tuomas Järvinen

前 言

生态就是地球上生命的状态，也是我们人类生存、生产、生活的状态。城市是我们人类进化发展历程的一种必然结果。

当地球进入以人类为核心的演化进程时，能量与物种主导着自然生态的轮回；能源与食物左右着人类生态的代谢；而货币则联结着经济生态的劳动与消费；同样权力调控着社会生态的组织与其服务力；信息永恒地将文化与信仰凝聚在人文生态的平台上。

在当前的理论认识能力下，我们认为生态城有八个内涵，四个基本结构，六个运行体系。八个内涵是：一是多物种共同生存性；二是资源消耗收敛性；三是对自然生态的零扰动性；四是对人类健康的零扰动性；五是对自然环境的自适应性；六是对经济运行的自发展性；七是对人类社会的自组织性；八是城市总体发展的进化性。四个基本结构是：生态结构，空间结构，产业（经济）结构，社会结构。六个运行体系是：指标体系，标准体系，评估体系，技术支撑体系，安全调控体系，管理运行体系。总之，生态城应该是人类肉体休养生息之所，人类灵魂修炼升华之地。

如果说森林是我们人类诞生后的第一个摇篮，那么生态城，这个未来世界的城市，更确切地说是未来世界的城堡，应该是我们人类重生的第二个摇篮。建设好这座未来世界的城堡，是现在人类无可推卸的责任，它应该是我们今天应对各种生态危机与灾难，以及我们的子孙后代发展繁衍的最佳平台。我们更寄希望门头沟生态城是实现我们理想的试验场。

门头沟位于北京西南部，区域面积 1450 平方千米，98.5% 的面积是山区，常驻人口 29 万人，过去的门头沟曾是京西重要的煤炭能源产地，主要依靠“一黑一白一黄”三大产业，一黑是煤炭、一白是石灰、一黄是沙石，即以煤炭、石灰和沙石为代表的资源开采业一度曾是地区的主导产业，特别是煤炭开采业，可以追溯唐末时期，更有着北京的“一盆火”之称，在为首都经济和社会发展作出巨大贡献的同时，也给全区生态环境和生活环境带来了严重的破坏。

2005 年以来，门头沟被定位为首都的生态涵养发展区和西部综合服务区，北京山地生态科技研究所主持并承担了门头沟区政府下达的“门头沟生态城战略性概念规划”重点项目。在项目主要负责人带领下，组织国内外专家和专业技术人员，历时一年有余，在多年生态修复工作的基础上，以生态产业为主导、以生态文化为内涵的生态城市规划为中心研究内容，在对区域资源环境现状充分调研和系统分析的基础上，对门头沟生态城规划进行了科学定位，并从自然生态、城市发展、经济发展、公共服务、政策法规、文化旅游资源和建设风格与技术等方面

进行了可行性分析，对空间布局、基础设施、人居环境等进行了科学规划，且参照国内外其他生态城以及行业标准等，制定了该生态城的系列评价标准和技术体系，从而为门头沟生态城未来的建设与发展提供了理论依据。

在项目实施过程中，又推到了门头沟区政府与芬兰签署了中芬生态建设战略合作协议，即未来数年内，在门头沟区沟谷中建设一座“数字、低碳、生态”的新型人居环境。

为了及时总结项目研究成果和经验，梳理项目研究中的不足和教训，更好地服务于门头沟城市建设发展，我们将项目主要内容和成果编写成“生态城战略性概念规划——门头沟案例”一书并出版。此书是集体辛勤劳动的结果，凝聚了大家的心智和力量，在此书编写过程中，得到了门头沟区委区政府的亲切关怀和大力支持，得到了区里各部门、各单位的帮助和配合，得到了区内外专家、学者和同仁们等的指导和帮助，特别是学习、借鉴和参考了大家的相关研究成果和文章，但因篇幅和时间等限制，我们未能一一详尽列述，特此恳请诸位原谅和海涵。

“江碧鸟逾白，山青花欲燃”。长安街西永定河畔的门头沟区，目前正向全市加快转变经济发展方式示范区、生态文明建设重点区和首都功能拓展承载区快速迈进，希望此书出版能为此跨越有所促进和推动，但由于水平、能力和条件等有限，定有许多不妥和错误之处，在此书出版之际，我们再次敬请大家批评与指教。最后我还要强调，此书的前身是规划，由于规划在编写的过程中参考了大量的文献，因为时间的关系出版时许多编写者无法找到当初引用的出处，我在此也代表编委会，向各位学者声明：如果引用了您的大作，请来信指出，我们将给予更正。

