

1998\928\3A\03\003

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Sustainable Development of Mountain Human Settlements

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Abstract Because of its unique natural and ecological conditions as well as social, economic, historical and cultural characteristics, mountain human habitat is fated to follow its own law in the development and evolution, while the planning and construction of it must have its own particularity and complexity, which, however, has not been commonly realized or paid adequate attention to. That's why in the development of mountain regions and in the urban construction there, the so-called "destructive construction" takes place repeatedly and, brings serious result to the fragile mountain ecosystem. In the construction of human settlements in mountain areas, the prerequisite is to protect well the extending environment of the region, to protect the forest vegetation and the variety of biological species there, to prevent water and soil from losing, to reduce the loss caused by natural calamities and, as a result of these all, to keep the ecological balance of the whole environment. Meanwhile, scientific theories and methods must be applied according to the characteristics of the habitat there to guide its construction and to remove poverty and backward. The nationality architecture and traditional culture should be protected so as to safeguard the multinational union in mountain regions. People should be encouraged to participate in the construction and transformation of mountain human habitat. And finally, sophisticated new technology, applied technology and traditional technology should be combined so as to transform mountain towns and villages and create an environment of human settlements characterized by comfort, convenience, safety and health. In face with China's daily urbanization of rural and mountainous areas, a significant approach to the sustainable development of mountain human settlements is the establishment of a harmonious neighborhood and a multinational big family in which all the members unite and help with one another.

In order that mountain human habitat develops scientifically, orderly, sustainably and coordinately with the surroundings, it is necessary to strengthen the comprehensive studies of the science of mountain human settlements; and long-term efforts must be made to establish a theoretical system that is adapted to both its own characteristics and its law of construction development, to found a methodological system for its planning and design, to establish an educational system for its operation and administration, and to establish an educational system for training the professional. Also, in order to improve the social, economic and environmental quality of mountain human settlement communities, and to promote the sustainable development of mountain human habitat, we are dutiful and obliged to get hand-in-hand with one another and speed up the information exchange in the field of human habitat, and to make round-the-globe connection and cooperation, so as to propel the scientific research of mountain human habitat to a higher new level.

Key words mountain human settlements, sustainable development

收稿日期:1998-04-20

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"Sustainable human settlements in an urbanizing world" is one of the two themes of the Second United Nations Conference on Human Settlements (also known as Habitat II) held in Istanbul, Turkey, in June 1996. While the environment of human settlements in mountain areas takes an important part of the whole human settlements, the significance of the theme of Habitat II is particularly extraordinary to such a large country as China, whose territory is mostly covered by mountains, whose population is dense and whose cultivated land is comparatively rare. The area of China's mountainous region takes about two thirds of the country's whole land area*, with hilly cities and towns counting to about half of the country's total number of that. The population of China's minority nationalities, mineral resources, hydroenergy, and biological resources are chiefly in mountain areas. In China, mountains also form a huge treasury of cultural and biological variety and species including those on the verge of extinction; they are sources of rivers and shields for plains and, therefore, their ecological state directly relates to the safety of rivers' lower reaches and plains. Since mountainous cities and towns are the centers of the social and economical administration and they are mostly populated centers of minority nationalities, how well they are planned and constructed has immediate influence on the social and economical development of mountain areas and even the whole country. However, the specific natural and ecological conditions, the unique cultural background, and the economic growth level of these cities and towns tell decisively that in mountainous environment the development or evolution of human settlements must follow its own law, while the planning and construction of them must have their own particularity and complexity, which, up until now, has not been commonly realized or paid adequate attention to.

In mountain areas, the limitation of sites for building and the increasing population result in an ever intensifying building density and development difficulty; and, on the other hand, the decrease of vegetative cover and the land available for construction worsens the loss of water and soil, makes harm to the originally fragile ecosystem of the area and causes the present ecological environment to further deteriorate.

In mountain areas, the complexity of conditions in the ecotope, the intensifying of difficulties in construction, and the restraint of economic conditions result in the backwardness of mountain urban infrastructure and the serious lack of public installations; and besides, the unsuitableness of investment environment handicaps the effectiveness of economic operation and the promotion of the residents' living standard. Meanwhile, the long-standing backwardness of mountain economy and the brain drainage with the local information and culture further restrain the regionally social and economic development of mountain areas.

