Explaining the Dimensions and Components of the Competency Model for Managers of Iran's Water Resource Management Company

Mitra Sadat. Zolfaghari[1], Baharak. Shirzad Kebriya[2*], Yalda. Delgoshaei[3], Fatemeh. Hamidifar[3]

[1] PhD student, Department of Educational Management, Central Tehran Branch, Islamic Azad University, Tehran, Iran
[2] Associate Professor, Department of Educational Management and Higher Education, Central Tehran Branch, Islamic Azad University, Tehran, Iran
[3] Assistant Professor, Department of Educational Management and Higher Education, Central Tehran Branch, Islamic Azad University, Tehran, Iran

* Corresponding author email address: bsherzad86@yahoo.com

A R T I C L E   I n f o

A B S T R A C T

Objective: The objective of this study was to elucidate the dimensions and components of the competency model for managers at Iran's Water Resource Management Company, aiming to identify the specific competencies needed to navigate the complex challenges of water resource management effectively.

Methodology: This qualitative study employed semi-structured interviews to collect data from 19 participants, including both academic experts and experienced officials within the water resource management sector. The participants were selected based on stringent criteria related to their experience and expertise in the field. Data analysis was conducted using NVivo software to ensure thorough thematic analysis and theoretical saturation.

Findings: The study identified five main themes integral to managerial competency in water resource management: Leadership Competence, Technical Competence, Interpersonal Skills, Analytical Abilities, and Adaptability and Learning. Each theme comprised various categories with specific competencies, such as visionary and ethical leadership, technical and financial management skills, effective communication and collaboration abilities, critical thinking, and continuous personal and professional development.

Conclusion: The competencies identified are essential for the effective management of water resources in Iran, highlighting the need for a holistic approach to managerial training and development. The competency model developed provides a structured framework that can guide training initiatives and enhance managerial practices, thereby supporting sustainable water resource management.

Keywords: *Water Resource Management, Managerial Competency, Qualitative Study, Iran, Leadership Competence, Technical Skills, Interpersonal Skills, Analytical Abilities, Adaptability*

IJIMOB
International Journal of Innovation Management and Organizational Behavior

Zolfaghari et al.   International Journal of Innovation Management and Organizational Behavior 4:3 (2024) 1-7

1   Introduction

The managerial competencies required to effectively run organizations, particularly in sectors directly influencing and being affected by natural resources, have become increasingly significant. Managerial competencies are central to the successful operation and strategic direction of organizations (Camuffo & Gerli, 2004). They enhance not only organizational outcomes but also contribute significantly to employee behavior and performance (Alebiosu et al., 2022). Competencies in leadership, decision-making, and technical expertise are pivotal in ensuring that managers can effectively guide their organizations through complex and challenging environments (Qiao & Wang, 2009). This is particularly relevant in sectors like water management, where the implications of decisions extend beyond the organization to affect broader ecological and social systems (Kayhanian & Tchobanoglous, 2016).

Water resource management in Iran faces significant challenges due to climate variability, population growth, and the increased demand for water resources for various uses (Zarghami et al., 2015). The complexities of managing these resources in a sustainable manner require managers not only to possess technical knowledge but also to exhibit a high level of adaptability and foresight (Olsen et al., 2023). Competencies in managing change, strategic planning, and conflict resolution are therefore crucial (Chase, 1994).

Moreover, the cultural and regulatory landscapes of Iran add another layer of complexity to the management of water resources. Managers must navigate these landscapes with a deep understanding of local and national regulations and cultural expectations (Progoulaki & Theotokas, 2016). This necessitates a competency framework that integrates knowledge of local conditions with global best practices in water resource management (Mirzavand & Bagheri, 2020).

Recent studies have also highlighted the need for competency models that are not only reactive but proactive, preparing managers to deal with future challenges that are uncertain and dynamic (Kakemam et al., 2021). This approach aligns with findings from research which suggests that managerial effectiveness significantly benefits from a focus on continuous learning and development (Ljungquist, 2007).

