International Journal of Ethics & Society (IJES)
Journal homepage: www.ijethics.com
Vol. **2**, *No.* **2 (2020)**

(Original Article)

Barriers to the Use of Ethical Measures in Green Human Resource Management

Seyyed Najm Al-din Mousavi*, Mohammad Hakkak, Reza Sepahvand, Abolfazl Alizadeh

Dept. of Human Resource Management, Faculty of Administrative Sciences & Economic, University of Lorestan, Khorramabad, Iran

Abstract

Background: Green human resource management is a new topic in the field of human resource management that emphasizes the goal of environmental sustainability. Unfortunately, the growing environmental challenges on the one hand and the neglect of ethical components related to the environment and human resource management in organizations, have created obstacles to the implementation of green human resource management. Therefore, the present study was formed with the aim of investigating the factors that violate ethics that hinder the implementation of green human resource management.
Method: The present study was among the applied researches with a field-survey approach. The study population was experts and specialists in the field of Tehran automotive industry, from which 8 people were purposefully selected as a sample. The tools of analysis were interview and dematel questionnaire. Data were analyzed by fuzzy dematel and fuzzy hierarchical analysis (AHP).
Results: Ethical barriers affecting the implementation of green human resource management in three dimensions of organizational, environmental and individual were identified in the form of 51 sub-criteria. The results of weight determination showed that the environmental dimension is one of the causal dimensions and organizational and individual dimensions are effective dimensions and environmental factors are the most important.
Conclusion: Organizations, especially in the field of automobile manufacturing, need to have forces aware of the environment. In this way, green human resource management can play an important role in creating green and environmentally friendly ideas by creating a sense of responsibility in its actions and tasks and in cooperation with other forces. Undoubtedly, the first step in training employees to prepare for the implementation of environmental issues is to teach environmental ethics and remove ethical barriers to green human resource management. So that the organization can participate in environmental protection by motivating employees and creating a sense of responsibility in them.

Keywords: Ethics, Human resource management, Environment

* **Corresponding Author:** Email: mousavi.na@lu.ac.ir
Received: 4 Oct 2020
Accepted**:** 28 Oct 2020

[Downloaded from ijethics.com on 2024-04-27]

Introduction

One of the causes of pollution is the high consumption of fossil fuels by factories and cars, which results in the production of more greenhouse gases. As the demand for vehicles increases, so does the production of environmental pollution. Given the efforts to reduce the negative environmental impact of products, and despite the extensive study of issues in the field of sustainability and green organizations in the automotive industry, these measures are rarely entered into the implementation phase by these organizations (1). Researchers have considered sustainability to have three dimensions: economic, social and environmental ethics, but many manufacturers, including car manufacturers, consider only the economic dimension, and the social and environmental ethics dimensions, despite the great attention of researchers in the automotive industry has been neglected (2).

Many studies have examined the importance of environmental ethics education and the importance of human resources familiar with environmental ethics in the organization, which confirms the importance of green human resource management. (3)

Studies on green organizations intensified in the 1990s, focusing on environmental management systems and environmental certifications such as ISO 14001. Organizations need to support the actions of their human resources department in order to become green, and researchers in this field, in four areas: maintenance of the environmental management system, acceptance of these measures, development of environmental products with the help of labor, environmental education Focused (4).

Implementation of green human resource management measures in order to achieve environmental organizational management (5) and strategic participation of human resources in the decision-making process of green issues (6). In the definition of green human resource management (7) they have stated that green human resource management includes measures such as green selection, green recruitment, green training, green performance management, payment and reward system and green employee participation. In fact, green human resource management is the coordination of traditional human resource management with environmental ethics (8, 9). Environmental ethics training enables employees to implement environmental behaviors and raise awareness of quality needs and environmental control, and in order to accept and change employee attitudes, change the company's environmental philosophy, increase environmental responsibility. People and increase environmental learning (7).

In ancient religious and moral systems, in addition to the status of man, all components of nature, whether animal or plant, are valued. Unfortunately, the devaluation of nature and the desecration of the world led man to consider himself only the center of the world and to imagine only himself as having life, value and morality. (10 and 11) With the industrialization of societies and the decline of environmental ethics, irreparable damage was done to the environment, to the extent that governments realized that if they thought about protecting the environment and spreading environmental ethics at the level of industries, organizations and institutions Otherwise, human beings will face a great challenge. Therefore, they tried to spread environmental ethics by identifying obstacles (12).

In the field of green resource management, various researchers have sought to identify and rank various factors that have prevented the implementation of green measures in different parts of the organization. (13-20). The similarity of many barriers is similar to this research, which is due to the involvement of environmental ethics of human resources. From this method, the present study was formed with the aim of identifying and ranking the factors that violate ethics, preventing the implementation of green human resource management.

Material and Methods

The present study was among the applied researches with a field-survey approach. The study population was experts and specialists in the field

[Downloaded from ijethics.com on 2024-04-27]

of Tehran automotive industry, from which 8 people were purposefully selected as a sample. Sampling continued until theoretical saturation. The tools of analysis were interview and dematel questionnaire. To conduct the research, a preliminary list of barriers has been extracted from the review of previous studies by the library method, and after interviewing and commenting on these barriers, the research method has been presented in Figure 1 in full. Since the aim of the present study is to modify the dimatel results by considering the weight of the factors, to determine their weight, the combined approach of fuzzy AHP type 2 and fuzzy dimatel type 2 based on the study of some researchers (21 and 22) was used.

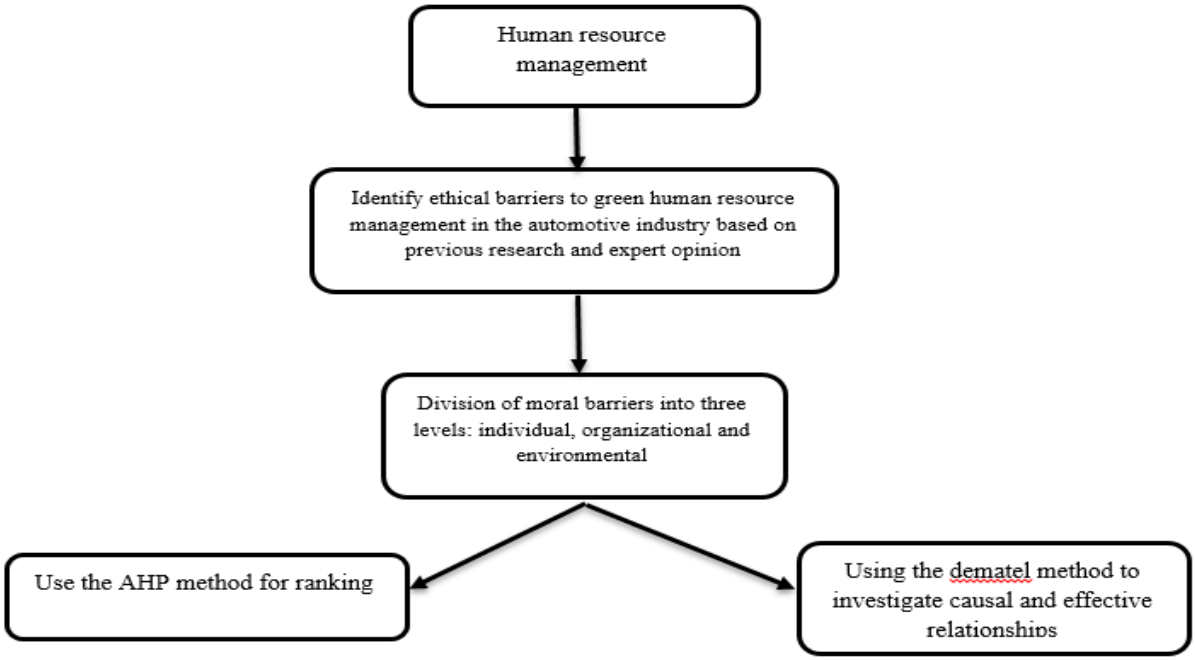

Fig1: An overview of the research methodological steps

Results

In the present section, the results of research data collection are presented.
Phase 1: Determination of fuzzy weights with fuzzy AHP technique type 2
Step 1: Draw a hierarchical graph

As mentioned, in order to determine the ethical barriers to green human resource management, a set of barriers was first identified by reviewing the research literature and similar studies. Then, by conducting interviews with experts, the final effective barriers were determined in the form of three dimensions and 51 indicators (barriers). (Table 1).