It is the copying of plain urban planning theory and methods, layout structure pattern, policies,

* Here "mountainous region" indicates, in a broad sense, areas that have a certain absolute or relative height and those that have a certain slope, including mountains, hills and rough plateaus. China's mountainous region is as large as around 6.5 million square kilometers, in which mountainous land takes 33%, hilly land 10% and highland 26%.

system of laws and regulations, technological and economic norm system, etc. that makes the construction of mountainous human settlements unable to suit measures to the strongly differentiated mountain ecological conditions, thus repeatedly causing the so-called "destructive construction" and, consequently, even irretrievable loss. Also in construction, there are factors that make gradual disappearance of the originally colorful characteristics of mountainous towns and villages, and the fading of local features and graceful flavors of minority nationalities. These factors include: the ignorance of environmental features of mountainous. Human settlements, the failure to carry forward and develop the local architectural features and culture of minority nationalities, etc.

In the construction of human settlements in mountain areas, the prerequisite is to protect well the fragile ecosystem in the extended environment of the mountainous region, to protect the forest vegetation and the variety of biological species, to prevent water and soil from losing, to reduce the loss caused by natural calamities, to maintain well the cultural variety of the area and, as a result of all these, to keep the ecological balance of the whole extended mountain environment.

Since the reform and opening up to the outside world, China's urban and rural appearance has changed greatly and extraordinary development has taken place in the mountain region society, economy and culture. Now with the shift of construction emphasis from the coastal areas to the inland, the great Three Gorges Project has taken the guiding role in the development and utilization of the inland mountainous hydroenergy, and has propelled the construction of transportation and communication network. In addition, the state is making superb efforts to carry out the large-scale "Poverty Relief Scheme" in the mountain areas, to develop different kinds of economies and to accelerate the construction of small hilly towns. It is desirable that the gap between the mountain areas and the coastal and plain areas is being filled gradually.

The construction of human habitat environment in mountain areas can only be carried out under the guidance of practical policies, technological measures and methods worked out according to its own unique characteristics and development laws. The twisted landform and the complexity of topography in mountain areas are liable to cause natural calamities, to make the building cost increase, and to bring about relatively greater difficulties to the construction of cities and towns there. However, if wise and good use is made of such natural conditions as abundant resources, the less dense population, the relatively greater environmental capacity, the various ground image, the colorful and stylistic culture of nationalities and human landscapes, etc., an ideal environment of human settlements and a landscape with rich unique characteristics can be created; if advantage is taken of such natural resources as hydroenergy, wind-energy, solar energy, geothermal energy, underground space, diversified biological resources, etc., the green industry can be remarkably developed to promote the growth of mountain economy; and, in addition, the rich natural scenery in mountains makes the environment proper for different kinds of athletic and cultural activities, for entertainment, holiday refreshment and, above all, for the development of ecological tourism. Efforts ought to be made to combine sophisticated new technology with applied and traditional technologies and, in suiting measures to local conditions, to develop ecological building materials, local building materials, and to spread the use of building machines and engi-

neering technology that are suitable for mountains, To develop the local and nationality architectural culture in various mountain regions, it should be vigorously encouraged to design and construct ecological buildings, energy-saving buildings and health buildings. People should be encouraged to take part in the construction and transformation of the mountainous habitat environment. Research work should be reinforced into the mountain calamity reducing, the disaster prevention and the development and utilization of mountain dimensional space. In face with China's daily urbanization of the broad rural and mountainous areas, a significant approach to the solution of the man-and-land contradiction and to the sustainable development of mountain human settlements is: to build a habitat environment of low energy consumption, low pollution, high quality and high efficiency, to create comfortable, convenient and safe new communities with unique local features, to establish a neighborhood relationship of harmony and mutual-love, and to build a multinational big family in which all the members unite and help with one another. For the purpose of this, comprehensive studies should be strengthened in the sciences related to mountain human habitat environment, including the studies of mountain geography, urbanology, architecture and landscape, along with the training of the professionals who, specialized in urban and rural planning, design and construction, are well aware of the state conditions and the mountain regional culture.