This research aims to bridge the gap in the literature by focusing on a specific sector within a specific context—water resource management in Iran. It seeks to contribute to the existing body of knowledge by developing a tailored competency model that addresses the unique challenges faced by managers in this sector. In conclusion, the development of a robust managerial competency model for Iran's Water Resource Management Company is essential not only for the sustainability of water resources but also for the long-term socio-economic stability of the region. By identifying and understanding these competencies, organizations can better prepare their leaders to face current and future challenges in water management. This research therefore holds significant implications for policy-making, managerial practice, and academic scholarship in sustainable water resource management.

2   Methods and Materials

2.1   Study Design and Participants

This study employs a qualitative research methodology to explore the dimensions and components of the competency model for managers within the Iran Water Resource Management Company. Our objective is to identify the essential competencies that define effective management within this sector.

The study involved 19 participants, selected based on specific criteria to ensure a comprehensive understanding of the managerial competencies. The participants were divided into two groups:

Academic Experts (2021-2022):

Professors with at least three years of teaching and studying relevant to managerial competencies.

Holders of a Ph.D. in fields such as Civil Engineering with a focus on Water Resource Management, Water Engineering, Hydraulic Structures, Human Resources, and Water Science Engineering.

Significant expertise and experience in managerial competencies, evidenced by publications, books, and research projects.

Experienced Officials in the Water Resource Management Company:

Officials with over five years of experience in management, policy-making, and related fields within the water resource management sector.

Demonstrated expertise and experience in managerial competencies, such as developing articles, books, and research projects.

Minimum qualification of a Master's degree in Management.

Data collection continued until no new information was observed in the data, ensuring that all aspects of managerial competencies were thoroughly explored.

2.2 Data Collection

We conducted semi-structured interviews, which allowed for in-depth discussions and provided rich qualitative data. These interviews were designed to explore the specific competencies perceived as crucial for managerial effectiveness in water resource management.

2.3 Data Analysis

We used NVivo, a qualitative data analysis software, to manage and analyze the data collected from the interviews. This tool helped in coding the data and facilitated the identification of recurring themes and patterns related to managerial competencies.

3 Findings and Results

In this study, demographic characteristics of the 19 participants were documented to provide insights into the diversity of the sample. The participants comprised primarily of officials from the Iran Water Resource Management Company (13 participants), supplemented by seven academic experts knowledgeable in the study domain.

Regarding education levels, 15 participants held a specialized doctoral degree, whereas 5 had a master's degree. The gender distribution among the participants was fairly balanced, with 8 females and 11 males. Age demographics showed a concentration in the middle age ranges, with 10 participants aged between 40 to 45 years, followed by 4 participants each in the 46 to 50 years and above 50 years age brackets, and 2 participants younger than 39 years.

Work experience varied across the group, with 6 participants having less than 10 years of experience, 8 with 11 to 20 years, and 5 boasting over 20 years of experience. This varied demographic profile underlines the breadth of perspectives and experiences represented in the study, contributing to a robust exploration of managerial competencies within the context of Iran's water resource management sector.

Table 1

The Results of Qualitative Analysis

Categories	Subcategories	Concepts (Open Codes)
Leadership Competence	Visionary Leadership	Strategic foresight, Inspirational vision, Long-term planning, Adaptability, Stakeholder alignment
	Ethical Leadership	Integrity, Transparency, Ethical decision-making, Accountability
	Team Leadership	Team building, Conflict resolution, Motivation, Empowerment
	Change Management	Change initiation, Managing resistance, Effective communication, Strategy implementation
	Decision-Making	Analytical thinking, Risk assessment, Decisive actions, Problem-solving
Technical Competence	Water Resource Management	Water conservation techniques, Resource allocation, Sustainable practices, Regulatory compliance
	Engineering Knowledge	Technical specifications, Infrastructure analysis, Project management, Safety standards
	Financial Management	Budgeting, Cost control, Financial forecasting, Resource optimization
	Policy Implementation	Policy analysis, Legislative awareness, Strategic enforcement, Compliance monitoring
Interpersonal Skills	Communication	Verbal skills, Written reports, Active listening, Presentation skills
	Collaboration	Partnership development, Interdepartmental coordination, Stakeholder engagement, Team synergy
	Conflict Resolution	Negotiation, Mediation, Problem sensitivity, Diplomacy
Analytical Abilities	Problem Solving	Issue identification, Solution brainstorming, Implementation planning, Outcome evaluation
	Critical Thinking	Logic application, Assumption challenging, Data interpretation, Solution viability assessment
	Data Management	Data collection, Data analysis, Information synthesis, Technology utilization
Adaptability and Learning	Continuous Improvement	Process optimization, Performance feedback, Skill upgrading, Innovation
	Learning and Development	Knowledge acquisition, Training programs, Professional growth, Cross-functional skills
	Resilience	Stress management, Recovery from setbacks, Flexibility, Endurance

