

## 沼气建设的综合效益——系统动力学在沼气建设上的应用

### COMPREHENSIVE BENEFIT OF BIOGAS CONSTRUCTION——AN APPLICATION OF SYSTEM DYNAMICS IN BIOGAS CONSTRUCTION

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英文关键词: system, system analysis, energy resource, rural energy, biomass energy

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作者	单位
顾树华	清华大学
王革华	中国农业工程研究设计院

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中文摘要:

沼气建设具有广泛的效益。用系统动力学模型分析沼气建设的综合效益可以得到定量结果。本文以一个县的沼气建设为例,对于20年内总投资5400万元发展沼气带来的多种效益进行了动态模拟。结果表明,发展沼气不仅能解决农村能源的短缺,而且是促进农村经济改善生态环境的重要环节。文章还比较了不同投资方案的模拟结果。系统动力学的分析结果可使我们定量形象地认识沼气建设的综合效益以及效益变化的动态过程和趋势,为制定发展政策提供有价值的参考。

英文摘要:

The development of biogas can gain widespread benefits. Quantitative results can be obtained, with the help of analysing comprehensive benefits of biogas construction by means of System Dynamics Model. In this paper, various benefits brought about by the development of biogas, of a total of RMB 54 million yuan investment in a county lasting 20 years, are simulated dynamically. The results indicate that developing biogas can not only solve the shortage of rural energy but also is an important factor in advancing rural economy and improving ecological environment. The simulation results for different investment schemes are also compared in this paper. The analysis results by System Dynamics can make the comprehensive benefits of biogas construction and the dynamical process and the tendency of the benefits variance understood quantitatively and lively, and give a worthwhile reference for making development policy.

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服务热线: 010-65929451 传真: 010-65929451 邮编: 100026 Email: tcsae@tcsae.org

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