



# 2021「中技社科技獎學金」

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國立臺北科技大學環境工程與管理系

永續創新與評估中心

### Sustainable Solid Waste Management Strategies and Implementation Framework for Vietnam

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#### Introduction and research's objectives

Waste pollution is getting more and more serious in Vietnam. Government organizations, researchers and non-governmental organizations are urgently looking for solutions to solve this crisis. Effective waste management is proper controlling of all activities and actions from generation till disposal. Besides, it also reduces the negative impact of waste pollution on human health and the surrounding environment. Therefore, this study set out several objectives to find the complete solution. First, develop an implementation framework for municipal solid waste management in Vietnam which is suitable for each locality on the basis of maximizing strengths and minimizing weaknesses. Second, assess and optimize the strategy of municipal solid waste management based on pilot models in different types of urban areas of Vietnam. Systems thinking approach will be applied to find out the complex relationship of each and every factor that affects waste management implementation

#### Methodology

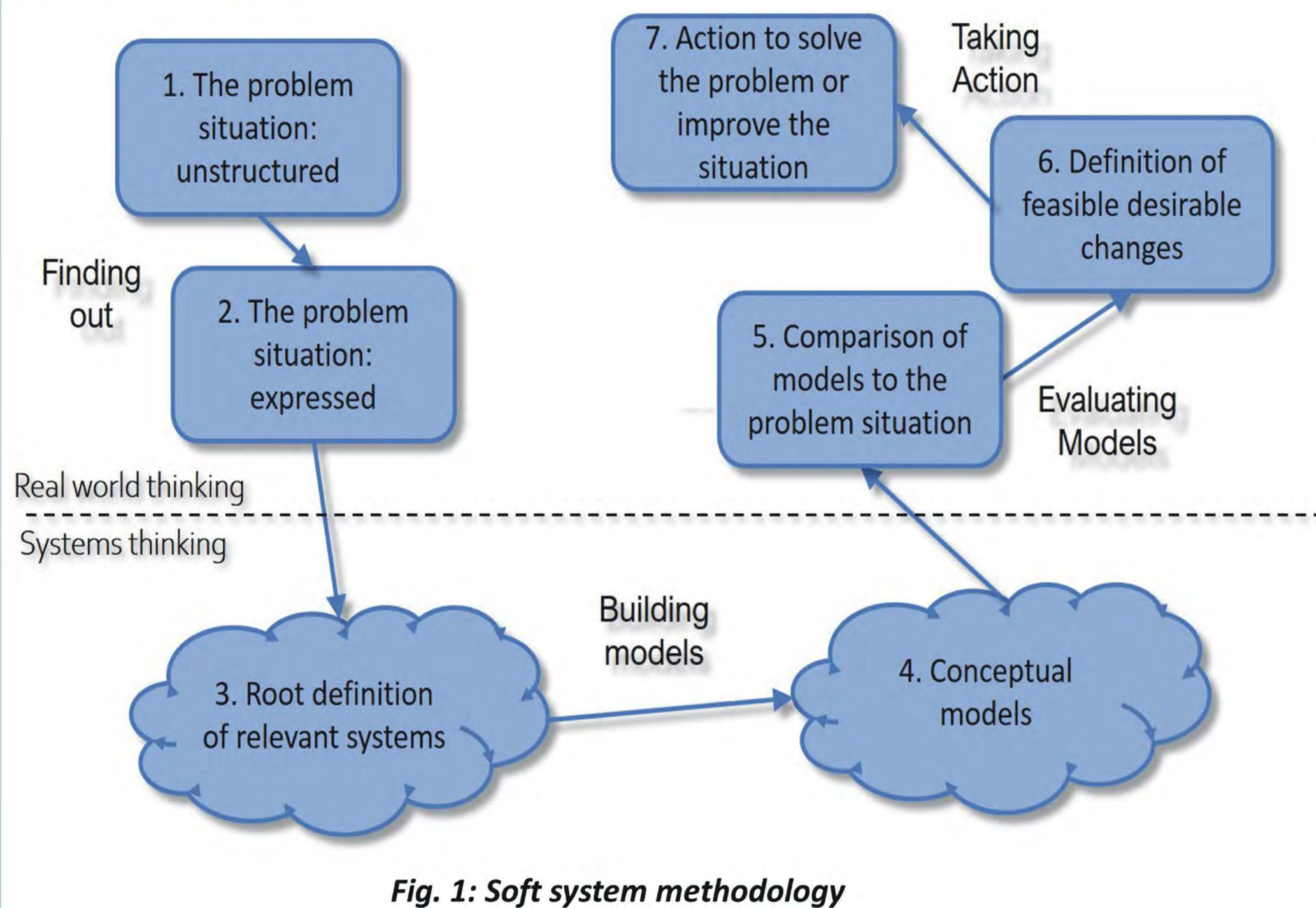


Fig. 1: Soft system methodology

#### Research experiences

- Deforestation and forest degradation (2012-2013)
- Water sampling and analysis (2013-2016)
- Sustainability of Agriculture (2015-2016)
- Life cycle assessment (2016-present)
- Solid waste management (2020-present)

#### Research publications

- Trinh, L. T. K., Hu, A. H., Lan, Y. C., & Chen, Z. H. (2020). Comparative life cycle assessment for conventional and organic coffee cultivation in Vietnam. *International Journal of Environmental Science and Technology*, 17(3), 1307-1324.
- Trinh, L. T. K., Hu, A. H., & Pham Phu, S. T. (2021). Situation, Challenges, and Solutions of Policy Implementation on Municipal Waste Management in Vietnam toward Sustainability. *Sustainability*, 13(6), 3517.
- Suppapat, S., Hu, A. H., Trinh, L. T. K., Kuo, C. H., & Huang, L. H. (2021). A Comparative Life Cycle Assessment of Toothpaste Cream versus Toothpaste Tablets. *Sustainable Production and Consumption*.

#### Results

In the first stage of project, a research was conducted to ascertain the situation, limitations, and challenges in implementing solid waste management policy in Vietnam.

