Key Techniques in the Management of Moso Bamboo Carbon Sink Forests

1. Title

Key Techniques in the Management of Moso Bamboo Carbon Sink Forests

2. Background

Initiated in 2013 and based on the scientific research results of a National 11th Five-Year Science and Technology Supporting Project, the project was sponsored by the Agricultural Scientific and Technological Results Commercialization Funds of the Ministry of Science and Technology of China. Through maturation and demonstration of techniques, the project produced this representative case of "Key Techniques in the Management of Moso Bamboo Carbon Sink Forests".

3. Project Implementation Period

From September 2013 to October 2015.

4. Implementation Phase

After the project was initiated in July 2013, the project team identified low-productivity, low-efficiency moso bamboo forests and landscape bamboo forests in Huangshan City, Anhui Province and Jinggangshan City, Jiangxi Province respectively to use as sites for technique maturation. Demonstration plantations of 525 *mu* and 511 *mu* were built respectively at Yanghu Forest Farm, in Huangshan District, Huangshan City, Anhui Province and in Jinggangshan City, Jiangxi Province. A series of experiments to improve techniques were conducted, including density regulation, age structure adjustment, model selection, fertilization, zero tillage and harvesting period extension, further adding to the completeness of the techniques for demonstration. On the basis of the implementation efforts, a set of technical

specifications for the management of moso bamboo carbon sink forests were developed.

5. Implementing Stakeholders

International Centre for Bamboo and Rattan; Yanghu Forest Farm of Huangshan District, Huangshan City, Anhui Province; Baizhu Bamboo Garden of Jinggangshan City, Jiangxi Province.

6. Beneficiaries

Yanghu Forest Farm of Huangshan District, Huangshan City, Anhui Province; Baizhu Bamboo Garden of Jinggangshan City, Jiangxi Province.

7. Total Funds and Sources

The project had a total fund of 600,000 RMB, all of which came from the state.

8. Supporting Funds and Sources

None.

9. Project Level

National level.

10. Effects on Climate Change Mitigation and Adaptation

The project centers on the global hot issue of the role of forests in atmospheric carbon budget and global carbon cycle. A study was conducted to explore appropriate density, soil management practices and harvesting schemes for low-productivity, low-efficiency moso bamboo forests and landscape bamboo forests, and to mature and improve the key techniques in the management of moso bamboo carbon sink forests. An appropriate model for the management of such forests was selected and then adopted in demonstration, which effectively

improved bamboo forests' carbon sequestration performance, increased their carbon storage, bettered their ecological functions, improved the stability of their ecosystems, and contributed to an increase in the production of bamboo materials. During the course of study and demonstration, technical specifications were developed to lay out methods and measures to be employed for the management of moso bamboo carbon sink forests. The specifications enabled better guidance of the building of carbon sink forests and represented high level of overall techniques in China.

11. Social, Economic and Environmental Effects

The project studied low-productivity, low-efficiency moso bamboo forests and landscape bamboo forests with objectives to increase their carbon storage and improve their economic production, giving full play to bamboo's advantages of fast growth, good overall performance, high carbon sequestration capacity and sustainable utilization. In addressing the difficulty in balancing economic productivity and ecological functions in managing bamboo forests, the project systematically matured, improved and integrated techniques involved to develop a system of techniques for the management of moso bamboo carbon sink forests. In the process, 1036 *mu* of demonstration moso bamboos were planted with an added economic gain of 609,000 RMB and sequestrated carbon worth 7.86 million RMB. The techniques the project matured had a radiant effect on 10,000 *mu* of bamboo forests, producing an added economic gain of 3,092,800 RMB. In the duration of the project, a set of technical specifications was developed, 266 production technicians and 18 technical professionals were trained, and 1 postgraduate student of a master's programme was involved. The project produced economic, ecological and social benefits and was well received by local forest farms and farmers.

12. Accompanying Photos and Charts

Bamboo forest structure before the improved techniques were applied

Bamboo forest structure after the improved techniques were applied