

1. Record Nr.	UNINA9910299452203321
Autore	Zardari Noorul Hassan
Titolo	Weighting Methods and their Effects on Multi-Criteria Decision Making Model Outcomes in Water Resources Management // by Noorul Hassan Zardari, Kamal Ahmed, Sharif Moniruzzaman Shirazi, Zulkifli Bin Yusop
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-12586-9
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (173 p.)
Collana	SpringerBriefs in Water Science and Technology, , 2194-7244
Disciplina	55 550 551.4 553.7
Soggetti	Physical geography Environmental management Hydrogeology Earth System Sciences Water Policy/Water Governance/Water Management
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Contents; About the Authors; Abstract; 1 Introduction; 1.1 Introduction; 1.2 Problem Background; 1.3 Problem Statement; 1.4 Objectives of the Study; 1.5 Scope of the Study; 1.6 Significance of the Study; 1.7 Chapter Summary; 1.8 Report Organization; 2 Literature Review; 2.1 Introduction; 2.2 Decision-Making Process; 2.3 Multi-Criteria Decision-Making; 2.4 Classification of Multi-Criteria Decision-Making Methods; 2.5 Characteristics of Different Multi-Criteria Methods; 2.6 Strengths and Weaknesses of MCDM Methods; 2.7 How to Select an Appropriate MCDM Method 2.8 The Role of Weights and Their Interpretation in MCDM Methods 2.9 Classification of Weighting Methods; 2.9.1 Subjective Weighting Methods; 2.9.2 Objective Weighting Methods; 2.10 Popular Subjective Weighting Methods; 2.10.1 Direct Rating Method; 2.10.2 Ranking Method; 2.10.3 Point Allocation; 2.10.4 Pairwise Comparison Method;

2.10.5 Ratio Weighting Method; 2.10.6 Swing Weighting Method; 2.10.7 Graphical Weighting Method; 2.10.8 Delphi Method; 2.10.9 Simple Multi-attribute Rating Technique (SMART); 2.10.10 SIMOS Weighting Method; 2.10.11 Revised SIMOS Weighting Method
2.10.12 Fixed Point Scoring
2.11 Popular Objective Weighting Methods; 2.11.1 Entropy Method; 2.11.2 CRITIC Weighting Method; 2.11.3 Mean Weight (MW); 2.11.4 Standard Deviation Method; 2.11.5 Statistical Variance Procedure; 2.11.6 Integrated or Combined Weighting Methods; 2.11.7 Direct Ranking; 2.11.8 Qualitative Rating Method; 2.12 Objective Weighting Methods Used in Past Studies; 2.13 Subjective and Objective Weighting Methods Used in Past Studies; 2.14 Selection of Weighting Method; 2.15 Weighting Methods Supported by Softwares; 2.15.1 Pairwise Comparison; 2.15.2 Point Allocation Method
2.15.3 Ranking Method
2.15.4 Rating Method; 2.15.5 SMART Weighting Method; 2.15.6 SWING Weighting Method; 2.15.7 Trade-off Weighting Method; 2.15.8 Delphi Method; 2.15.9 Revised SIMOS Procedure; 2.16 Advantages and Disadvantages of Weighting Methods; 2.16.1 Pairwise Comparison; 2.16.2 Simple Multi-attribute Rating Technique (SMART); 2.16.3 Point Allocation Method; 2.16.4 Revised SIMOS' Procedure; 2.16.5 Trade-off Weighting Method; 2.16.6 Delphi Method; 2.16.7 SWING Method; 2.16.8 Entropy Method; 2.16.9 Rank Ordering Centroid; 2.16.10 CRITIC Method; 3 Research Methodology and Results
3.1 Introduction
3.2 Methodology; 3.3 Survey Questionnaire; 3.4 Questionnaire Administration; 3.4.1 Postgraduate Survey Data Analysis; 3.5 Weights for the Watershed Management Criteria; 3.6 Summary on Criteria Weights; 3.7 Surveying Popular Databases for the Weighting Methods; 4 Conclusions and Recommendations; 4.1 Chapter Summary; 4.2 Conclusions; 4.3 Recommendations; Appendix A; Appendix B; Appendix C; References

Sommario/riassunto

This book provides a systematic way of how to make better decisions in water resources management. The applications of three weighting methods namely rating, ranking, and ratio are discussed in this book. Additionally, data mining on keywords is presented using three popular scholarly databases: Science Direct, Scopus, and SciVerse. Four abbreviated keywords (MCDM, MCDA, MCA, MADM) representing multi-criteria decision-making were used and these three databases were searched for different popular weighting methods for a period of 13 years (2000-2012). The book provides also a review of weighting methods applied in various multi-criteria decision-making (MCDM) methods and also presents survey results on priority ranking of watershed management criteria undertaken by 30 undergraduate and postgraduate students from the Faculty of Civil Engineering, Universiti Teknologi Malaysia.
