



Urban Agenda Platform

The global platform for sharing progress, action and knowledge on the implementation of the New Urban Agenda to achieve sustainable urban development.

Mountain Ecological Renovation and Mountain Park Construction of Jinan City

Region	Asia and the Pacific
Award Scheme	Dubai International Award
Start Year	2017
Sustainable Development Goals	Goal 11 - Make cities and human settlements inclusive, safe, resilient and sustainable

Summary

Since 2005, Jinan City further strengthened the management for mountain greening and fully launched the ecological remediation for mountains in urban areas, which has completed the renovation of 126 damaged mountains, greening of 70 mountains and construction of 26 mountain parks that are open to the public for free.

Background and Objective

From 1970's to 1990's, some mountains were badly damaged due to over-quarrying. 126 damaged mountains covering a flat area of 12 million square meters and a vertical area of 4.3 million square meters were included within the city limits with urbanization, adversely affecting ecological security, production and living conditions.

Actions and Implementation

1. Adhere to the guidance of plans. It formulated the "Special Planning for Urban Mountain Landscape of Jinan City", put forward work programme for the remediation of damaged mountains, greening of mountains in urban areas of construction of mountain parks, and delineated the greening routes for mountains to define the regions of conservation and renovation. 2. Strictly make the scheme of design. It enacted the "Design Principle for Urban Mountain Greening and Mountains Parks Construction of Jinan City", shaped the construction techniques of ecological remediation for three mountain top, step mountain in the surrounding area and gentle top, steep mountain in the surrounding area gentle slope under the peak, and guided the way ecological remediation for the mountains featured with the Daigu geomorphology and Karst landform. It highlighted the regional characteristics of plant communities in the North Temperate Zone by enriching vegetation on the mountain, and studied technical measures for the preservation and propagation expansion of endangered local plant communities to protect the original ecological environment of the mountain. It moderated the methods in mountain park construction by creating recreation paths and small squares with local materials, endeavoring to maintain the "limited capacity" of the ecological environment. 3. Optimize the techniques of construction. For the steep peaks of mountains, it combines different sorts of technology with the introduction of techniques of local characteristics such as fish-scale pit and level terrace site preparation and the application of advances technologies including external-soil spray seeding and three-dimensional hanging bag. For the gentle slopes at the foot of the mountains, it set up remaining walls, reservoirs and infiltration ponds. For the steep grounds, it placed stones and installed diversion troughs and diversion trenches to retain and recycle rainwater for irrigation in mountain areas. According to local conditions, it adopted the modes of transportation by using cable cars and horse or mule caravans so as to avoid a secondary damage to the mountains. 4. Encourage the participation of citizens. Experts and citizens can discuss directly through regular "round tables with citizens", the public can participate in the entire process of planning, design and construction. And in this way citizens have become enthusiastic "designers" and "supervisors".

Outcomes and Impacts

1. Sustainability of law and regulating system. It formulated "Methods for Mountain Protection and Management of Jinan City" and "Planning for Protection and Utilization of Mountains of Jinan City", which delineated the red lines of mountain preservation, strengthened the construction of legislation for mountain protection, preventing the destruction of mountains from its fountainhead. It has completed study on the mountain landscape planning of "integrating mountains with the city" and achieved a higher-level green development. 2. Sustainability of capital input. Based on fiscal funds, it raised public funds on a large scale, motivated social forces like real estate developers to join in, which has allocated more than 200 million yuan of public funds, it raised funds on a large scale, motivated social forces like real estate developers to join in, which has allocated more than 200 million yuan



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of public funds for project construction, expanding the financing channels of ecological remediation. Laying equal stress on construction and management, it attracted social investment and increased the input into management and protection by means of adopting green lands and selling naming rights, so as to generate a sustainable stream of funds. 3. Sustainability of urban cultural inheritance. Highlighting the "characteristic landscape of each mountain", it demonstrated the history of urban development, profound cultural background, local conditions and customs of Jinan city, through excavating and forging Culture of Yao and Shun, Celebrities Confucianism and Springs, to realize harmony and unity between urban ecological landscape and cultural heritage of humanity and impel continuity and development of the city culture. 4. Sustainability of social development. Mountain parks are open to the public for free, receiving an average of 2 million passengers a year after completed. Women, children, the elderly and impoverished people accounted for over 78% of the visitors due to accessible location and free of charge. Besides, the management and maintenance of mountain parks has created 260 job opportunities for the lower-income disadvantaged groups.

