

## 基于完全信息动态博弈的反恐设施选址模型

韩传峰, 孟令鹏, 张超, 孔静静

同济大学 城市建设与应急管理研究所, 上海 200092

### Location of terror response facilities based on dynamic game of complete information

HAN Chuan-feng, MENG Ling-peng, ZHANG Chao, KONG Jing-jing

Institute of Urban Construction and Emergency Management, Tongji University, Shanghai 200092, China

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**摘要** 针对反恐设施选址问题, 考虑反恐设施点准备时间及反恐物资的运送时间对核生化恐怖袭击损失的影响, 构建完全信息非合作动态博弈模型. 讨论连续选取单个设施点和离散选取多个设施点的不同情形, 应用遗传算法求解子博弈精炼纳什均衡. 以上海市区县网络为例的仿真结果表明, 交互式设置反恐设施点和减小反应时间均能有效减小袭击损失, 并随设施点增多, 损失减小幅度趋缓. 该模型反映了政府与恐怖组织间的战略交互, 为反恐设施选址提供了一种有效的分析方法.

**关键词:** 恐怖袭击 设施选址 完全信息 博弈论

**Abstract:** Contraposed to the characteristic of location problem for the terror response facilities, we consider the responding time and the carrying time synthetically, taking full account of the loss caused by nuclear and biochemical terrorist attack and set up a noncooperate game model. One and fixed number of facilities are considered respectively, and the Nash equilibrium is given synchronously using genetic algorithms. A case study of Shanghai district shows that loss of the government could decrease efficiently by both establishing terror response facilities interactively and reducing the reaction time, and the more the facility quantity increases, the slower the slope becomes. This model reflects the strategy interaction between the government and the terrorists and is an effective method for facility location of terror response facilities.

**Key words:** terrorist attacks facility location complete information game theory

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**作者简介:** 韩传峰(1962-), 男, 山东寿光人, 博士, 教授, 博士生导师, 研究方向: 管理系统与系统工程, 城市建设 与应急管理, E-mail: hancf@tongji.edu.cn.

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地址：北京中关村东路55号 100190 电话：010-62541828 Email: xtl@chinajournal.net.cn

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