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Research on the Primary Techniques and Their Effectiveness of Controlling Desertification in the East Sandy Land of Qinghai Lake

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Desertification around Qinghai Lake is a serious and urgent problem, it is peculiar and important to control for restoring alpine ecosystem. Taking measures to prevent the available land degradation is key to the social and economic development. Under these recent 5 years sand controlling work and experimental observations, some practical controlling technique systems are concluded and verified by general protective effects. Mechanical barriers mainly including straw-checkerboard and linear belt types play a pioneering and fundamental role in stabilizing moving dunes and preparing for transplanting. A 1.5 meter interval is the best and most widely applied size for its good wind and sand prevention [U+FF08]R3>0.9[U+FF09] and lowest costs[U+FF08]R6>0.7[U+FF09]. Upright vegetation sand fences made of Salix cheilophila and Chinese tamarisk have always been applied to the windward slope of some semi-stabilized dunes or road sides for their excellent sand-fixing and Soil improving effects (R3>0.95, R5>0.5). Afterwards, some suitable vegetation, such as Hippophae rhamnoides and Salix cheilophila, will be transplanted to the sand to form artificial forests. This afforestation method has the best general ecological effects and promotes the basic function of improving ecology system and social development (R>0.58). These three controlling models have been optimized for inner structures and will be promoted throughout the alpine regions.