

城市,让生活更美好

——安吉建设优雅竹城倡导低碳生活的行动

BETTER CITY, BETTER LIFE
—CONSTRUCTION OF A GRACEFUL BAMBOO
CITY & PROMOTION OF
LOW-CARBON LIFESTYLE BY ANJI

[ENGLISH VERSION]

安吉县人民政府

Anji county people's government

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Better City, Better Life Construction of A Graceful Bamboo City & Promotion of Low-carbon Lifestyle by Anji

1. Background

Anji city, with an area of 1,886 square km and a population of 450,000, is located in the northwest of Zhejiang Province, 220 km from Shanghai and 65 km from Hangzhou. In 2009, its local GDP reaches 2.3 billion U.S. dollars and per capita GDP reaches 5,065 U.S. dollars, which is 1.36 times that of China's per capita GDP. Its history can be traced back to 1825 years ago when the emperor of China bestowed the city with the name "Anji", from China's first poetry collection, "Book of Songs", meaning "an auspicious safe place".

Anji is a city surrounded by bamboos and has a bamboo area of 72,000 hectares, among which reserve of Mao bamboo totals 170 million. Nevertheless, the bamboo forest resource had not been fully utilized in the course of urban and rural development originally. In the past, Anji is only a dirty, disorderly and messy place harassed by obstructed traffic and economic poverty. Since entering into 21 century, propped by abundant bamboo biological resources, Anji government, by fully tapping its ecological advantage and highlighting the quality of rural and urban development, has built the city into a graceful bamboo city within ten years and formed a low-carbon lifestyle.

2. Action Description

2.1 Problems

© Slow urban development. Ten years ago, due to dearth of industry prop, lack of governmental financial strength and short of urban development funds, the city grew so slowly that the urban landscape remained shabby, the city function weak, urbanization level low and it couldn't boost the development of rural areas as expected.

© Lack of rural and urban infrastructure. Ten years ago, 80% of domestic water used by Anji residents was derived from rivers, all rural roads were muddy paths and no sewage treatment or trash collection and disposal plant existed. In particular, the industry sewage produced by factories was directly discharged into rivers, which caused severe water pollution. Public transport, medical care and educational institutions were deficient. Citizens complained about the difficulty or high cost in taking bus, getting medical treatment and going to school.

© Low income of the citizens. Ten years ago, the annual household income of Anji only reached 882

dollars, only sufficient for basic family outlay, not to mention better life facilities. The housings of the citizens were quite humble and far from secure. Only 30% of the housings were reinforced concrete structures.

◎ Wasted bamboo resources were. Ten years ago, bamboos were mainly used by Anji to build scaffold in construction or to produce simple manual articles for daily use. And only the trunks of them were utilized. The utilization rate of raw materials and their economic returns were quite low. Occasionally, excessive logging exposed the mountain area, causing soil erosion and bringing great damages to the natural environment.

2.2 Purpose of Actions

◎ Speed up urbanization, strengthen urban function, develop city to prompt villages and support the city by boosting the villages, stretch urban public services and infrastructure into rural areas so as to boost the joint development of urban and rural areas.

◎ Advocate low-carbon economy, increase governmental revenue and the income of the residents, enhance the investment in construction to improve urban and rural infrastructure, living environment and housing conditions of the residents.

◎ Launch environmental protection and "energy-saving and cost-reducing" acts, prompt low-carbon life and encourage the sustainable development of people with economy and environment.

2.3 Approaches

2.3.1 Landscaping and Beautifying the City With Bamboos

◎ With "celebrated city for bamboos, entertainments & mountains and rivers" as the goal, and starting with renovating space layout, reconstructing the landscape and guiding cultural life, the government landscaped the city with bamboos, exploited and utilized the mountain, comprehensively treated and tapped the river systems to fully construct a high-quality city.

◎ As fine ecological plants, bamboos can grow into useful timber only within three to five years. It has strong capacity to grow and regenerate fast. Carbon sequestration of one hectare of Mao bamboo is calculated to be 5.09 tons, which is 1.46 times that of fir and 1.33 times that of tropical rain forests. Extensively using bamboos to afforest the city not only highlights the distinguishing feature of the city, but also reinforces the city function of "green lung". For these reasons, Anji government landscaped the city with bamboos in an all-round manner on its mountains systems, water systems, streets and blocks and seeped bamboo organism deep into the city space. Its prioritized projects include three forest parks, six riverside bamboo sightseeing galleries, eleven communities in mountain areas, fifteen woody avenues and twenty bamboo constructions interspaced in the key nodes of the city.