Table 1. The barriers of GHRM

Dimension	Sub-criteria	
organizational	1	Financial costs and lack of sufficient financial resources to implement the green actions
	2	Lack of appropriate organizational structure
	3	lack of environment experts
	4	Absence of professional environmental consultants
	5	Lack of education related to environmental issues
	6	Lack of green culture
	7	Lack of support and commitment of top management to environmental issues

[Downloaded from ijethics.com on 2024-04-27]

	8	Lack of green leadership
	9	Conflict between stakeholders in the field of green issues
	10	Lack of green actions in the organization's perspective, mission, and strategy
	11	Absence of green organizational rules and standards
	12	Lack of criteria for measuring green costs in processes
	13	Lack of appropriate technologies in line with environmental standards in the manufacturing sector
	14	Lack of research and development and green innovation
	15	Lack of information on green issues
	16	Lack of using the information technology
	17	Complexity of design and implementation of green processes
	18	Lack of appropriate job description based on environmental standards
	19	Lack of environmental reward system
	20	High cost of obtaining environmental certifications
	21	Lack of social moral values in the organization
	22	Weak communication and lack of sharing the best environmental actions
environmental	1	Lack of customer knowledge in the field of green products
	2	Customer unwillingness to buy green products
	3	Market uncertainty
	4	Political instability and related issues (such as sanctions against companies and institutions, etc.)
	5	The statehood of large manufacturing companies and exclusivity of the market
	6	Economic instability
	7	Lack of green raw materials
	8	Absence and shortage of ethical and environmental values in suppliers
	9	Lack of government incentives and subsidies for customers to use green products
	10	Lack of government incentives and low interest loans in green technology
	11	Lack of pressure and monitoring by the responsible organizations on how to enforce green laws
	12	Lack of environmental education programs by the government
	13	Lack of awareness of green rules in the industry
	14	Poor enforcement of green rules existing in the companies
	15	Lack of comprehensive environmental management strategy and plan in the government
	16	Lack of interaction between organizations and green groups with companies
	17	Lack of appropriate communication with other partners such as the supplier sector in order to implement green processes
	18	High cost of utilizing green services and innovations for companies and the lack of service providers
individual	1	Lack of knowledge about environmental issues among employees
	2	Unwillingness to change conditions and deploy green actions
	3	Inability of individuals to identify green opportunities
	4	Unwillingness to share environmental information among individuals
	5	Wrong beliefs of employees in environmental issues
	6	Lack of sense of compassion in individuals
	7	Lack of hope in individuals about changing the conditions
	8	Employee's understanding on the lack of need in responding in the field of non-environmental actions
	9	Lack of behavioral control
	10	Uncertainty in output and the risk of applying green actions to employees
	11	Presence of positive illusions in individuals that better conditions will be provided in future by continuing the current conditions.

Figure 2 shows the hierarchy graph of ethical barriers to green human resource management.

Step 2: The matrix of pairwise comparisons using trapezoidal fuzzy numbers type 2

Based on the research hierarchy graph, a pairwise comparison questionnaire was designed and distributed among the experts of the mentioned automotive industry. After collecting verbal data, verbal variables were converted to type 2 fuzzy numbers using Table (2).

[Downloaded from ijethics.com on 2024-04-27]

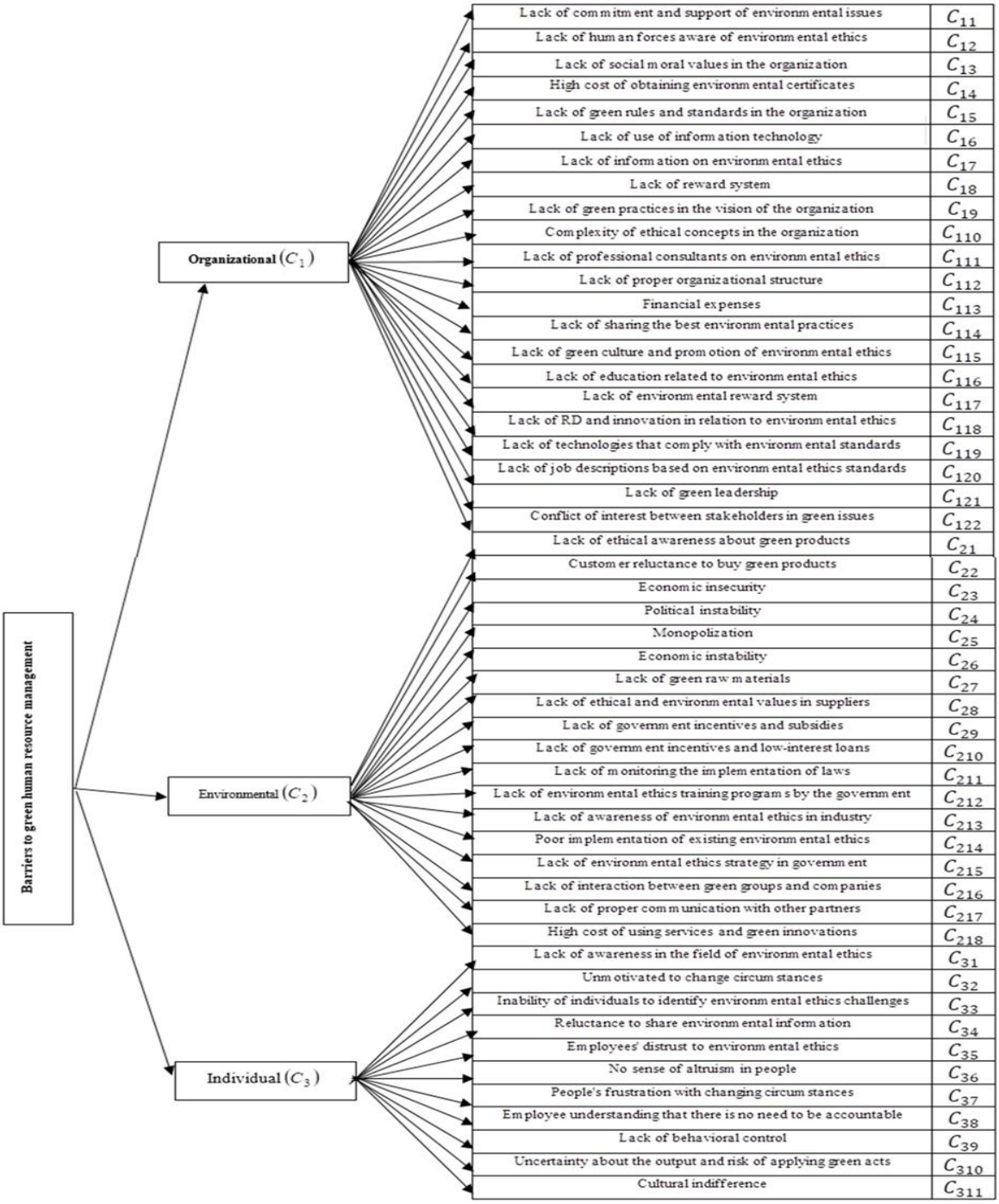

Fig2: Hierarchical graph of ethical barriers in green human resource management

[Downloaded from ijethics.com on 2024-04-27]

Table 2: Verbal variables of type II trapezoidal fuzzy numbers (21)