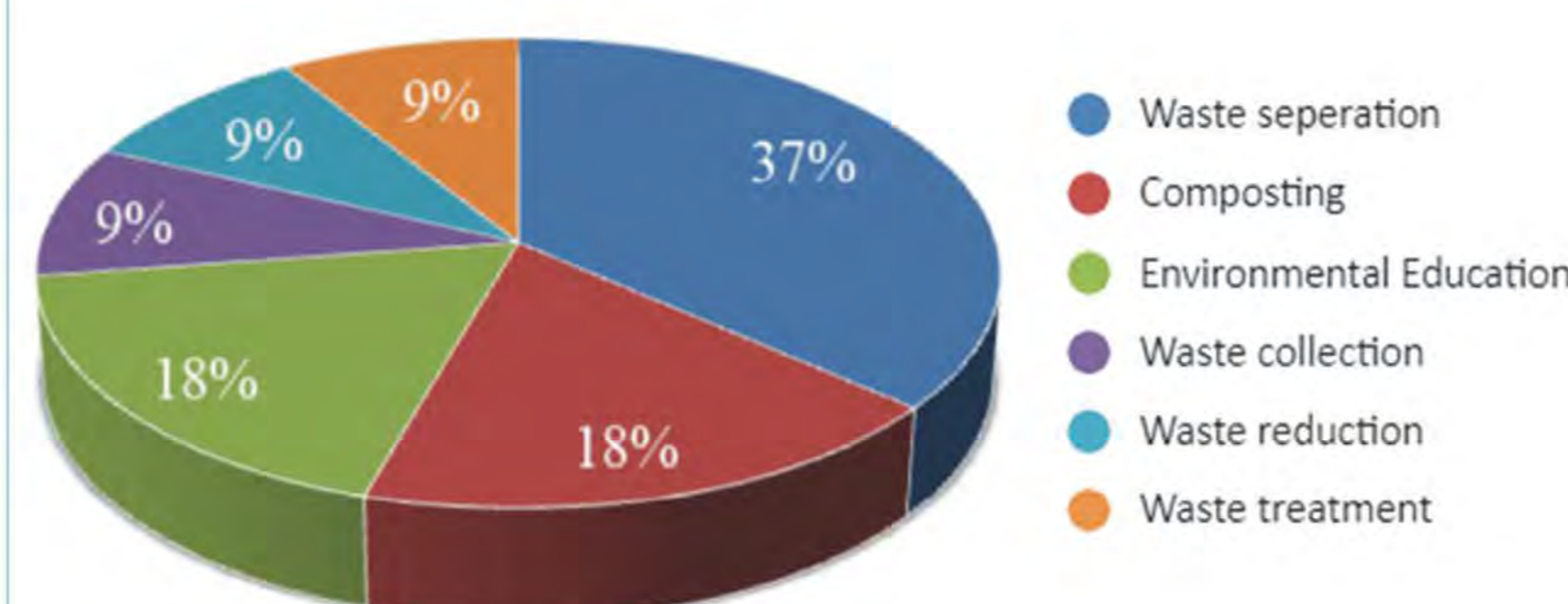


Fig. 2: Waste management concerns in Vietnam.

Waste separation is also the foremost concern in municipal waste