3.1 Leadership Competence

Leadership competence emerged as a critical theme, encompassing several subthemes essential for effective management. Visionary Leadership, identified as pivotal, involves "strategic foresight" and "inspirational vision," where one participant noted, "Long-term planning is essential for sustainable water management." Ethical Leadership was highlighted, where participants emphasized the importance of "integrity and ethical decision-making in all aspects of our work." Under Team Leadership, skills like "team building and empowerment" were considered vital, with one manager stating, "Motivating the team is crucial for achieving our objectives." Change Management involved "initiating change and managing resistance," where a respondent described it as "essential for adapting to evolving environmental policies." Decision-Making was noted for its "analytical thinking and risk assessment," with a participant remarking, "Quick and decisive action often defines the outcome of crisis situations."

3.2 Technical Competence

Technical competence includes essential skills specific to water resource management. Water Resource Management was highlighted for its "conservation techniques and sustainable practices," with an expert commenting, "Proper resource allocation is fundamental for water sustainability." Engineering Knowledge was crucial, involving "project management and safety standards." Financial Management involved "budgeting and financial forecasting," where an interviewee pointed out, "Effective cost control is integral to managing resources efficiently." Policy Implementation encompassed "policy analysis and strategic enforcement," noted by a participant as "critical for compliance with national water regulations."

3.3 Interpersonal Skills

Effective interpersonal skills were identified as a cornerstone for managerial success. Communication skills were emphasized, including "verbal skills and active listening," with a manager noting, "Clear communication is the backbone of effective management." Collaboration was vital, particularly "interdepartmental coordination and stakeholder engagement," as one respondent highlighted, "Building partnerships is key to our strategic success." Conflict Resolution involved "negotiation and diplomacy,"

essential in "resolving disputes and maintaining operational harmony."

3.4 Analytical Abilities

This theme covered the intellectual competencies necessary for managerial roles. Problem Solving was a major focus, with skills in "issue identification and solution brainstorming" highlighted. Critical Thinking involved "data interpretation and assumption challenging," where a participant mentioned, "Evaluating solution viability is a constant requirement." Data Management was crucial for "data collection and analysis," as noted by an interviewee, "Accurate data analysis informs all our strategic decisions."

3.5 Adaptability and Learning

Adaptability and learning are essential for managers to keep pace with changing technologies and policies. Continuous Improvement, including "process optimization and performance feedback," was frequently mentioned, with a manager stating, "We are constantly looking for ways to improve our processes." Learning and Development were emphasized for "knowledge acquisition and professional growth." Resilience was highlighted in terms of "flexibility and endurance," essential for "navigating the challenging waters of resource management."

4 Discussion and Conclusion

This qualitative study identified five main themes crucial for the competencies of managers within Iran's Water Resource Management Company. These themes include Leadership Competence, Technical Competence, Interpersonal Skills, Analytical Abilities, and Adaptability and Learning. Each theme comprises several categories that collectively describe the broad spectrum of skills and knowledge necessary for effective management in the water resource sector.

Leadership Competence emerged as a fundamental theme, consisting of five categories: Visionary Leadership, Ethical Leadership, Team Leadership, Change Management, and Decision-Making. Visionary Leadership involves strategic foresight and inspirational vision, essential for guiding long-term sustainability goals. Ethical Leadership emphasizes integrity, transparency, and ethical decision-making, crucial for maintaining trust and accountability. Team Leadership focuses on team building, conflict resolution, and motivation, vital for fostering a cooperative

work environment. Change Management includes skills in initiating change and managing resistance, necessary for navigating organizational transformations. Lastly, Decision-Making captures the need for analytical thinking, risk assessment, and decisive actions that define effective crisis management.