Verbal variables	IT2 FN	Inverted IT2 FN
Very effective	(7,8,9,9;1,1) (7.2,8.2,8.8,9;0.8,0.8)	((0.11,0.11,0.13,0.14;1,1),(0.11,0.01,0.12,0.14;0.8,0.8))
Effective	(5,6,8,9;1,1) (5.2,6.2,7.8,8.8;0.8,0.8)	((0.11,0.13,0.17,0.2;1,1),(0.11,0.13,0.16,0.19;0.8,0.8))
Moderately effective	(3,4,6,7;1,1) (3.2,4.2,5.8,6.8;0.8,0.8)	((0.14,0.17,0.25,0.33;1,1),(0.15,0.17,0.24,0.31;0.8,0.8))
Slightly effective	(1,2,4,5;1,1) (1.2,2.2,3.8,4.8;0.8,0.8)	((0.2,0.25,0.5,1;1,1),(0.21,0.26,0.45,0.83;0.8,0.8))
Ineffective	(1,1,1,1;1,1) (1,1,1,1; 0.8,0.8)	((1,1,1,1;1,1),(1,1,1,1; 0.8,0.8))

Step 3: Analyzing the compatibility of the pairwise comparison matrix

To evaluate the compatibility of the pairwise comparison matrix, first the dimensions and indices were determined using the following relation of the diffused values of the pairwise comparison matrices.

$$DTraT = \frac{1}{2}\left(\frac{(U_u - L_u) + (\beta_{\dot{U}} \cdot m_{1u} - L_u) + (\alpha_u \cdot m_{2u} - L_u)}{4} + L_u + \left[\frac{(u_l - l_l) + (\beta_l \cdot m_{1l} - l_l) + (\alpha_l \cdot m_{2l} - l_l)}{4} + l_l\right]\right)$$

Then, the incompatibility rate of each matrix was investigated. The results showed that the incompatibility rate of all three pairs of comparison tables is less than 0.1

Step 4: Aggregating the experts' pairwise comparisons matrix

Matrix pairwise comparisons of experts were aggregated using the following equation.

$$\tilde{\tilde{r}}_i = [\tilde{\tilde{a}}_{i1} \otimes \ldots \otimes \tilde{\tilde{a}}_{in}]^{\frac{1}{n}}$$

Where;

$$\sqrt[n]{\tilde{\tilde{a}}_{i1}} = \left(\left(\sqrt[n]{a_{ij1}^u}.\sqrt[n]{a_{ij2}^u}.\sqrt[n]{a_{ij3}^u}.\sqrt[n]{a_{ij4}^u}; H_1^u(a_{ij}).H_1^u(a_{ij})\right).\left(\sqrt[n]{a_{ij1}^l}.\sqrt[n]{a_{ij2}^l}.\sqrt[n]{a_{ij3}^l}.\sqrt[n]{a_{ij4}^l}; H_1^l(a_{ij}).H_1^l(a_{ij})\right)\right)$$

Step 5: Measuring fuzzy weights

Dimensions and indices were determined using the relation under fuzzy weight.

$$\tilde{\tilde{w}}_j = \tilde{\tilde{r}}_j \otimes (\tilde{\tilde{r}}_1 \oplus \tilde{\tilde{r}}_2 \oplus \ldots \oplus \tilde{\tilde{r}}_n)^{-1} \quad (4)$$

Where;

$$\frac{\tilde{\tilde{a}}}{\tilde{\tilde{b}}} = \left(\left(\frac{a_1^u}{b_4^u}.\frac{a_2^u}{b_3^u}.\frac{a_3^u}{b_2^u}.\frac{a_4^u}{b_1^u}; min\left(H_1^u(a).H_1^u(b)\right).min\left(H_2^u(a).H_2^u(b)\right)\right).\left(\frac{a_1^l}{b_4^l}.\frac{a_2^l}{b_3^l}.\frac{a_3^l}{b_2^l}.\frac{a_4^l}{b_1^l}; min\left(H_1^l(a).H_1^l(b)\right).min\left(H_2^l(a).H_2^l(b)\right)\right)\right)$$

Step 6: Measuring the total weight of indices

Then, all moral barriers were determined based on the weight ratio. Which is presented in Table 4.

$$\tilde{\tilde{U}}_i = \tilde{\tilde{w}}_J \tilde{\tilde{r}}_{iJ} \qquad \forall i.$$

Where $\tilde{\tilde{w}}_J$ represents the type-2 fuzzy weight in the j-th dimension and $\tilde{\tilde{r}}_{iJ}$ indicates the type-2

[Downloaded from ijethics.com on 2024-04-27]

fuzzy weight of the indices related to the j-th dimension

Step 7: Defuzzificating and normalizing fuzzy weights

Using the following equation, the diphasic values of the ethical barriers to the implementation of green human resource management were determined. The results are shown in the last column of Table (3).

$$E(U) = DTraT = \frac{1}{2}\left(\frac{(U_u - L_u) + (\beta_U \cdot m_{1u} - L_u) + (\alpha_u \cdot m_{2u} - L_u)}{4} + L_u + \left[\frac{(u_l - l_l) + (\beta_l \cdot m_{1l} - l_l) + (\alpha_l \cdot m_{2l} - l_l)}{4} + l_l\right]\right)$$

Table 3: Fuzzy weight and definite weight of all ethical obstacles implementing green human resource management

	indexes	$\tilde{\tilde{r}}_{ij}$	$\widetilde{\widetilde{U}}_i$	$E(U_C)$
Organizational	C_{11}	((2.009,2.307,2.713,2.855;1,1),(2.076,2.358,2.671,2.828;0.8,0.8))	((0.051,0.066,0.102,0.13;1,1),(0.054,0.069,0.109,0.123;0.8,0.8))	0.08
	C_{12}	((2.051,2.662,3.553,3.906;1,1),(2.188,2.768,3.47,3.836;0.8,0.8))	((0.052,0.076,0.133,0.178;1,1),(0.057,0.081,0.142,0.167;0.8,0.8))	0.11
	C_{13}	((1.546,1.924,2.504,2.762;1,1),(1.632,1.759,2.437,2.71;0.8,0.8))	((0.039,0.055,0.094,0.126;1,1),(0.043,0.051,0.099,0.118;0.8,0.8))	0.07
	C_{14}	((2.169,2.722,3.491,3.774;1,1),(2.293,2.818,3.411,3.719;0.8,0.8))	((0.055,0.078,0.131,0.172;1,1),(0.06,0.082,0.139,0.162;0.8,0.8))	0.10
	C_{15}	((1.276,1.675,2.293,2.586;1,1),(1.363,1.715,2.251,2.522;0.8,0.8))	((0.032,0.048,0.086,0.118;1,1),(0.035,0.05,0.092,0.11;0.8,0.8))	0.07
	C_{16}	((1.235,1.52,1.999,2.253;1,1),(1.299,1.313,1.946,2.198;0.8,0.8))	((0.031,0.044,0.075,0.103;1,1),(0.034,0.038,0.079,0.096;0.8,0.8))	0.06
	C_{17}	((1.039,1.352,1.891,2.204;1,1),(1.107,1.328,1.852,2.131;0.8,0.8))	((0.026,0.039,0.071,0.1;1,1),(0.029,0.039,0.076,0.093;0.8,0.8))	0.06
	C_{18}	((1.167,1.398,1.798,2.026;1,1),(1.217,1.286,1.756,1.973;0.8,0.8))	((0.03,0.04,0.067,0.092;1,1),(0.032,0.038,0.072,0.086;0.8,0.8))	0.05
	C_{19}	((1.222,1.447,1.894,2.191;1,1),(1.269,1.244,1.839,2.119;0.8,0.8))	((0.031,0.042,0.071,0.1;1,1),(0.033,0.036,0.075,0.092;0.8,0.8))	0.06
	C_{110}	((1.358,1.604,2.047,2.286;1,1),(1.409,1.472,2.034,2.232;0.8,0.8))	((0.034,0.046,0.077,0.104;1,1),(0.037,0.043,0.083,0.097;0.8,0.8))	0.06
	C_{111}	((0.814,1.011,1.416,1.689;1,1),(0.858,0.693,1.378,1.626;0.8,0.8))	((0.021,0.029,0.053,0.077;1,1),(0.022,0.02,0.056,0.071;0.8,0.8))	0.04
	C_{112}	((0.809,0.997,1.347,1.57;1,1),(0.848,0.846,1.331,1.516;0.8,0.8))	((0.02,0.029,0.05,0.071;1,1),(0.022,0.025,0.054,0.066;0.8,0.8))	0.04