management in most localities of Vietnam.

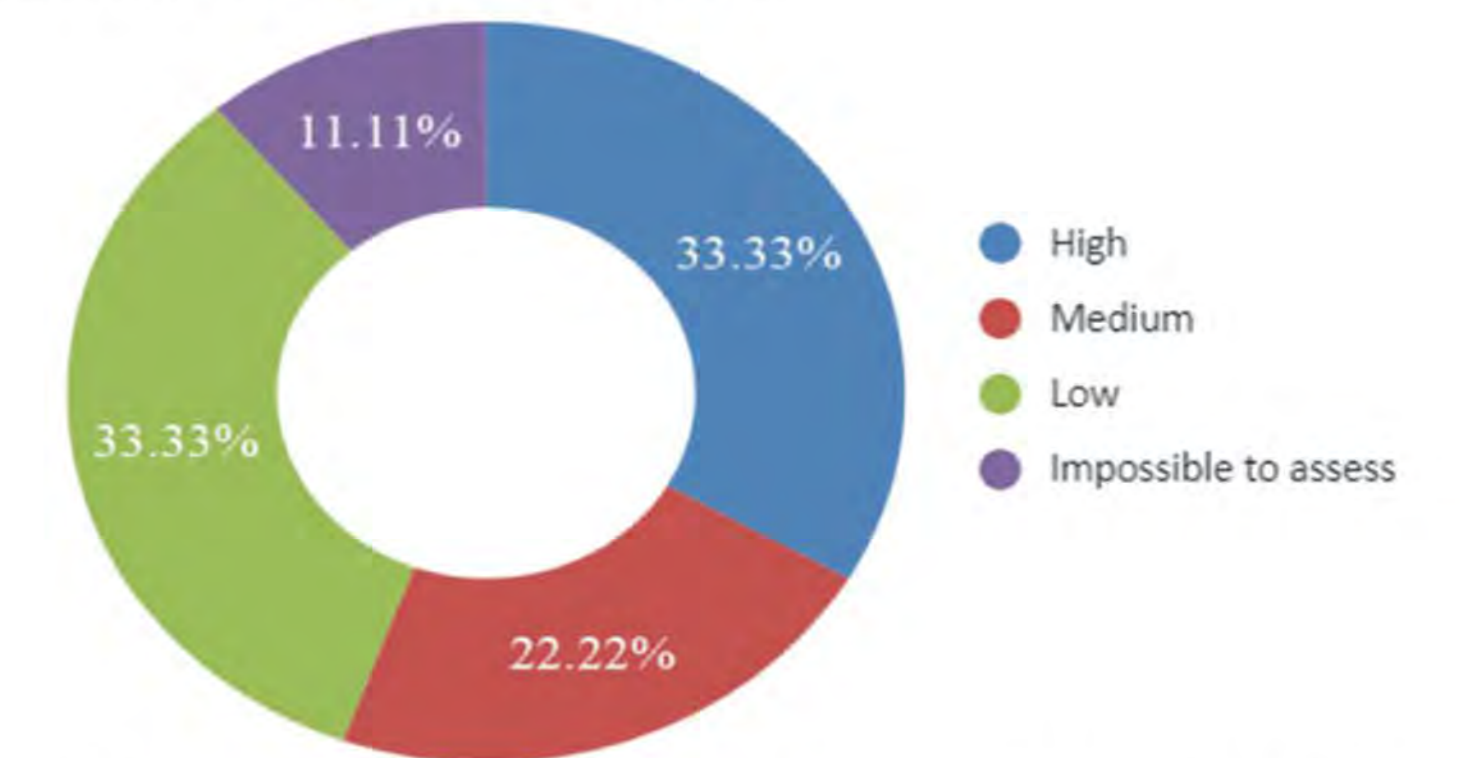


Fig. 3: Effectiveness of policy enforcement in cities in Vietnam.