张文波

2011年10月5日

目 录

Part I Actuality Analysis and Planning Orientation

Chapter 1	Introduction	2
1.1	Preface	2
1.2	The overall target	3
Chapter 2	An analysis of the relationship between the planning area and Beijing and Mentougou district	4
2.1	The relationship between planning area and Beijing	4
2.2	The relationship between the planning area and Mentougou	7
Chapter 3	Mentougou natural ecosystem evaluation	9
3.1	The natural conditions	9
3.2	The regional ecology analysis	15
3.3	The influence to the ecology construction of Beijing	21
Chapter 4	Investigation and estimation about the natural ecosystem of Mentougou	24
4.1	Natural condition	24
4.2	Mine resources, ore yard and abandoned land	31
Chapter 5	Economy system analysis and developing plan orientation	35
5.1	General situation of the economy	35
5.2	Analysis of the present economic development in Mentougou	39
5.3	Analysis of economic development in eco-city planning area	41
5.4	The position of developing eco-economy	42
Chapter 6	The systematic society analysis and planning development orientation	45
6.1	Social situation of Mentougou	45
6.2	The social situation in the eco-city planning area	47
6.3	Analysis of the present social situation	48
6.4	The orientation of social plan	51
6.5	Summary	53
Chapter 7	Analysis of society-economy-nature complex economy system and planning development orientation	54
7.1	Analysis of population carrying capacity	54
7.2	Evaluation about the complex ecosystem	57