[Downloaded from ijethics.com on 2024-04-27]

	C_{113}	((0.699,0.814,1.066,1.262;1,1),(0.725,0.695,1.08,1.213;0.8,0.8))	((0.018,0.023,0.04,0.057;1,1),(0.019,0.02,0.044,0.053;0.8,0.8))	0.03
	C_{114}	((0.705,0.803,0.994,1.124;1,1),(0.724,0.711,0.993,1.092;0.8,0.8))	((0.018,0.023,0.037,0.051;1,1),(0.019,0.021,0.041,0.047;0.8,0.8))	0.03
	C_{115}	((0.595,0.689,0.91,1.094;1,1),(0.615,0.572,0.917,1.046;0.8,0.8))	((0.015,0.02,0.034,0.05;1,1),(0.016,0.017,0.037,0.045;0.8,0.8))	0.03
	C_{116}	((0.609,0.709,0.932,1.117;1,1),(0.631,0.629,0.943,1.069;0.8,0.8))	((0.015,0.02,0.035,0.051;1,1),(0.016,0.018,0.038,0.046;0.8,0.8))	0.03
	C_{117}	((0.466,0.548,0.739,0.899;1,1),(0.481,0.42,0.717,0.856;0.8,0.8))	((0.012,0.016,0.028,0.041;1,1),(0.013,0.012,0.029,0.037;0.8,0.8))	0.02
	C_{118}	((0.545,0.627,0.811,0.958;1,1),(0.559,0.499,0.781,0.919;0.8,0.8))	((0.014,0.018,0.03,0.044;1,1),(0.015,0.015,0.032,0.04;0.8,0.8))	0.02
	C_{119}	((0.508,0.576,0.745,0.895;1,1),(0.52,0.445,0.716,0.854;0.8,0.8))	((0.013,0.017,0.028,0.041;1,1),(0.014,0.013,0.029,0.037;0.8,0.8))	0.02
	C_{120}	((0.424,0.486,0.626,0.737;1,1),(0.437,0.346,0.624,0.709;0.8,0.8))	((0.011,0.014,0.023,0.034;1,1),(0.011,0.01,0.025,0.031;0.8,0.8))	0.02
	C_{121}	((0.384,0.43,0.531,0.607;1,1),(0.391,0.339,0.527,0.587;0.8,0.8))	((0.01,0.012,0.02,0.028;1,1),(0.01,0.01,0.021,0.026;0.8,0.8))	0.02
	C_{122}	((0.341,0.388,0.531,0.682;1,1),(0.353,0.265,0.536,0.642;0.8,0.8))	((0.009,0.011,0.02,0.031;1,1),(0.009,0.008,0.022,0.028;0.8,0.8))	0.02
Environmental	C_{21}	((2.156,2.67,3.421,3.712;1,1),(2.27,2.76,3.347,3.656;0.8,0.8))	((0.071,0.099,0.164,0.214;1,1),(0.076,0.104,0.177,0.202;0.8,0.8))	0.13
	C_{22}	((2.658,3.282,4.188,4.538;1,1),(2.793,3.392,4.091,4.464;0.8,0.8))	((0.087,0.121,0.201,0.262;1,1),(0.094,0.127,0.216,0.247;0.8,0.8))	0.16
	C_{23}	((1.794,2.163,2.797,3.139;1,1),(1.875,2.084,2.728,3.062;0.8,0.8))	((0.059,0.08,0.134,0.181;1,1),(0.063,0.078,0.144,0.169;0.8,0.8))	0.11
	C_{24}	((1.579,2.037,2.792,3.169;1,1),(1.682,1.916,2.707,3.09;0.8,0.8))	((0.052,0.075,0.134,0.183;1,1),(0.057,0.072,0.143,0.171;0.8,0.8))	0.11
	C_{25}	((1.403,1.746,2.322,2.617;1,1),(1.476,1.551,2.259,2.551;0.8,0.8))	((0.046,0.064,0.111,0.151;1,1),(0.05,0.058,0.119,0.141;0.8,0.8))	0.09
	C_{26}	((1.07,1.241,1.562,1.759;1,1),(1.105,1.147,1.543,1.712;0.8,0.8))	((0.035,0.046,0.075,0.101;1,1),(0.037,0.043,0.082,0.095;0.8,0.8))	0.06
	C_{27}	((1.056,1.264,1.619,1.81;1,1),(1.102,1.028,1.579,1.768;0.8,0.8))	((0.035,0.047,0.078,0.104;1,1),(0.037,0.039,0.083,0.098;0.8,0.8))	0.06
	C_{28}	((0.822,0.939,1.158,1.29;1,1),(0.848,0.744,1.15,1.26;0.8,0.8))	((0.027,0.035,0.055,0.074;1,1),(0.028,0.028,0.061,0.07;0.8,0.8))	0.05
	C_{29}	((0.94,1.081,1.389,1.619;1,1),(0.971,0.86,1.366,1.562;0.8,0.8))	((0.031,0.04,0.066,0.093;1,1),(0.033,0.032,0.072,0.086;0.8,0.8))	0.05

[Downloaded from ijethics.com on 2024-04-27]