◎ Improve the slow-moving system, construct pedestrian precincts and bicycle circuits and provide the supporting bamboo-made faculties such as lamps, chairs, potted plant, kiosks, telephone booths, toilets, litter bins, signage and so on.

◎ Bamboo charcoal and bamboo fiber processed from bamboo materials is ten times of charcoal in absorption ability and anions produced by them is quite strong in purifying air, deodorization and sterilization and urging blood circulation of human body. Therefore, Anji made clothing, towels, socks, shoes, bedding, carpets, curtains, masks, gauze, bamboo bags, furniture decoration and other bamboo charcoal and bamboo fiber products closely linked with people's daily life using abundant bamboo

resources, to serve as low-carbon and healthy life articles for numerous people.

◎ Further develop cultural facilities of the bamboo city by building China bamboo museum, China ecological museum branch expo of Hangzhou West Lake Expo and park featured by bamboo forest, set up international bamboo cultural forum and launch feature cultural exchanges on bamboo, tea, painting and calligraphy.

2.3.2 Exploitation of Bamboo City Functions

◎ Construct Recreation and Business District (RBD) in the centre of the city. By gathering up multiple functions such as commercial, office, finance, entertainment, leisure, residential functions, the city formed a high-end synthesis for city development to stimulate the vigor of the city. At the meantime and set up a RBD service centre.

◎ Build around-the-city recreation holiday resorts. It built many recreation chambers, agricultural sightseeing farms and holiday villas around the bamboo city to combine the landscaping function with its holiday and recreation function.

◎ Build international trade district for bamboo craft. By luring private capital, it constructed a large business with 500 acres to form the largest, most influential and comprehensive trade centre for international city bamboo craft in China, attracting about one million people from home and abroad for business, shopping, sightseeing or inspections.

◎ Prompt bamboo scenic spots. It built a China bamboo Expo Park with 1,200 acres to be the largest and most specific bamboo Expo Park worldwide, introduced four "pandas", and built it into the AAAA-level scenic spot. In 2009, it realized the tickets revenue of 1.8 million U.S. dollars. By using private capital, it also built scenic spots featured by bamboos such as "wide China forest sea", "world silver pit" and "a park with a hundred kind of grasses in the south of China" to form an ecological base for movies and televisions.

2.3.3 Environmental Protection of Bamboo City

◎ Cities and towns built five large sewage treatment plants. In the rural areas, the government took suitable measures such as advanced technologies like AquaMats, oxidation ditch, the wetlands, gas processing, and solar micro-power to build sewage treatment pools. And it even forcefully closed down and stopped some factories which can not conduct sewage treatment.

◎ Establish an environmental sanitary administrative organization covering urban and rural areas, set up 24 community waste transfer stations and conduct landfill or trash incineration treatment for power generation.

◎ Carry out works to save energy and reduce cost, fully prompt newly-built energy-saving technologies for constructions, renovate large buildings to save energy and restrict the temperature of the government (26 degrees Celsius). The government also earmarked 30% of the capital to encourage enterprises to upgrade electrical apparatus and citizens to use solar-power heaters.

◎ The government launched the policy of subsidizing 147 U.S. dollars with every hectare to encourage citizens to cultivate bamboo forest and plant bamboo in untilled mountains and lands to enlarge the bamboo area continuously. Implement license granting mechanism for logging off bamboos, and cutting bamboos systematically and selectively. Meanwhile, establish community forest protection team and law enforcement unit to protect bamboos, prevent or punish illegal loggings.

◎ It first instituted "Environmental Day" in China, conducted feature activities on 25th March every year and advocated nationwide environmental protections.

2.4 Achievements

2.4.1 Establishment of Bamboo City Has Played An Important Part in Environmental Improvement

◎ Anji has 75% of vegetation coverage, 71% of forest coverage, 40% of urban green coverage, 100% of industrial wastewater treatment rate, 90% of domestic sewage treatment rate and 98% of garbage collection & disposal rate. The air quality in Anji is kept in Class I around the year and the water quality always above Class II.

◎ Bamboo has been involved into the city construction and residents' life, forming a unique city image with bamboo clump in the park, bamboo band along the road, bamboo bonsai in the living room and offices, bamboo root carving and all kinds of bamboo building, bamboo crafts and sculptures.

◎ Bamboo ecosystem has been gradually recovered. Water and soil erosion has been controlled. The bamboo coverage has been expanded to 72 thousand hectares, increasing by 10.5% compared with the amount of 2000.

