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摘要

随着物质文化和生活水平的不断提高，人们对居住区舒适性提出了越来越高的要求，以往对噪声污染问题并不关注的乡村地区的居民，对噪声污染控制的需求也在不断的增加，乡村噪声污染问题日渐凸显。在过去的乡村环境建设中，对于声环境的重视程度远远不够，只有在发现环境噪声超标时，才会对区域声环境进行治理。美丽乡村建设中，如何营造舒适、良好的乡村声环境是亟待解决的重要问题之一。

长三角地区由于经济发展较为迅速，长三角富水乡村将承载越来越多的休闲养生方面的需求，这对乡村环境就有着很高的要求。本文选取了两个长三角典型富水乡村作为主要研究对象，在理论研究的基础上，从实地调研入手，尝试用RAYNOISE声学仿真软件对乡村声环境进行模拟预测，提出可行的乡村声环境规划与控制方法。最后，结合乡村中水景、绿化等声景观设计，营造出自然舒适的乡村声景观，为富水乡村声环境设计提供参考依据。

本论文共分为七章：

第一章为绪论，介绍课题的研究背景，明确研究的目的与意义，界定研究内容和研究范围，综述该研究内容国内外研究现状和相关理论，从而提出研究的主要内容和方法，并系统的分析了富水乡村声环境的现状和发展，进而阐释了富水乡村声环境控制的重要性。

第二章为富水乡村声环境评价方法与标准，详细介绍并探讨了关于富水乡村声环境如何评价的标准与评价方法，为乡村声环境的现场测量奠定了基础。

第三章为乡村声环境实地调研，首先对涧东村和黄公望村两个调研地点和调研方法进行了详细说明，然后对村庄内的声环境进行了布点测量，通过实地测量得到大量声环境的客观物理数值，充分了解了村庄声环境现状和可能存在的问题。

第四章为富水村庄声学模拟分析，根据村庄实际情况建立村庄三维模型，结合实际测量结果，用RAYNOISE声学仿真软件进行声学仿真模拟，利用实测结果对声学仿真模型进行校验，验证模型的有效性。

第五章为富水乡村声环境规划与控制策略探讨，先给出富水乡村常见的声环境规划控制措施，并对富水乡村中的水环境对声环境的影响进行了声学仿真软件中的模拟分析，揭示了乡村中水环境对声环境的影响。

第六章从富水乡村声景观设计的方面提出乡村声环境优化与设计策略。

第七章为总结与展望，对研究课题进行了总结，并对今后的研究工作进行了展望。

**关键词：**富水乡村，声环境，噪声，模拟，预测

Abstract

With the improvement of the living standard, people put forward higher and higher requirements on the comfort of residential areas, so the demand for noise pollution control is increasing, and the sound environment problems increasingly highlight in the countryside. In the past countryside environment construction, the attention to the acoustic environment is far from enough. Only when the ambient noise is exceeded, will the acoustic environment be control. How to create comfortable, quiet and healthy living environment in the beautiful countryside construction has become a vital research subject.

As a result of rapid economic development in the Yantze River Delta region, the water-rich villeges in this area will carry more and more leisure and health needs which has very high demand for the villege environment. This paper selects two typical villages as research objects from the Yantze River Delta region in the east of China, combines with theoretical survey and field research, systematically and deeply studies the countryside acoustic environment of water-rich villeges, tries to use RAYNOISE acoustic simulation platform to simulate the countryside acoustic environment, put forward feasible countryside acoustic environment planning and control methods. At last, combined with water, plant and other soundscape design to create a natural and comfortable countryside soundscape which can provide reference for acoustic environment design in water-rich village.

There are seven chapters in this paper:

Chapter 1 is introduction. Recapitulative expatiating the background of this paper, clearing the purpose and significance of the study, defining the content and the scope of this study, summarizing the current research situation and related theories at home and abroad so as to put forward the main contents and methods of the study. And systematically analyzed the present situation and development of acoustic environment in water-rich village which can explain the importance of noise control in water-rich villeges.

Chapter 2 is to bring forward the thesis of this paper. Introducing the evaluate standards and correlation captions of acoustics of acoustics environment in rural areas, and laying the foundation for the field measurement of the countryside acoustic environment.

Chapter 3 is field measurement about the two main villages of this paper. Via to spot test living area noise and main traffic noise in “Jiandong” and “Huang Gongwang” village, to evaluate status of acoustic environment in the villages and to analyze problems existent.

Chapter 4 is acoustic simulation analysis of water-rich village. At first, eatablishing the three-dimensional model according to the actual situation of the village. Then using RAYNOISE acoustic simulation platform to simulate, combined with the actual measurement results to verify the accuracy of the acoustic simulation model.

Chapter 5 is discussion about acoustic environment planning and controlling strategy in water-rich village. Via to analyze the traditional method of acoustic environment planning and controlling, to find out the better ways of controlling about acoustic environment in water-rich villages. And the influence of the water environment on the acoustic environment in the water-rich village was simulated and analyzed in the acoustic simulation platform.

Chapter 6 is putting forward acoustic environment optimization and design strategy of country environment from the aspects of soundscape design.

Chapter 7 is the conclusion of this paper. The aim is to find out the principle and measure in planning and designing to ensure feasibility of quality about acoustic environment in water-rich village.

**Keywords:** water-rich village, acoustic environment, noise control, simulation