	C_{210}	((0.766,0.901,1.152,1.299;1,1),(0.794,0.752,1.156,1.265;0.8,0.8))	((0.025,0.033,0.055,0.075;1,1),(0.027,0.028,0.061,0.07;0.8,0.8))	0.04
	C_{211}	((0.457,0.566,0.801,0.989;1,1),(0.48,0.467,0.802,0.941;0.8,0.8))	((0.015,0.021,0.038,0.057;1,1),(0.016,0.018,0.042,0.052;0.8,0.8))	0.03
	C_{212}	((0.62,0.733,0.976,1.177;1,1),(0.644,0.666,0.966,1.124;0.8,0.8))	((0.02,0.027,0.047,0.068;1,1),(0.022,0.025,0.051,0.062;0.8,0.8))	0.04
	C_{213}	((0.4,0.467,0.628,0.77;1,1),(0.415,0.381,0.656,0.733;0.8,0.8))	((0.013,0.017,0.03,0.044;1,1),(0.014,0.014,0.035,0.04;0.8,0.8))	0.02
	C_{214}	((0.375,0.416,0.516,0.591;1,1),(0.384,0.276,0.533,0.573;0.8,0.8))	((0.012,0.015,0.025,0.034;1,1),(0.013,0.01,0.028,0.032;0.8,0.8))	0.02
	C_{215}	((0.304,0.342,0.45,0.555;1,1),(0.311,0.248,0.452,0.526;0.8,0.8))	((0.01,0.013,0.022,0.032;1,1),(0.01,0.009,0.024,0.029;0.8,0.8))	0.02
	C_{216}	((0.375,0.411,0.504,0.579;1,1),(0.382,0.273,0.509,0.561;0.8,0.8))	((0.012,0.015,0.024,0.033;1,1),(0.013,0.01,0.027,0.031;0.8,0.8))	0.02
	C_{217}	((0.29,0.32,0.404,0.479;1,1),(0.295,0.196,0.398,0.46;0.8,0.8))	((0.009,0.012,0.019,0.028;1,1),(0.01,0.007,0.021,0.025;0.8,0.8))	0.02
	C_{218}	((0.279,0.305,0.393,0.483;1,1),(0.285,0.187,0.39,0.459;0.8,0.8))	((0.009,0.011,0.019,0.028;1,1),(0.01,0.007,0.021,0.025;0.8,0.8))	0.02
Individual	C_{31}	((2.185,2.743,3.576,3.9;1,1),(2.308,2.842,3.492,3.838;0.8,0.8))	((0.118,0.169,0.289,0.384;1,1),(0.129,0.178,0.303,0.36;0.8,0.8))	0.23
	C_{32}	((1.987,2.511,3.33,3.716;1,1),(2.1,2.601,3.238,3.631;0.8,0.8))	((0.107,0.155,0.269,0.366;1,1),(0.117,0.163,0.28,0.341;0.8,0.8))	0.21
	C_{33}	((1.352,1.552,1.868,2.019;1,1),(1.398,1.346,1.833,1.988;0.8,0.8))	((0.073,0.096,0.151,0.199;1,1),(0.078,0.084,0.159,0.187;0.8,0.8))	0.12
	C_{34}	((1.024,1.331,1.833,2.116;1,1),(1.094,1.344,1.793,2.052;0.8,0.8))	((0.055,0.082,0.148,0.208;1,1),(0.061,0.084,0.155,0.193;0.8,0.8))	0.12
	C_{35}	((0.781,0.989,1.367,1.605;1,1),(0.827,0.89,1.359,1.548;0.8,0.8))	((0.042,0.061,0.11,0.158;1,1),(0.046,0.056,0.118,0.145;0.8,0.8))	0.09
	C_{36}	((0.794,0.917,1.194,1.412;1,1),(0.822,0.794,1.203,1.357;0.8,0.8))	((0.043,0.057,0.096,0.139;1,1),(0.046,0.05,0.104,0.127;0.8,0.8))	0.08
	C_{37}	((0.571,0.679,0.901,1.069;1,1),(0.594,0.543,0.895,1.026;0.8,0.8))	((0.031,0.042,0.073,0.105;1,1),(0.033,0.034,0.078,0.096;0.8,0.8))	0.06
	C_{38}	((0.459,0.525,0.682,0.816;1,1),(0.474,0.416,0.693,0.782;0.8,0.8))	((0.025,0.032,0.055,0.08;1,1),(0.026,0.026,0.06,0.073;0.8,0.8))	0.05
	C_{39}	((0.36,0.416,0.595,0.796;1,1),(0.372,0.305,0.588,0.74;0.8,0.8))	((0.019,0.026,0.048,0.078;1,1),(0.021,0.019,0.051,0.069;0.8,0.8))	0.04
	C_{310}	((0.384,0.417,0.5,0.566;1,1),(0.389,0.271,0.491,0.55;0.8,0.8))	((0.021,0.026,0.04,0.056;1,1),(0.022,0.017,0.043,0.052;0.8,0.8))	0.03

[Downloaded from ijethics.com on 2024-04-27]

	C_{311}	((0.27,0.296,0.382,0.468;1,1),(0.275,0.193,0.383,0.445;0.8,0.8))	((0.015,0.018,0.031,0.046;1,1),(0.015,0.012,0.033,0.042;0.8,0.8))	0.03

Phase 2: Relationship between indicators with type 2 fuzzy dimethyl technique

Step 8: Create the initial direct relationship matrix (A):

Moral barriers were identified after the weights were determined. A questionnaire related to the level of penetration of each barrier was prepared to other barriers and distributed among the experts. After collecting the opinions of the experts and using table (4), the verbal data were converted into fuzzy trapezoidal numbers of type 2.

Table 4: Conversion of verbal variables into fuzzy trapezoidal numbers of the second type after the weights of moral barriers (21).

Verbal variables	Trapezoidal numbers
Very effective	((0.8, 0.9, 0.9, 1.0; 1, 1), (0.85, 0.9, 0.9, 0.95; 0.9, 0.9))
Effective	((0.6, 0.7, 0.7, 0.8; 1, 1), (0.65, 0.7, 0.7, 0.75; 0.9, 0.9))
Moderately effective	((0.4, 0.5, 0.5, 0.6; 1, 1), (0.45, 0.5, 0.5, 0.55; 0.9, 0.9))
Slightly effective	((0.2, 0.3, 0.3, 0.4; 1, 1), (0.25, 0.3, 0.3, 0.35; 0.9, 0.9))
Ineffective	((0, 0.1, 0.1, 0.1; 1, 1), (0, 0.1, 0.1, 0.05; 0.9, 0.9))

Then the initial matrix of direct relations was determined using the following equation.

$$A_{ij} = \frac{1}{H}\sum_{k=1}^{H} x_{ij}^{k}$$

Step 9: Normalize the initial direct relationship matrix (D)

The normalized matrix was determined using the following two equations.

$$D = \frac{A}{S}$$

$$S = max\left(\max_{1\le i\le n}\sum_{j=1}^{n} A_{ij}.\max_{1\le i\le n}\sum_{i=1}^{n} A_{ij}\right)$$

Step 10: Forming matrix Z_x

Also, using the following equation, eight matrices n × n are obtained from the matrix D as described in Z_a, Z_b, Z_c, Z_d, Z_e, Z_f, Z_g and Z_h, so that the next step can be calculated easily.

$$Z_x = \begin{bmatrix} 0 & x_{12} & \cdots & x_{12} \\ x_{21} & 0 & \dots & x_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ x_{n1} & x_{n2} & \cdots & 0 \end{bmatrix}$$

Step 11: Explain the Total Relationship Matrix (T_X)

The total relationship matrix was obtained using the following equation

$$T_x = Z_x(I - Z_x)^{-1}$$

Step 12: Analyze causal relationships

The sum of the values of the rows and columns was calculated in order to obtain the analysis of causal relationships. The following equations were used to determine the values of $\widetilde{D+R}$ and $\widetilde{D-R}$

$$T_x = [t_{ij}]_{n\times n} \quad i.j = 1.2 \dots . n \qquad (12)$$

[Downloaded from ijethics.com on 2024-04-27]

$$r_x = \left[\sum_{j=1}^{n} t_{ij}\right]_{n\times 1=[t_i]n\times 1} \quad (13)$$

$$c_x = \left[\sum_{i=1}^{n} t_{ij}\right]_{1\times n=[t_i]1\times n} \quad (14)$$

Related results for dimensions and indicators are shown in Tables (5) and (6), respectively.

Step 13: Calculate Definitive Values $\widetilde{D+R}$ and $\widetilde{D-R}$ Dimensions and Indicators (E (W))

Using the following equation, definite values were obtained for the dimensions and obstacles of implementing green human resource management.

$$E(W) = \frac{1}{2}\left(\frac{1}{4}\sum_{i=1}^{4}\left(w_i^l + w_i^u\right)\right) \times \frac{1}{4}\left(\sum_{i=1}^{2}\left(W_i(A^l) + W_i(A^u)\right)\right)$$

Where;

$W_1 = (W_i^U + W_i^L)$
$= \left(\left(w_1^U . w_2^U . w_3^U . w_4^U ; H_1(W_i^U) . H_2(W_i^U)\right) . \left(w_1^U . w_2^U . w_3^U . w_4^U ; H_1(W_i^U) . H_2(W_i^U)\right)\right)$

Results showed in table5 and 6.

Step 14: Combine the fuzzy weights E (U) and E (W)

Using the sub-equation, the fuzzy weights obtained in step 7 are combined with the definite values obtained in step 13.

$$E(W)new = E(U_i) \otimes E(W) \quad i = indices\ and\ dimensions$$

The values obtained are shown in Tables 5 and 6.