2.4.2 Establishment of Bamboo City Has Played An Outstanding Part in Economic Development.

◎ Bamboo tourism revenue accounts for 10% of GDP in Anji. The bamboo scenic spots, such as the landscape circle line of bamboo city, the Anji Bamboo Expo Garden featured with Bamboo Ocean, China Big Bamboo Sea, Mount Long Wang, the World Silver Pit and etc, are greatly welcomed by the tourists for the bicycle tour, solar lighting in the scenic areas and other low-carbon ways. Anji has received 5,540,000 tourists from home and abroad in 2009, and the ticket revenue has achieved 40,730,000 U.S. dollars. More than 1200 private bamboo restaurants or hotels in different scale owned by the residents have received about 420,000 tourists and have an operating income of about 26,470,000 in 2009 U.S. dollars. The income per capita of 18,000 residents from private restaurant or hotel proprietors has increased by 4,412 U.S. dollars in 2009.

◎ Anji has created 20% of China bamboo industry output by less than 2% of the China bamboo resources. Bamboo product has been developed into 7 series (sheets, weaving, bamboo fiber, crafts, medicine and food, biological product, bamboo processing machinery) and over 3,000 varieties, covering every aspect of resident basic necessities of life. The number of bamboo processing enterprises in Anji at present has increased from 10 in 2000 to 2,362 in 2009. The annual bamboo flooring is more than 20,000,000 square meters, accounting for one third of the bamboo flooring. More than 95% of the products are exported to over 30 countries and regions in Europe, United States and Southeast Asia. The output is increasing by 20% per year and has reached 1.647 billion U.S. dollars in 2009. 80% of the enterprises, concentrated in the industrial park in the city, have become the major driving force of the economic development of the city. At the same time, one third of the labor forces in Anji are engaged in bamboo-related job. One third of the incomes of the residents are from the bamboo industry. The bamboo industry has created 956 U.S. dollars of income increase for the local residents per capita every year, which has become the main growth of the family economy.

2.4.3 Establishment of Bamboo City Has Played An Outstanding Part in Improving the Livelihoods.

◎ The infrastructure in urban and rural areas has been gradually improved. Hard reconstruction has

been fully completed and the power grid has been fully reformed in the community. The accessing rate of the water supply network has reached 90%. The community health station, bus station, school and service center are completely accomplished. Street lamp, TV, telephones and information network are greatly popularized.

◎ The housing condition of the residents has been gradually improved. Affordable housing and public low-rent housing of 350,000 square meters has been built. The poor residents can enjoy the governmental housing security policy on a 100% basis. Under the leadership of the community planning, the residents with better economic conditions can improve their living conditions by new-built housing. The living space per capita has achieved 60 square meters. And all the housing buildings are of reinforced concrete structure, which made the housing security guaranteed.

◎ The residential environment in the urban and rural areas has been gradually improved. The government has made the residents living area a "garden" by greening of residential area, home and roads as well as water and mountain forest treatment. Residential park greenbelt per capita is 8.81 square meters. The greening system in the urban and rural areas has been reconstructed, providing a good place and environment for the residential leisure and body building. With the small town construction as a tie, 100 beautiful countries and elegant communities have been built in Anji by far.

◎ The beneficial residents have been gradually improved. The infrastructure and environmental construction completed or under construction of all the communities have directly benefited 432,000 residents, making the population benefit rate 96%.

3. Main Partners

3.1 Partner

◎ World Bank has participated in the Anji bamboo city comprehensive development project by funding 50% (10,040,000 U.S. dollars).

◎ Canada International Development Research Center has funded 44,000 U.S. dollars as the initial capital of the Anji bamboo museum project.

◎ Prince Charitable Foundation and Construction Environment foundation have chosen Anji as the low-carbon community construction pilot.

◎ Local enterprises have funded 117,650,000 U.S. dollars for the project of Anji International Bamboo Crafts Shopping Mall as partners with the government.

◎ The residents has funded 16,090,000 U.S. dollars, taking part in the city landscape circle line, modern science and technology park of Mao bamboo, bamboo fast-growing and high-yield plantation base and the bamboo production areas of improved varieties

3.2 Technical Support

◎ LAY-OUT Planning Consultants LTD in Shenzhen has been consigned to draft Urban Design of Anji Elegant Bamboo City and Five-Year Plan of Anji Elegant Bamboo City in 2005.

◎ China bamboo R&D Center has participated in the R&D of Anji bamboo city construction and

bamboo industry.

◎ Many international and domestic experts and scholars have put forward opinions and suggestions. They are Gu Zhen, Hu Zhiming, Lou Yiping, Zhang Shougong, Cai Denggu, Li Zhiyong, Wang Quandong, Chen Ninghe, Wang Kuihong, Peng Zhenhuai, etc.

