CONCLUSION

This thesis provides the decision maker with a capsule look into the current field of GP, both from methodological and implementational points-of-view, in the multiobjective decision-making area.

Although the field of GP has left its infancy through the continuous investigations, many areas for future research are highly desirable towards the fullest development of the field of GP.

The most immediate and important area of research is nonlinear GP. Although sequential linear goal programming (SLGP) approach (\cite{45, 45}) has been employed (\cite{39, 40}) for nonlinear GP, one of the drawbacks of the SLGP has been in the difficulty associated with performing a sensitivity analysis on the final solution. Another approach to nonlinear GP has developed through relatively minor modifications to conventional (single-objective) nonlinear programming algorithms \cite{37}. Actually, efficient independent computational technique for nonlinear GP models are still lacking.
A very important area of future research, from methodological point-of-view, is the integer GP. Some algorithms for integer GP has been described \cite{37}, which include modifications of the conventional integer programming techniques such as 'Gomory's cutting plane' approach, various 'branch-and-bound' methods, and 'Balas algorithm'. As such, the performance of exact algorithms for integer GP exhibit capabilities and limitations similar to those exhibited in single-objective approaches (\cite{41, 56, 62, 82, 83}). Specifically, their performance on most truly large-scale integer models is less than impressive. Although another approach to the integer GP has developed by means of combining GP with the concept of generalized networks (\cite{26, 27, 67, 74}), it is still in an early stage. Therefore, there is a great need of future research in this area.

Interactive GP may be a topic for future research. Although a large number of formalized interactive methods has been proposed (\cite{21, 43, 53, 65, 66}), the performance figures on these approaches (particularly in real-world implementation) are, however, very difficult to come by. Further, a major factor involved in such approaches is usually not quantified or explored in any depth. This is the requirement placed on the decision maker (in terms of time,
patience and experience) in actual implementation. Undoubtedly, a great deal of future research is required in this area.

Three other important areas of research where there has been a little progress, from a methodological point-of-view, are:

- Chance-Constrained GP (\( L^{49} \), \( L^{61} \))
- Separable GP \( L^{61} \)
- Augmented GP (\( L^{38} \), \( L^{42} \))

It is hoped that on-going research must make GP as a robust tool for use in the multiobjective decision-making area in operations research discipline.