Technical Competence is critical for managers, particularly in a technically demanding field like water resource management. This theme is divided into four categories: Water Resource Management, Engineering Knowledge, Financial Management, and Policy Implementation. Water Resource Management involves conservation techniques and sustainable practices, essential for effective resource stewardship. Engineering Knowledge includes technical specifications and project management, necessary for overseeing infrastructure projects. Financial Management covers budgeting and financial forecasting, skills important for organizational sustainability. Policy Implementation focuses on policy analysis and strategic enforcement, crucial for compliance with environmental regulations.

Interpersonal Skills are indispensable for effective management, comprising three categories: Communication, Collaboration, and Conflict Resolution. Communication involves verbal skills and written reports, essential for clear and effective information dissemination. Collaboration emphasizes partnership development and interdepartmental coordination, critical for managing complex stakeholder relationships. Conflict Resolution involves negotiation and diplomacy, key for resolving disputes and maintaining workplace harmony.

Analytical Abilities encompass three categories essential for data-driven decision-making: Problem Solving, Critical Thinking, and Data Management. Problem Solving includes issue identification and solution brainstorming, crucial for addressing operational challenges. Critical Thinking involves logic application and assumption challenging, necessary for evaluating complex problems. Data Management covers data collection and analysis, fundamental for supporting strategic decisions with empirical evidence.

Adaptability and Learning highlight the need for ongoing personal and professional development, divided into three categories: Continuous Improvement, Learning and Development, and Resilience. Continuous Improvement focuses on process optimization and performance feedback, essential for operational excellence. Learning and Development involve knowledge acquisition and training programs, crucial for keeping pace with evolving industry standards. Resilience includes stress management and recovery from setbacks, key traits for navigating the fluctuating demands of water resource management.

Our findings highlight the critical role of leadership competencies, such as visionary and ethical leadership, in managing water resources effectively. The emphasis on strategic foresight and long-term planning resonates with Alebiosu et al. (2022), who found that visionary leadership significantly influences employee behavioral outcomes by aligning organizational objectives with sustainable practices (Alebiosu et al., 2022). The importance of ethical leadership identified in this study also aligns with the findings of Camuffo and Gerli (2004), who emphasized the need for integrity and transparency in management education and practice. These competencies are vital in water resource management, where decisions have far-reaching impacts on environmental sustainability and community welfare (Camuffo & Gerli, 2004).

The technical competencies identified, such as expertise in water resource management and policy implementation, are crucial for navigating the complex regulatory and environmental challenges in this sector. This finding is supported by the work of Kayhanian and Tchobanoglous (2016), who highlighted the need for profound technical knowledge in water reuse and management practices in Iran (Kayhanian & Tchobanoglous, 2016). Furthermore, our results on the necessity of analytical abilities, including problem-solving and critical thinking, are corroborated by Qiao and Wang (2009), who noted these skills as essential for middle managers in varied contexts, facilitating effective decision-making and problem resolution (Qiao & Wang, 2009).

This study also emphasizes the importance of interpersonal skills like communication and collaboration, which are essential for managing the diverse stakeholder landscape in water resource management. These findings are in line with Progoulaki and Theotokas (2016), who stressed managing culturally diverse human resources as a core competency in maritime resource management (Progoulaki & Theotokas, 2016). Adaptability and continuous learning emerged as crucial for keeping pace with evolving environmental and technological landscapes. Ljungquist (2007) supports this, proposing that core competencies should extend beyond identification to embrace continuous adaptation and development (Ljungquist, 2007).

The integration of these managerial competencies within the specific challenges of Iran's water resource management

sector is critical. The managerial competencies must align with environmental sustainability goals and the socio-economic contexts highlighted by Mirzavand and Bagheri (2020) and Zarghami et al. (2015). These studies emphasize the necessity for a comprehensive approach to water resource management that accommodates fluctuating water availability and policy frameworks (Mirzavand & Bagheri, 2020; Zarghami et al., 2015).

This study identified and expounded upon the critical dimensions and components of a competency model for managers within Iran's Water Resource Management Company. The primary competencies elucidated include leadership competence, technical competence, interpersonal skills, analytical abilities, and adaptability and learning. Each of these competencies encompasses several sub-competencies vital for the effective management of water resources, reflecting a complex interplay between technical expertise, ethical decision-making, strategic foresight, and interpersonal communication.