In the early 1950s, Chongqing Jianzhu University started the speciality of architecture, in the late of that decade urban and rural planning was established and early 1980s witnessed the addition of landscape architecture. Taking into consideration the state conditions and the fact that southwest China is mainly mountainous, we have got to realize the importance of propelling the scientific research of urbanology and have seen that mountain human habitat environment should be the major object of our study.

In the situation that the global ecotope was ever deteriorating, the milestone-significant "21st Century Agenda" was passed at the United Nations World Environment Conference in June 1992, and henceforward the idea of "sustainable development" has become a common recognition of all countries. An important entry of the Agenda is about "fragile ecosystem administration: sustainable development of mountain areas." In the same year, the establishment of a studies center for mountain cities and regions was approved by the Chinese Academy of Sciences and the Ministry of Construction, along with its branch institutions founded respectively in Yunnan and Guizhou Provinces. The foundation of these has unfolded a new situation of China's mountain urban planning, design and research, put to an end the situation that there had been a long absence of specialized institutions to organize and implement the researches on the mountain human habitat in the daily urbanization of the world, and propelled the research work on the sustainable development of mountain human habitat. This job, though, is just at the beginning, and we should fully realize its importance, its protracted nature and its arduousness. Under the guidance of the general ideological framework of human habitat sustainable development, we must make long-term efforts to establish gradually a theoretical system for the construction of human habitat, the development of economy and the protection of ecotope in mountain areas, a methodological system for urban & rural planning and design in mountain regions, a legal system suitable for the features of

mountain regional society, economy, nature and culture, and an educational system for training the professional so as to meet the overall needs of the development of urban & rural social economy and culture.

Mountains are an important part of the earth's sustained life system. The mountain region offers huge potentialities to China's realization of modernization. It is significant with its great potentialities and abundant property but, on the other hand, it is fragile with various contradictions and problems. So a prudent and protective attitude should be taken in the exploitation of it. In order to accelerate the development in mountain regions, to improve the social, economic and environmental quality of mountain human habitat communities, to treasure mountain resources, to conserve mountain ecosystem, and to promote the sustainable development of mountain human habitat, we are dutiful and obliged to get hand-in-hand and hasten the information exchange in the field of human habitat, and to make round-the-globe connection and cooperation, so as to propel the scientific research of mountain human habitat to a higher new level.

山地人居环境的可持续发展

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98, 20(3)
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摘要 山地人居环境由于其独特的自然生态条件与社会、经济、历史、文化等特点, 决定了其发展与演变具有自身的规律性以及规划、建设的特殊性和复杂性, 对于这一方面, 人们普遍地还缺乏认同, 缺乏足够的重视。因此, 在山地开发和城镇建设中, 屡屡出现所谓“破坏性的建设”, 给脆弱的山地生态系统带来严重的后果。山地人居环境的建设, 其先决条件必须保护好山地区域的大环境, 保护山地大环境的森林植被和生物多样性, 防止水土流失, 减少自然灾害, 维持山地大环境的生态平衡; 同时要根据山地人居环境的特点, 用科学的理论和方法, 指导山地人居环境的建设, 消除贫困和落后; 保护好山区民族建设与历史文化传统, 维护山地多民族的团结互助的大家庭; 提倡群众参与山地人居环境的建设与改造, 并且要把现代技术、适用技术与传统技术结合起来, 改造山城城镇和乡村, 以创造富有地方特色的舒适、方便、卫生、健康的住区环境。

为使山地人居环境建设走上科学、有序、持续、协调发展的轨道, 必须通过长期的努力建立适应其自身特点与建设发展规律的理论体系; 建立山地人居环境的规划与设计的方法体系; 建立山地人居环境建设与管理的法规体系, 以及为建设高质量的山地人居环境的专门人才培养的教育体系。为了提高山地人类住区的社会、经济和环境质量, 促进山地人居环境的可持续发展, 我们有责任和义务携起手来, 加强信息交流, 开展全球范围内的广泛合作与技术交流, 把山地人居环境的科学研究提高到一个新的水平。

关键词 山地人居环境, 可持续发展 ~~规划~~ 规划, 设计。

中图法分类号 TU98

(编辑: 袁江)