7.3 The existing questions and pressure analysis 59

Part II Eco-City Related Theories and Cases Studies

Chapter 8 Related Theory Overview 64

8.1 Eco-city concepts 64

8.2 Trend of modern eco-city Development 65

8.3 Chinese traditional philosophy of the construction of ecological city 70

8.4 The modern scientific view of the ecological system of the city 71

8.5 Eco-city planning approach 74

Chapter 9 Theoretical Analysis of Eco-City 75

9.1 What is truly valuable Eco-city 75

9.2 Function of co-city 78

Chapter 10 Relevant case studies of Eco-city Development 81

10.1 Nordic Eco-City Case Study 81

10.2 urban ecological design of Curitiba 90

10.3 The world classic case of ecological planning and construction 91

10.4 Cases of domestic eco-city 95

Chapter 11 Classic case of urban economic and cultural development 100

11.1 The development mode of OCT 100

11.2 Japanese eco-industrial development pattern 102

11.3 Asia’s “Four Little Dragons” Culture Development Case Study 104

11.4 Shenzhen development model 106

11.5 Model of Silicon Valley-technology promotes economic growth 109

11.6 Dubai-the city from the accumulation of petro-dollars 110

11.7 Nordic models and happiness index 112

Chapter 12 “Eco-city” designed according to Chinese traditional culture 114

12.1 Beijing-good geomantic omen 114

12.2 Wenzhou—the hill as BigDipper, the city seems to the lock 114

12.3 Kunming—the city enclosed by the lake on three sides 115

12.4 Tianjin-the city constituted by three Diagrams 115

12.5 Xinjiang-Eight-trigrams city 116

12.6 Inspiration for the development of modern eco-city 116

Chapter 13 Theoretical analysis and construction of Mentougou Eco-city 118

13.1 Construction background 118

13.2 Mentougou Eco-city development mode and path 120

13.3 Prospect of Mentougou Eco-city 124

Part III Feasibility Study

Chapter 14 The feasibility study from the angle of the city development	132
14.1 Ecological bottlenecks and the development of Mentougou, Beijing	132
14.2 Development targets of Mentougou eco-city	136
14.3 Spatial pattern analysis of ecological city	138
Chapter 15 The ecological feasibility analysis of Mentougou eco-city	143
15.1 Ecological environmental condition of eco-city	143
15.2 regional ecological planning of eco-city	147
15.3 The future development of eco-city and other surrounding areas of Beijing Mentougou and ecological impact	157
15.4 Mentougou and the ecological environment in Beijing and other surrounding areas in response to the eco-city development	159
15.5 Eco-City Environmental Sustainability Ecological Analysis	161
15.6 Eco-city currently lack the ecological conditions	163
Chapter 16 The Economic Feasibility Analysis of Eco-city	165
16.1 advantages and future development environment of eco-city	165
16.2 Economic feasibility analysis of Mentougou eco-city	169
16.3 Summary	172
Chapter 17 Industrial Development Feasibility Analysis of Eco-city	175
17.1 Principles of industrial planning of eco-city	175
17.2 industrial planning of Mentougou eco-city	176
17.3 Eco-industry analysis of time planning	191
17.4 Ecological industrial security system	192
Chapter 18 Feasibility Analysis of Mentougou Eco-City based on the View of Social Public Service	195
18.1 General situations of traditional public service	195
18.2 Countries with better traditional public services	197
18.3 Eco-city Mentougou's social and public services	203
18.4 Ways to improve public service in Mentougou eco-city	210
18.5 Future policy adjustments on public services	217
Chapter 19 Feasibility Analysis of the Mentougou Eco-city based on the Policy Level	223
19.1 Overview of the Development of the Mentougou Eco-city	223
19.2 Increase system Innovation, Optimize Regional Development Environment	224
19.3 Accelerate the transformations of scientific and technological achievements, improve the regional ecological carrying capacity	225

19.4	Transform government functions and improve service levels	228
19.5	Strengthen organizational leadership to ensure effective implementation of the work	231
Chapter 20	Analysis of the Culture Development of Mentougou Eco-City	234
20.1	Overview of history and culture	234
20.2	Historical Analysis	238
20.3	Analysis of cultural identity	241
20.4	Analysis of cultural integration	242
20.5	Positioning of Culture	243
20.6	Summary	248
Chapter 21	Eco-city Planning and Construction of Mentougou Technical Analysis	249
21.1	Classification of Ecological Applications City	249
21.2	Analysis of its own technology	260
21.3	Corresponding Technology Analysis at home and abroad	262
21.4	Technology positioning of eco-city	267
21.5	Summary	268
 Part IV Planning and Design 		
Chapter 22	The Conceptual Planning of Eco-city's spatial Arrangement	270
22.1	Functional localization	270
22.2	The Space Limitation of City Development	270
22.3	Ecological Security Patterns in Landscape	272
22.4	Spatial Layout of Urban Construction Land Planning	278
22.5	Space Layout and Planning Guidelines	279
22.6	Controlling Strategy of Ecological Management Division	280
22.7	Conclusions	287
Chapter 23	Design of Ecological Infrastructure	288
23.1	Clean Technology	288
23.2	Wildlife Protection Area and Recreation Area	298
23.3	Transportation System	298
Chapter 24	Living Environment Design of Eco-city	303
24.1	Living Environment	303
24.2	Leisure Environment	303
24.3	Catering Environment	304
24.4	Shopping	305
24.5	Educational Environment	305
24.6	Administrative Environment	306

24.7	Business Environment	307
24.8	Work Environment	307
24.9	Religious Environment	308
24.10	Public Service Environment	308
24.11	Toilet Environment	309
Chapter 25	The Technical Standards of Eco-city	310
25.1	Energy	310
25.2	Industrial Production and Inorganic Materials	311
25.3	Food Production and Organic Waste	312
25.4	Water Management	313
25.5	Construction, Planning and Land Use	314
25.6	Transportation	314
25.7	Information Technology and Communication	314
Chapter 26	Eco-city Planning, the Rules and Regime of Construction and Usage	316
26.1	Planners and Designers	316
26.2	Developers and builders	317
26.3	Resident	317

Part V Evaluation System of Eco-city

Chapter 27	Mentougou Eco-city Impact Assessment System and the Relationship Assessment of the Surrounding	320
27.1	Mentougou Eco-city Measurement standard	320
27.2	Assessment of the impact of Eco-city planning and construction on the surrounding area	343
27.3	Ecological risk analysis	352
27.4	Analysis of uncertainty influence factors	353
27.5	Analysis of Cleaner Production and Circular Economy	353

Part VI Summary

Chapter 28	General Description	356
Chapter 29	Development Assumption of Mentougou Mountain Eco-city	362