Table 5: $\widetilde{D+R}$ and $\widetilde{D-R}$ ethical barriers dimensions of green human resource management

dimensions	$\widetilde{D+R}$	$\widetilde{D-R}$	$E(W)$		$E(U)$	NewE(W)	
			D+R	D-R		newD+R	newD-R
Organizational	((2.903,6.98,6.98,18.189;1,1), (3.78,6.98,6.98,8.438;0.9,0.9))	((-0.114,-0.209,-0.209,-0.448;1,1), (-0.131,-0.209,-0.209,-0.232;0.9,0.9))	7.48	-0.21	0.678	5.068	-0.146
Environmental	((3.1,7.341,7.341,18.964;1,1), (4.007,7.341,7.341,8.839;0.9,0.9))	((0.257,0.471,0.471,1.012;1,1), (0.296,0.471,0.471,0.523;0.9,0.9))	7.85	0.49	0.205	1.608	0.099
Individual	((2.983,7.128,7.128,18.506;1,1), (3.873,7.128,7.128,8.602;0.9,0.9))	((-0.143,-0.263,-0.263,-0.564;1,1), (-0.165,-0.263,-0.263,-0.292;0.9,0.9))	7.63	-0.27	0.138	1.053	-0.037

[Downloaded from ijethics.com on 2024-04-27]

Table6: $\widetilde{D+R}$ and $\widetilde{D-R}$ all ethical barriers of green human resource management

Barrier		$\widetilde{D+R}$	$\widetilde{D-R}$	$E(W)$		$E(U)$	NewE(W)	
				D+R	D-R		newD+R	newD-R
Organizational	C_{11}	((3.391,7.114,7.114,24.738;1,1), (4.695,7.114,7.114,11.28;0.9,0.9))	((0.117,0.198,0.198,0.577;1,1), (0.145,0.198,0.198,0.286;0.9,0.9))	8.89	0.23	0.08	0.74	0.02
	C_{12}	((3.025,6.495,6.495,22.937;1,1), (4.243,6.495,6.495,10.386;0.9,0.9))	((-0.011,-0.019,-0.019,-0.055;1,1), (-0.014,-0.019,-0.019,-0.027;0.9,0.9))	8.16	-0.02	0.11	0.86	-0
	C_{13}	((3.097,6.617,6.617,23.291;1,1), (4.332,6.617,6.617,10.562;0.9,0.9))	((-0.101,-0.17,-0.17,-0.495;1,1), (-0.124,-0.17,-0.17,-0.246;0.9,0.9))	8.30	-0.20	0.07	0.62	-0.01
	C_{14}	((3.167,6.736,6.736,23.637;1,1), (4.419,6.736,6.736,10.734;0.9,0.9))	((-0.05,-0.085,-0.085,-0.249;1,1), (-0.062,-0.085,-0.085,-0.123;0.9,0.9))	8.44	-0.10	0.10	0.88	-0.01
	C_{15}	((3.132,6.676,6.676,23.464;1,1), (4.375,6.676,6.676,10.648;0.9,0.9))	((-0.093,-0.157,-0.157,-0.459;1,1), (-0.115,-0.157,-0.157,-0.228;0.9,0.9))	8.37	-0.19	0.07	0.57	-0.01
	C_{16}	((3.28,6.927,6.927,24.193;1,1), (4.559,6.927,6.927,11.01;0.9,0.9))	((0.128,0.216,0.216,0.628;1,1), (0.158,0.216,0.216,0.312;0.9,0.9))	8.67	0.26	0.06	0.52	0.02
	C_{17}	((3.087,6.6,6.6,23.242;1,1), (4.32,6.6,6.6,10.537;0.9,0.9))	((-0.065,-0.111,-0.111,-0.322;1,1), (-0.081,-0.111,-0.111,-0.16;0.9,0.9))	8.28	-0.13	0.06	0.47	-0.01
	C_{18}	((3.117,6.651,6.651,23.39;1,1), (4.357,6.651,6.651,10.611;0.9,0.9))	((0.097,0.165,0.165,0.48;1,1), (0.121,0.165,0.165,0.238;0.9,0.9))	8.34	0.20	0.05	0.45	0.01
	C_{19}	((3.413,7.151,7.151,24.848;1,1), (4.723,7.151,7.151,11.335;0.9,0.9))	((-0.131,-0.222,-0.222,-0.646;1,1), (-0.162,-0.222,-0.222,-0.321;0.9,0.9))	8.94	-0.26	0.06	0.51	-0.02
	C_{110}	((3.134,6.679,6.679,23.471;1,1), (4.377,6.679,6.679,10.651;0.9,0.9))	((0.203,0.343,0.343,1;1,1), (0.251,0.343,0.343,0.497;0.9,0.9))	8.38	0.41	0.06	0.52	0.03
	C_{111}	((3.363,7.067,7.067,24.603;1,1), (4.662,7.067,7.067,11.214;0.9,0.9))	((-0.067,-0.113,-0.113,-0.329;1,1), (-0.083,-0.113,-0.113,-0.163;0.9,0.9))	8.84	-0.13	0.04	0.37	-0.01
	C_{112}	((2.988,6.432,6.432,22.752;1,1), (4.196,6.432,6.432,10.294;0.9,0.9))	((0.065,0.11,0.11,0.321;1,1), (0.081,0.11,0.11,0.16;0.9,0.9))	8.08	0.13	0.04	0.33	0.01
	C_{113}	((3.143,6.694,6.694,23.516;1,1), (4.388,6.694,6.694,10.673;0.9,0.9))	((-0.017,-0.028,-0.028,-0.082;1,1), (-0.021,-0.028,-0.028,-0.041;0.9,0.9))	8.39	-0.03	0.03	0.27	-0
	C_{114}	((3.401,7.131,7.131,24.788;1,1), (4.708,7.131,7.131,11.305;0.9,0.9))	((0.029,0.049,0.049,0.143;1,1), (0.036,0.049,0.049,0.071;0.9,0.9))	8.91	0.06	0.03	0.27	0
	C_{115}	((3.292,6.946,6.946,24.25;1,1),	((-0.207,-0.351,-0.351,-1.022;1,1),	8.69	-0.42	0.03	0.24	-0.01

[Downloaded from ijethics.com on 2024-04-27]