Gender and Social Inclusivity

1. The industry spoke highly of the project implementation. Both the state and provincial administrations of housing and urban-rural development recognized this project as a classic example that needs to create a demonstration effect as soon as possible. Cities such as Beijing, Shanghai, Wuhan, Suzhou and Hangzhou visited Jinan several times for investigation and study. We participated in drafting documents related to ecological restoration for China's Central City Work Conference and involved in compiling "Guide on the Scientific Development of Urban Landscape and Greening" led by the Ministry of Housing and Urban-Rural Development. All the works were valued highly by the administrative authorities. 2. The mode of public participation has aroused extensive concern from society. Pioneering new ideas, organizing and implementing the mode of civic management have acquired good outcomes and also attracted great attention from the Authority of Sweden. The form of joint conference between citizens and Jinan landscape and forestry organizations went abroad, setting up a three-year scheme of exchange visits with Västmanland County, Sweden. The two cities held exchanges and discussions on "communicating with citizens and listening to the public" and will expand their cooperation on landscape construction and people's livelihood improvement. 3. Achievements of project have been widely published in newspapers and magazines. After it won "2015 China Habitat Environment Example Prize" special reports for the other project were issued by People's Daily, China Construction News, Jinan Daily and The City of Springs, producing a considerable impact on resource management, environmental remediation, urban landscaping and ecological sustainable development.

Innovative Initiative

1. It has formed a relatively completed model of mountain resources management system. Focusing on the protection of mountain resources, it enacted "Methods for Mountain Protection and Management of Jinan City" and "Afforestation Regulations of Jinan City", which delimited the red line for afforestation and ecological protection of mountains, and applied the paid use of resources system and ecological compensation system. It has completed the planning research of mountain landscape, revealing the unique features of the city. 2. It has formed a model of mountain remediation technology of Daigu geomorphology and Karst landform, it optimized and innovated the engineering techniques of hillside reconstruction, danger elimination by reducing the gradient, reinforcement of abrupt slope, exploitation of platform and plant arrangement, and implemented the techniques of local characteristics such as fish-scale pit, level terrace and infiltration pond. It has published the technical guidelines to popularize the use of established techniques. 3. It has formed a model of coordination and communication between the citizens and the governments. It regularly held "round tables with citizens" to solicit public opinions and suggestions; more than 1,500 pieces of advice have been adopted and implemented, fulfilling the needs of all types of people, enjoying ardent support of the people.

Resources devoted to delivery

No.	Title	Source	Author	Publication Title	Volume	Number	Date	Page Number
1	Repair Scars of the City by Greening	People's Daily	February 6, 2016	10				
2	Mountain Park Project of Jinan City Awarded China Habitat Environment Example Prize	China Construction News	March 15, 2016	3				
3	Mountain Park Project of Jinan City Awarded China Habitat Environment	Jinan Daily	January 11, 2016	1				
4	Entering the Home Directly from the Mountain Park	Jinan Daily	Demonstrating the Enchantment of Modern Jinan	January 11, 2016				

Conclusion

1. In 2005, "Enforcement Scheme of Special Rectification for Damaged Mountains of Jinan City" was issued, launching the work of urban ecological restoration. 2. In 2012, "Urban Greening Regulations of Jinan City" was enacted proposing to start preparation of a dedicated planning for mountain protection. 3. In 2013, "Urban Green Space System Planning of Jinan City (2010-2020)" was approved implementation by the Municipal Government, which included the special plan for mountain protection. 4. In 2014, "Opinions on Accelerating the Works of Urban Mountain Greening" was put forward to carry out a three-year initiative to urban mountain greening and mountain parks construction. 5. In 2014, "Special Planning for Urban Mountain Landscape of Jinan City" was drawn up, which promoted the sustainable development of mountain parks construction.