3.3 Social Support

◎ The community is responsible for leading and organizing the residents to take part in the bamboo city construction and community environment management.

◎ Local enterprises take initiative in participating and funding in the major construction projects and every kinds of commercial promotion activities in order to support the government.

◎ The local banks put forward "forestry property" mortgage loan products in order to support the local residents in funding the urban and rural construction.

◎ The retired workers and primary & middle school students consciously take part in the bamboo city construction and ecological protection activities.

4. Influence

4.1 The Popularity and Overall Image of Anji Have Been Enhanced.

◎ The activities of building an elegant bamboo city and proposing low-carbon life in Anji have grabbed the eyes of many cities at home and abroad. Since 2005, delegations from over 50 cities per year have come to Anji for visiting and investigation.

◎ Anji bamboo city construction and bamboo construction materials development have been widely publicized through Shanghai EXPO. A large number of visitors hold a strong interest in the bamboo materials in Anji. As a recommended travel line of EXPO, about 50,000 visitors have chosen to Anji.

◎ Because the rich bamboo resources and good cultivation, Anji has got No. 1 in the competition of "bamboo home in China". As a leader in the bamboo flooring industry around China, Anji has been awarded the "capital of bamboo flooring in China" by China Light Industry Federation and China National Interior Decoration Association in August, 2006.

◎ More and more foreign residents come to Anji to experience the urban ecological charm featured with "bamboo ecology". Since 2005, the number of tourists has increased by 15% per year. In 2009, Anji has received 5,540,000 tourists at home and abroad.

4.2 Widely Recognition Has Been Got Among the Residents.

◎ After the project implementation, local residents and tourists generally agree that the ecological environments are better and the bamboo characteristics are distinctive and they all would like to travel regularly to Anji.

◎ Anji bamboo products are natural and environmental-friendly, beneficial for health and are welcomed by residents from the world.

◎ After the project implementation, about 1,200 families directly have benefited from the bamboo city

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construction and bamboo industry and remarkably improved the economic condition. During the past 5 years, the number of residents purchasing houses and cars has increased by 30% per year.

5. Sustainability

5.1 Institution Security

◎ Government institutions. Anji Building Elegant Bamboo City Promoting Committee has been formed to take charge of the bamboo city planning, construction and management. The main government principals take the leadership and the related units and communities are the members. Five-Year Plan has been set up. Construction evaluation is conducted every year in order to adjust the development thought in time and optimize the construction measures so as to take the lead of the 450,000 residents in Anji to create a better life.

◎ Local institutions. Anji Bamboo Ecological Environment protection Association is formed by the forestry departments, environment protection departments, construction departments, retired workers, primary & middle school students and local citizens who love the environmental protection with broad participation in the bamboo city construction and ecological protection activities.

5.2 Laws and Regulations Security

◎ General Developing Plan of Anji has been formulated and implemented in June, 2000.

◎ Five-year Action Plan of Elegant Bamboo City of Anji and Implementation Guideline of the Constructions of Elegant Bamboo City of Anji have been formulated and implemented in March, 2005.

5.3 Financial Security

◎ The government invests an average annual financial fund at 176 million U.S. dollars into the constructions of elegant bamboo city, including constructions of community infrastructures, improvement of residential housing and landscaping of community.

◎ The government invests an average annual financial fund at 1.67 million U.S. dollars, exclusive for the planting of bamboo, technology development of bamboo industry and promotion of bamboo products.

5.4 Values Security

◎ Increasingly, more and more residents have voluntarily participated in the construction because they have recognized that the construction of bamboo city and ecological protection would bring elegant life style with low-carbon and better environment.

◎ An increasing number of people have come to know that, as the best representative of low-carbon and recycling economy, bamboo industry is a rising industry with a very broad development space, so more and more residents are taking up jobs in bamboo industry.

6. Popularization

6.1 An "Anji Mode" of Bamboo Beautification and Use in Chinese Cities to be Formed

◎ In 2010 Shanghai World Expo, 200 bamboo products from Anji were presented; and Joint Pavilion of International Organizations took Anji as the only model to present the successful experience of how bamboo industry eliminates poverty and improves the environment; and the bamboo materials used in the bamboo houses

in India Pavilion, Indonesia Pavilion and Madrid Pavilion all came from Anji.

© In May, 2010, Anji made a keynote speech in International Bamboo and Rattan Conference in Shanghai which affirmed Anji's outstanding contributions in protection, use and exploitation of urban bamboo resources. The mode was called by the conference as Anji Mode and would be promoted in the whole world.