		(4.573,6.946,6.946,11.038;0.9,0.9))	(-0.257,-0.351,-0.351,-0.508;0.9,0.9))					
	C_{116}	((3.24,6.859,6.859,23.997;1,1), (4.509,6.859,6.859,10.913;0.9,0.9))	((0.056,0.094,0.094,0.274;1,1), (0.069,0.094,0.094,0.136;0.9,0.9))	8.59	0.11	0.03	0.25	0
	C_{117}	((3.285,6.935,6.935,24.217;1,1), (4.565,6.935,6.935,11.022;0.9,0.9))	((-0.097,-0.163,-0.163,-0.477;1,1), (-0.12,-0.163,-0.163,-0.237;0.9,0.9))	8.68	-0.19	0.02	0.19	-0
	C_{118}	((3.169,6.739,6.739,23.648;1,1), (4.421,6.739,6.739,10.739;0.9,0.9))	((0.073,0.124,0.124,0.36;1,1), (0.09,0.124,0.124,0.179;0.9,0.9))	8.45	0.15	0.02	0.21	0
	C_{119}	((3.176,6.75,6.75,23.678;1,1), (4.429,6.75,6.75,10.754;0.9,0.9))	((-0.206,-0.349,-0.349,-1.017;1,1), (-0.256,-0.349,-0.349,-0.505;0.9,0.9))	8.46	-0.41	0.02	0.19	-0.01
	C_{120}	((3.294,6.951,6.951,24.264;1,1), (4.576,6.951,6.951,11.045;0.9,0.9))	((0.03,0.05,0.05,0.147;1,1), (0.037,0.05,0.05,0.073;0.9,0.9))	8.70	0.06	0.02	0.17	0
	C_{121}	((3.005,6.462,6.462,22.839;1,1), (4.218,6.462,6.462,10.337;0.9,0.9))	((0.036,0.061,0.061,0.177;1,1), (0.044,0.061,0.061,0.088;0.9,0.9))	8.12	0.07	0.02	0.13	0
	C_{122}	((3.387,7.107,7.107,24.719;1,1), (4.691,7.107,7.107,11.271;0.9,0.9))	((0.212,0.359,0.359,1.046;1,1), (0.263,0.359,0.359,0.52;0.9,0.9))	8.88	0.43	0.02	0.15	0.01
Environmental	C_{21}	((3.137,5.826,5.826,13.471;1,1), (4.13,5.826,5.826,8.192;0.9,0.9))	((0.201,0.306,0.306,0.601;1,1), (0.239,0.306,0.306,0.396;0.9,0.9))	6.38	0.33	0.131	0.837	0.043
	C_{22}	((3.063,5.715,5.715,13.252;1,1), (4.043,5.715,5.715,8.048;0.9,0.9))	((-0.007,-0.011,-0.011,-0.022;1,1), (-0.009,-0.011,-0.011,-0.014;0.9,0.9))	6.27	-0.01	0.161	1.007	-0.002
	C_{23}	((2.809,5.327,5.327,12.491;1,1), (3.74,5.327,5.327,7.547;0.9,0.9))	((-0.327,-0.498,-0.498,-0.977;1,1), (-0.389,-0.498,-0.498,-0.644;0.9,0.9))	5.85	-0.53	0.108	0.632	-0.057
	C_{24}	((2.568,4.96,4.96,11.77;1,1), (3.453,4.96,4.96,7.072;0.9,0.9))	((0.109,0.167,0.167,0.327;1,1), (0.13,0.167,0.167,0.215;0.9,0.9))	5.46	0.18	0.105	0.575	0.019
	C_{25}	((2.616,5.033,5.033,11.914;1,1), (3.511,5.033,5.033,7.167;0.9,0.9))	((-0.251,-0.382,-0.382,-0.749;1,1), (-0.298,-0.382,-0.382,-0.493;0.9,0.9))	5.54	-0.41	0.088	0.488	-0.036
	C_{26}	((2.758,5.249,5.249,12.337;1,1), (3.679,5.249,5.249,7.445;0.9,0.9))	((0.087,0.132,0.132,0.26;1,1), (0.103,0.132,0.132,0.171;0.9,0.9))	5.77	0.14	0.061	0.352	0.009
	C_{27}	((2.671,5.116,5.116,12.076;1,1), (3.575,5.116,5.116,7.274;0.9,0.9))	((-0.134,-0.204,-0.204,-0.401;1,1), (-0.159,-0.204,-0.204,-0.264;0.9,0.9))	5.63	-0.22	0.062	0.349	-0.013
	C_{28}	((1.951,4.02,4.02,9.925;1,1), (2.72,4.02,4.02,5.857;0.9,0.9))	((0.086,0.132,0.132,0.258;1,1), (0.103,0.132,0.132,0.17;0.9,0.9))	4.47	0.14	0.045	0.201	0.006
	C_{29}	((2.26,4.49,4.49,10.848;1,1), (3.087,4.49,4.49,6.465;0.9,0.9))	((-0.037,-0.057,-0.057,-0.111;1,1), (-0.044,-0.057,-0.057,-0.073;0.9,0.9))	4.97	-0.06	0.054	0.269	-0.003

[Downloaded from ijethics.com on 2024-04-27]

	C_{210}	((2.447,4.776,4.776,11.409;1,1), (3.31,4.776,4.776,6.834;0.9,0.9))	((0.383,0.584,0.584,1.145;1,1), (0.455,0.584,0.584,0.754;0.9,0.9))	5.27	0.62	0.045	0.235	0.028
	C_{211}	((2.887,5.446,5.446,12.724;1,1), (3.833,5.446,5.446,7.701;0.9,0.9))	((0.264,0.402,0.402,0.79;1,1), (0.314,0.402,0.402,0.521;0.9,0.9))	5.98	0.43	0.031	0.185	0.013
	C_{212}	((2.317,4.577,4.577,11.018;1,1), (3.154,4.577,4.577,6.576;0.9,0.9))	((-0.101,-0.154,-0.154,-0.302;1,1), (-0.12,-0.154,-0.154,-0.199;0.9,0.9))	5.06	-0.16	0.038	0.194	-0.006
	C_{213}	((2.752,5.24,5.24,12.319;1,1), (3.672,5.24,5.24,7.434;0.9,0.9))	((-0.42,-0.639,-0.639,-1.255;1,1), (-0.499,-0.639,-0.639,-0.827;0.9,0.9))	5.76	-0.68	0.025	0.143	-0.017
	C_{214}	((2.886,5.444,5.444,12.72;1,1), (3.831,5.444,5.444,7.698;0.9,0.9))	((-0.078,-0.118,-0.118,-0.232;1,1), (-0.092,-0.118,-0.118,-0.153;0.9,0.9))	5.98	-0.13	0.02	0.121	-0.003
	C_{215}	((2.627,5.05,5.05,11.946;1,1), (3.524,5.05,5.05,7.188;0.9,0.9))	((-0.011,-0.017,-0.017,-0.033;1,1), (-0.013,-0.017,-0.017,-0.022;0.9,0.9))	5.56	-0.02	0.018	0.099	0
	C_{216}	((2.686,5.14,5.14,12.122;1,1), (3.594,5.14,5.14,7.304;0.9,0.9))	((0.188,0.286,0.286,0.561;1,1), (0.223,0.286,0.286,0.37;0.9,0.9))	5.65	0.30	0.02	0.112	0.006
	C_{217}	((3.009,5.632,5.632,13.09;1,1), (3.978,5.632,5.632,7.941;0.9,0.9))	((0.12,0.183,0.183,0.359;1,1), (0.143,0.183,0.183,0.236;0.9,0.9))	6.18	0.19	0.016	0.098	0.003
	C_{218}	((3.27,6.03,6.03,13.87;1,1), (4.289,6.03,6.03,8.456;0.9,0.9))	((-0.073,-0.112,-0.112,-0.219;1,1), (-0.087,-0.112,-0.112,-0.144;0.9,0.9))	6.60	-0.12	0.016	0.102	-0.002
Individual	C_{31}	((3.373,6.225,6.225,13.886;1,1), (4.376,6.225,6.225,8.5;0.9,0.9))	((0.32,0.49,0.49,0.936;1,1), (0.378,0.49,0.49,0.619;0.9,0.9))	6.72	0.51	0.229	1.541	0.118
	C_{32}	((3.097,5.803,5.803,13.08;1,1), (4.051,5.803,5.803,7.967;0.9,0.9))	((0.153,0.235,0.235,0.448;1,1), (0.181,0.235,0.235,0.296;0.9,0.9))	6.28	0.25	0.214	1.342	0.053
	C_{33}	((3.354,6.196,6.196,13.832;1,1), (4.354,6.196,6.196,8.464;0.9,0.9))	((-0.163,-0.25,-0.25,-0.478;1,1), (-0.193,-0.25,-0.25,-0.316;0.9,0.9))	6.69	-0.26	0.122	0.818	-0.032
	C_{34}	((2.881,5.472,5.472,12.447;1,1), (3.795,5.472,5.472,7.549;0.9,0.9))	((0.08,0.122,0.122,0.233;1,1), (0.094,0.122,0.122,0.154;0.9,0.9))	5.93	0.13	0.117	0.696	0.015
	C_{35}	((3.055,5.738,5.738,12.957;1,1), (4.001,5.738,5.738,7.886;0.9,0.9))	((-0.098,-0.151,-0.151,-0.287;1,1), (-0.116,-0.151,-0.151,-0.19;0.9,0.9))	6.21	-0.16	0.088	0.545	-0.014
	C_{36}	((3.216,5.985,5.985,13.428;1,1), (4.191,5.985,5.985,8.197;0.9,0.9))	((-0.3,-0.46,-0.46,-0.878;1,1), (-0.355,-0.46,-0.46,-0.581;0.9,0.9))	6.47	-0.48	0.079	0.511	-0.038
	C_{37}	((2.767,5.298,5.298,12.116;1,1), (3.661,5.298,5.298,7.33;0.9,0.9))	((0.042,0.064,0.064,0.123;1,1), (0.05,0.064,0.064,0.081;0.9,0.9))	5.75	0.07	0.059	0.337	0.004
	C_{38}	((2.757,5.283,5.283,12.087;1,1),	((-0.163,-0.25,-0.25,-0.477;1,1),	5.73	-0.26	0.045	0.259	-0.012

