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Strategy and issues of ecological grass construction in Jilin province

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Key words :Jilin province ,ecological grass construction ,strategy ,existing problem

Introduction Ecological grass is conservation and restoration of vegetation through combination of grasses, shrubs, and trees, both natural and artificial, to improve ecosystem functions and environmental conditions in the areas of severe sandification, alkalization and degradation. Based on ecological principles, ecological grass construction includes a series of engineering approaches such as prohibiting grazing and other human activities on desertification grassland through enclosure and fences, planting shrub and sowing grass, and promoting development of understory vegetation, to control and manage desertification. The total area of desertification has reached $0.7 \times 10^6 \text{ hm}^2$ in western Jilin, which significantly reduces productivity of farmland and grassland (Yanchun Liu 2007). Ecological grass construction may have potential to significantly reduce degradation and salination of grassland that has been a severe issue in environment management of Jilin Province.

Material and method Analysis was based on the field reconnaissance survey of ecological grass construction project in Changling, Qianan, Qianguo and Tongyu County, western parts of Jilin Province, interview with local farmers and foresters, and review of existing literature. Problems and issues were identified and strategies were proposed to improve ecological grass construction in Jinli Province in this paper.

Results

Development of ecological grass construction The action "Converting Thousands of Desertification Land Into Greenland" was initiated by the Forestry Department of Jilin Province in 2000, as a major step for ecological grass construction. Prominent achievements in the control and management of desertification has been made since then. By the end of 2006, total accumulative investment reached 0.3 billions RMB and over fifty thousand people took part in ecological grass construction through various ways. About 410,000 ha ecological grass land has been constructed and covered over 62% of severe desertification land. The total vegetation cover in Jilin Province has reached 44%, after establishment of 33 natural conservations with a total land cover of 2,217,900 ha. The ecological grass construction has contributed to the increase of vegetation cover, biodiversity, biomass, and organic matter, nutrition and moisture in the soil, and reduction of salination soil. Desertification has been reversed.

Issues in ecological grass construction Despite of significant achievement, ecological grass construction is still low in species diversity, and lack of high quality species and variety and quantitative results for further scientific evaluation. Local residents sometimes did not pay adequate attention to ecological grass construction such that inappropriate use of rangeland such as grazing on prohibited land or overgrazing still occurs. There is a level of risk that restored grassland through ecological grass construction degrades again. Production of high quality forage is at a lower level.

Strategies to improve ecological grass construction According to the objective of achieving ecological Province in Jilin, efforts need to be made to accelerate ecological grass construction through sustainable development, greater control of desertification, sandification, alkalization and degradation of grassland, and increases of vegetation cover and use of science and technology. We suggest decision and policy makers to enhance public awareness and education of ecological grass construction through various media and more intensive propaganda and to secure funds from various sources. Legislation should also be made to protect ecological grass construction from illegal grazing, releases of waste materials, water, and gases, and destructive use of land, to ensure the responsibility and benefits of stakeholders, and to support science-based engineering approaches for ecological restoration of grassland (Jingmin Shang 2003). Some of the focused areas can include development of high quality forage variety, establishment of seed orchards for high quality species and varieties, introduction of high quality variety and culture techniques, and increase of commercialization and economical scale on ecological grass construction (H.Y. Ni 2006).

Conclusions Ecological grass construction has played significant roles in restoration of ecological function of grassland in Jilin province. Despite of great achievement, some issues exist and must be addressed to order to achieve the objectives of ecological grass construction. Ecological grass construction may provide a platform to meet the needs of community energy, economic and social development, and ecological restoration on sustainable basis.