© Anji receives over 10 thousand visitors and training staffs from home and abroad annually, among which it received and assisted to hold 32 international bamboo training classes for International Organization of Bamboo and Rattan, involving more than 1,000 trainees from over 50 countries. And Anji was awarded "INBAR Training Center of Bamboo Industry" and "INBAR Exhibition Center of Bamboo Products" in the year of 2007.

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6.2 A Material Significance of Popularization and Reference

© During 2008 Beijing Olympics, Anji bamboo furniture was admitted to be used in IOC headquarter because of its conformance with the Olympic Ideas of "Green, Humanities, Science and Technology", and even Anji bamboo mosaic flooring was adopted in sports venues.

© Cooperate with related bamboo production regions. Establish cooperation with China's bamboo production regions like Fujian, Hunan, Anhui and Jiangxi via technology export and capital cooperation, and consequently drive the development of bamboo industry of these regions.

6.3 Affirmed And Popularized by Experts from Home and Abroad

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7. Innovation

7.1 Innovative Ideas of Lifestyle

© New life philosophy of low-carbon and environment-friendliness is in line with the spirit of the Declaration of the Copenhagen General Assembly.

7.2 Innovation of Protection Ideas

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planting bamboo forests and importing bamboo materials from other regions.

◎For the problem of produced water aroused by the development of bamboo industry, city sewer network or local building sewage treatment pond are utilized to thoroughly solve the issue.

7.3 Innovation of Exploitation Technology

◎Take experiment to explore related relevant standards of bamboo constructions and earthen constructions, making great contributions to modern bamboo buildings and earthen buildings.

◎The constructions of Bamboo City has featured a support from a multiplication of scientific and technological innovation, researched and developed over 2,000 globally leading application technologies of bamboo, bringing about the "Anji Standards" of bamboo ecological application.

◎Anji has researched and developed independently bamboo production machinery, which has led to numeric control machinery that matches all bamboo products, offering technical support to bamboo processing industry both home and abroad.

7.4 Innovation of Financing

◎Take government-led diversified investment mode instead of investment pattern run by government only, arousing private enterprises and residents to achieve mutually beneficial win-win goal.

7.5 Innovation of Management Mechanism

◎Establish a management mechanism that government agencies, research institutions, businesses and community residents co-participate in the constructions of Elegant Bamboo City.

8. Cognition

8.1 Media Coverage

◎Urban World of UN-Habitat presents to the whole world the works Anji has taken to promote human and economic, environmental and sustainable development by urban bamboo industry.

◎China's Xinhua News Agency, CCTV, People's Daily and other national news media have reported for times about Anji "urban bamboo works".

8.2 Honors

◎Anji has been awarded National Healthy County, China Habitat Environment Award, National Ecological County, National Garden County, National Green County, China Habitat Environment Award consecutively.

8.3 Recognition from Professional Agencies

◎In May 2010, Chinese Ministry of Forestry completed the construction of the world's first carbon observation tower for Mao bamboo wood, mainly for observing and recording carbon sequestration function of Mao bamboo forest.

◎Anji bamboo exposition garden was officially named as Chinese National Base for Public Science

Education, and was honored with the 1st Liangxi Science Popularization Awarded by China's Forestry Academic Conference.

◎ Anji's projects of "Key Technologies of Charcoal Production and Application Mechanism and Relevant Products Development" has been honored with Second Place of National Science and Technology Progress Award in the 2009 State Science and Technology Award Conference.

◎ Anji's project of "Integration and Innovation of Key Technologies of Intensive Bamboo Processing " has won the First Place of the 9th Award of Flourishing Forestry by Science and Technology in Zhejiang Province.

8.4 Recognition from Leaders and Experts

◎ Xi Jinping, China's Vice Chairman, believed that "Anji is famous for its bamboo, therefore it should do a good job in bamboo field, taking further development in feature industry for which the prospects are promising".

◎ Jiang Zehui, Party member of the State Forestry Administration, dean of Chinese Academy of Forestry and co-chairman of INBAR, assumed that "by constructions of bases, Anji has improved greatly its management level and raised its economic efficiency rapidly; meanwhile, it turns the park into a tourism and entertaining destination for modern agriculture tourism to make it a true demonstration base for bamboo planting and a tourism park for visiting, not only enhancing the forestry efficiency and incomes of foresters, but also setting an example for the development of national Forest and Entertainment".

◎ Professor Zhu Zhaohua, life fellow of INBAR and former deputy general director, believed that "Anji's bamboo industry represents the highest level of the world and development direction, especially the harmonious development between integrated use of raw materials and industry. The industrious and practical spirits of Anji people, beautiful living environment, advanced awareness of environmental protection, and the works that government has done for enterprises and residents engaging in bamboo industry are impressive."