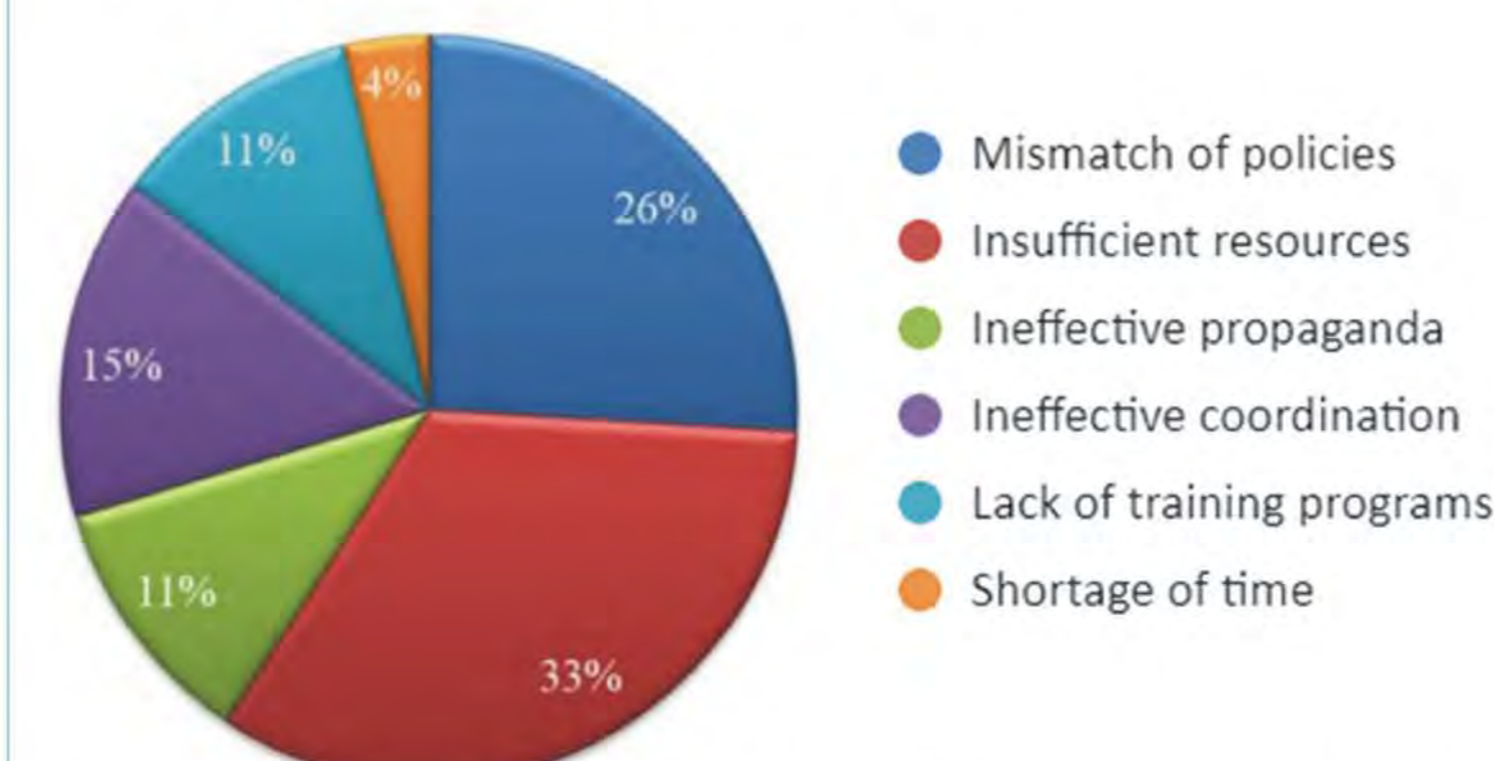


Fig. 4: Limitations and barriers of the policy implementation.

