CHAPTER 5

CONCLUSION AND FUTURE WORK

5.1 Introduction

This chapter discusses the achievement of this research in terms of contribution and originality of work. In addition to these, limitations are also included so that it can be improved for the future work especially for determination of post disaster operation centre.

5.2 Achievement

This research managed to achieve all of the three objectives. In the first objective, existing algorithm has been studied by reviewing literatures related to optimization applied in disaster relief operation plus making comparative studies. Second objective is to propose a new algorithm for minimize the difference between demand point covered by each distribution centre. GA-KNN and SA-KNN are developed to achieve nearly equal demand point and distribution centre. Lastly, the third objective of measuring the performance of the proposed algorithm. Evaluation has been made comparison table illustrate.

5.3 Research Contribution

The key contributions of this thesis are below:

a) Applied Simulated Annealing and a Genetic Algorithm for optimize the K Nearest Neighbor algorithm in process of the selection of distribution centre.

b) Determined the "best" amongst 3 optimization approach to get minimum value of fitness function as in Chapter 3. In the experiment highlighted, K-Means with GA gave a good distribution centres covering during the disaster.

5.4 Limitation

As we know, this research has achieved the objective, but there are several limitations throughout. The first limitation comes from the human intervention needed to ensure high accuracy and avoiding left-out DP in one population area. Secondly, it might be taking count of geographical criteria in real world implementation. The wrong choosing location for potential DC might affect the post disaster operation.

5.5 Future Research

This section comments on future research resulting from this thesis. Some directions are discussed. The process of detecting DP for map gridding using automation approach. Next, the other optimization approach such as ant colony and whale optimization algorithm can be exercised to evaluate their major potential.