The findings from this study emphasize the necessity for a holistic approach to developing managerial competencies in the water resource management sector. Managers equipped with these competencies are better positioned to tackle the complex challenges of sustainable water resource management, which is increasingly critical in the face of environmental variability and stringent regulatory demands. The competency model developed through this research provides a structured framework that can guide both training initiatives and managerial practices, ensuring that the necessary skills and knowledge are cultivated to meet both current and future needs.

This study's primary limitation lies in its focus on a single organizational context within Iran, which may not fully capture the variability and nuances of water resource management practices globally or even regionally. Furthermore, the reliance on qualitative interviews, while providing in-depth insights, limits the generalizability of the findings. The sample size, though sufficient for qualitative saturation, does not allow for statistical generalization to larger populations.

Future research should aim to validate and extend the competency model developed in this study by incorporating quantitative methods and a broader participant base across different geographical regions and management levels. Additionally, it would be beneficial to examine the impact of these competencies on organizational performance and sustainability outcomes in water resource management, potentially through longitudinal studies that can track changes over time and under varying environmental conditions.

The detailed competency model presented in this study serves as a valuable blueprint for human resource development within water resource management entities. Organizations should consider incorporating these competencies into their recruitment, training, and development programs to enhance managerial effectiveness. Practically, this model can also assist in performance appraisal and succession planning, ensuring that key competencies are recognized and fostered. Moreover, policymakers can use the insights from this study to inform policies and standards that support competency development in critical sectors, ultimately contributing to more sustainable management practices and better governance of water resources.

References

Alebiosu, J. O., Salau, O. P., Atolagbe, T., Daramola, O. A., Lawal, A. F., Igba, I., & Akinbiyi, F. (2022). Predicting the Impact of Managerial Competencies on the Behavioral Outcomes of Employees in the Selected Manufacturing Firms in Nigeria. *Sustainability*. https://doi.org/10.3390/su141912319

Camuffo, A., & Gerli, F. (2004). An Integrated Competency-based Approach to Management Education: An Italian MBA Case Study. *International Journal of Training and Development*. https://doi.org/10.1111/j.1360-3736.2004.00212.x

Chase, L. K. (1994). Nurse Manager Competencies. *Jona the Journal of Nursing Administration*. https://doi.org/10.1097/00005110-199404010-00009

Kakemam, E., Janati, A., Mohaghegh, B., Gholizadeh, M., & Liang, Z. (2021). Developing Competent Public Hospital Managers: A Qualitative Study From Iran. *International Journal of Workplace Health Management*. https://doi.org/10.1108/ijwhm-07-2020-0120

Kayhanian, M., & Tchobanoglous, G. (2016). Water Reuse in Iran With an Emphasis on Potable Reuse. *Scientia Iranica*. https://doi.org/10.24200/sci.2016.2231

Ljungquist, U. (2007). Core Competency Beyond Identification: Presentation of a Model. *Management Decision*. https://doi.org/10.1108/00251740710745034

Mirzavand, M., & Bagheri, R. (2020). The Water Crisis in Iran: Development or Destruction? *World Water Policy*. https://doi.org/10.1002/wwp2.12023

Olsen, J., Dettinger, M. D., & Giovannettone, J. (2023). Drought Attribution Studies and Water Resources Management. *Bulletin of the American Meteorological Society*. https://doi.org/10.1175/bams-d-22-0214.1

Progoulaki, M., & Theotokas, I. (2016). Managing Culturally Diverse Maritime Human Resources as a Shipping Company's Core Competency. *Maritime Policy & Management*. https://doi.org/10.1080/03088839.2016.1173734

Qiao, J. X., & Wang, W. (2009). Managerial Competencies for Middle Managers: Some Empirical Findings From China. *Journal of European Industrial Training*. https://doi.org/10.1108/03090590910924388

Zarghami, M., Safari, N., Szidarovszky, F., & Islam, S. (2015). Nonlinear Interval Parameter Programming Combined With Cooperative Games: A Tool for Addressing Uncertainty in Water Allocation Using Water Diplomacy Framework. *Water Resources Management*. https://doi.org/10.1007/s11269-015-1060-5