The results show two main imitations and identify the major barriers that localities face, including the unrealistic nature of policies and lack of resources, which account for 26%, 33% respectively.

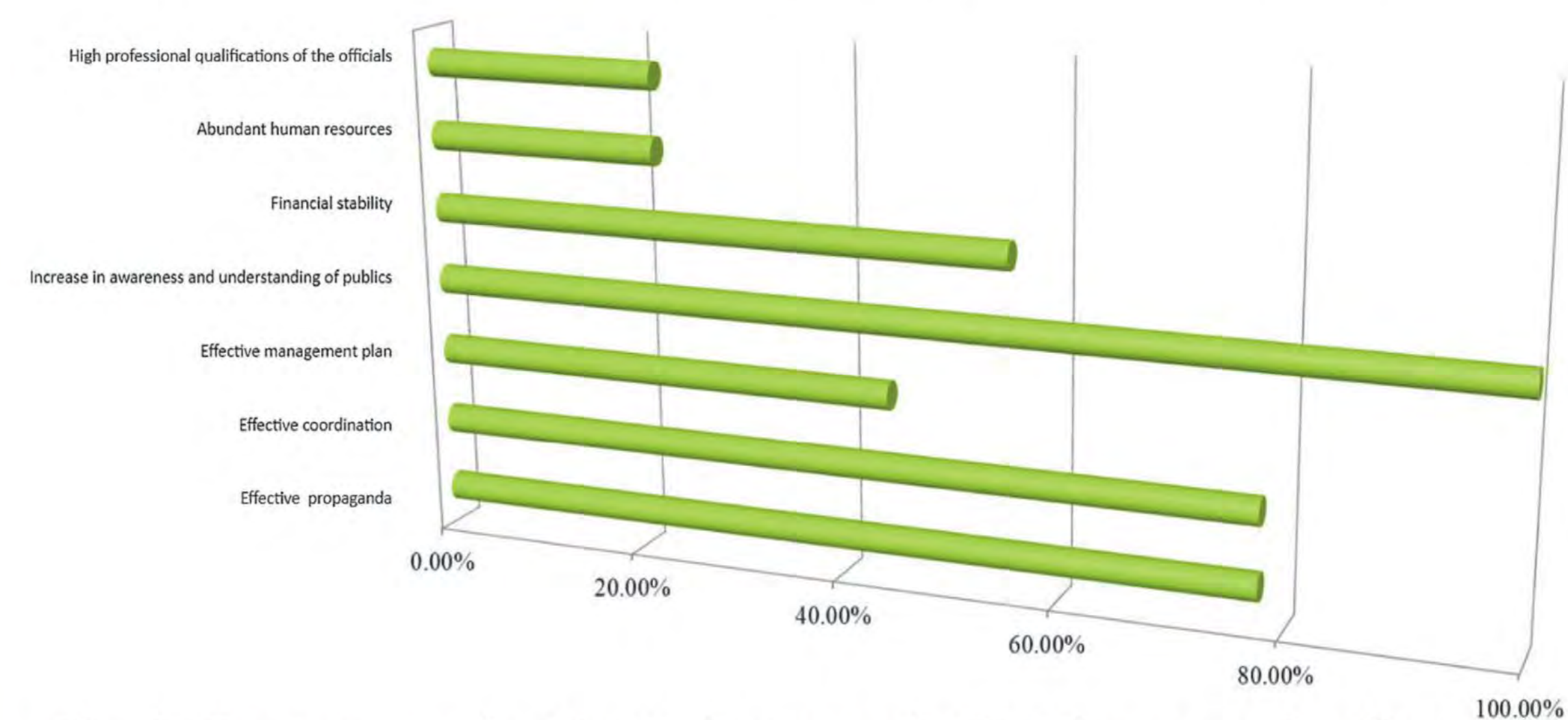


Fig. 5: Factors conducive to increased effectiveness of policy enforcement in Vietnam

Survey results also revealed that different localities in Vietnam have different solutions to increase policy implementation efficiency.



Second stage of this project are under conducted. The results are expected to show a new framework which is in line with national goals will be ready for the sustainable municipal solid waste management in Vietnam. The effective solid waste management is a prerequisite to contribute to social stability, economic growth and sustainable development.



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