[Downloaded from ijethics.com on 2024-04-27]

		(3.65,5.283,5.283,7.311;0.9,0.9))	(-0.193,-0.25,-0.25,-0.315;0.9,0.9))					
	C_{39}	((3.045,5.723,5.723,12.928;1,1), (3.989,5.723,5.723,7.866;0.9,0.9))	((-0.269,-0.412,-0.412,-0.788;1,1), (-0.318,-0.412,-0.412,-0.521;0.9,0.9))	6.20	-0.43	0.04	0.246	-0.017
	C_{310}	((3.459,6.356,6.356,14.138;1,1), (4.478,6.356,6.356,8.666;0.9,0.9))	((0.286,0.438,0.438,0.836;1,1), (0.337,0.438,0.438,0.553;0.9,0.9))	6.86	0.46	0.033	0.226	0.015
	C_{311}	((3.173,5.919,5.919,13.302;1,1), (4.14,5.919,5.919,8.114;0.9,0.9))	((0.113,0.174,0.174,0.332;1,1), (0.134,0.174,0.174,0.219;0.9,0.9))	6.40	0.18	0.025	0.162	0.005

Step 15: Designing the causal diagram

The causal diagram for the ethical barriers to implementing green human resource management in the automotive industry is shown in Figure 3, respectively.

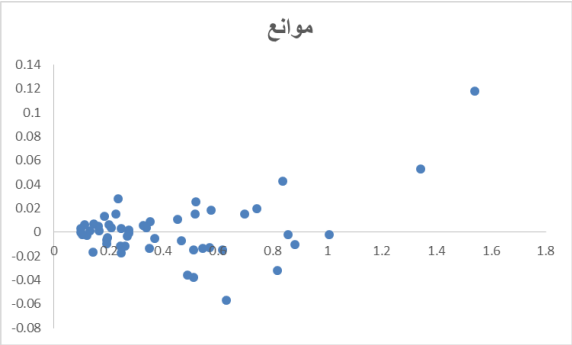

Fig3: Sub-criteria of ethical barriers to implementing green human resource management

Discussion

Based on the results obtained from the fuzzy dimethyl technique of type 2, which is expressed in Table 6, it can be stated that the environmental dimension is due to the positive DR is one of the effective dimensions and in other words, the organizational and individual dimensions are negative due to the negative DR. In other words, they are disabled.
In short, in the organizational dimension, indicators of financial costs and lack of sufficient financial resources to implement environmental ethics education, lack of green culture and promotion of environmental ethics, lack of green leadership, lack of green practices in vision and mission and strategy Organization, lack of research and development and innovation in relation to environmental ethics, lack of appropriate technologies in accordance with environmental standards, lack of proper job descriptions based on environmental ethics standards, high cost of obtaining certificates related to environmental ethics, lack of Social ethical values in the organization and poor communication and lack of sharing the best environmental practices due to the positivity of DR are among the effective indicators and lack of proper organizational structure, lack of manpower aware of environmental ethics, lack of professional consultants on environmental ethics Lack of education related to issues related to environmental ethics, lack of commitment and support of senior management to environmental ethics, conflict of interest between stakeholders in the field of environmental ethics, lack of green organizational rules and standards, lack of appropriate technologies in accordance with standards The environment in the production sector, the lack of information on issues related to environmental ethics, the complexity of ethical concepts in the organization and the lack of an environmental reward system; Due to the negativity of D-R, they are among the influential indicators. Regardless of the organizational dimensions in green human resource management, no effective step can be taken to institutionalize environmental ethics. This finding is consistent with the results of some studies (23-24).
In the environmental dimension, more attention should be paid to economic, cultural and social insecurity that leads to environmental behaviors. For example, if economic incentives are provided to carry out activities related to environmental ethics,

[Downloaded from ijethics.com on 2024-04-27]

organizations will be more active in this regard. Especially when it comes to developing new policies that aim to change people's behavior. Especially in the environmental dimension, indicators of lack of awareness and low knowledge in the field of environmental ethics, political instability and related issues (such as sanctions on companies and institutions, etc.), economic insecurity, lack and lack of moral and biological values Environment in suppliers, lack of government incentives and low-interest loans in relation to compliance with environmental ethics, lack of monitoring of the implementation of laws related to environmental ethics, lack of interaction between organizations and green groups with companies and lack of proper communication with Other partners (such as suppliers, etc.) in order to implement environmental ethics due to the positive DR is one of the effective indicators and indicators of customer unwillingness to buy green products, economic instability, monopoly, lack of green raw materials, lack and lack of program Environmental ethics training by the government, lack of knowledge in the field of environmental ethics in industry, poor implementation of environmental ethics by companies, lack of comprehensive environmental ethics strategy and action plan in the government and the high cost of using services and green innovations For companies, due to the negativity of DR, they are among the defective and influential indicators. The environmental factor in green human resource management is a factor that acts as an underlying factor and environmental organizations to work in this area and spread environmental ethics should first pay special attention to this in the field of green human resource management and after achieving this Agents can see growth and progress in other areas. (These findings are in line with the views of many studies in the field of environmental ethics (26-25).

In the individual dimension, the indicators of lack of knowledge and lack of knowledge on issues related to environmental ethics among employees, lack of motivation to change conditions and lack of attention to environmental ethics, unwillingness to share environmental information among people, frustration in people relative Changing conditions, uncertainty about the output and risk of using green measures and cultural indifference due to the positivity of DR are among the indicators of cause and inability of individuals to identify challenges related to disregard for environmental ethics, employees' lack of belief in bioethics. Environmental, lack of altruism in individuals, employee perception that there is no need to respond to non-environmental actions and lack of behavioral control due to DR negativity are among the defective and influential indicators. In this dimension, it should be noted that environmental ethics is a type of behavior with the aim of minimizing the negative effects of individual actions on the natural and environmental environment, and individual moral barriers are barriers that are within the individual and along with attitudes and moods. The person is accompanied. The importance of the individual dimension in green human resource management has been confirmed in some other researches (28-27)

Whereas the present study was conducted with the aim of determining the weight and determining the cause and effect relationships of ethical barriers to green human resource management in the automotive industry of Tehran province; therefore, it should be noted that the present study is geographically limited to Tehran province. In terms of society, it is limited to the automotive industry. In terms of analysis techniques, it is also limited to fuzzy AHP type 2 and fuzzy DEMATEL type 2 techniques; therefore, this research can be done in other communities and with other decision-making techniques.

Based on the results of the research, it is suggested:

- Provide subsidies and support (long-term, low-interest loans) and incentives for governments to encourage organizations to use green human resource management and promote environmental ethics.
- By teaching environmental ethics to their employees, organizations can both help institutionalize environmental ethics and lead to organizational growth and development.
- Organizations should work with NGO green groups and other organizations to better manage human resources and spread environmental ethics among employees and managers.

[Downloaded from ijethics.com on 2024-04-27]

- The government should develop codified rules and ethical standards regarding the environment for organizations that have executive guarantees.
- Organizations should use consultants and managers who are aware of environmental issues and are committed to environmental ethics.

Conclusion

Research on green human resource management indicates that over the past two decades, there has been a growing interest in greening the organization, which has led to an increase in the environmental actions of organizations. Many factors, including human resources, can be used to develop the environmental ethics of organizations. With a closer look, the importance of human resources in all sectors is clear, and it is very important to identify the ethical factors that prevent the implementation of green measures in the field of human resources. In this regard, the present study aimed to establish a relationship between human resource management and greenery and environmental ethics and to identify and rank the ethical obstacles to the implementation of green human resource management.

Ethical Consideration

Ethical issues (including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Acknowledgement

We owe it to ourselves to thank all the people who helped us in this research.

References

1. Parsapour Z (2012). A study of global studies of environmental ethics and the need to teach its common principles. *Science and Religious Studies*, 3(2). (In Persian).
2. Abedi-Sarvestani A, Shahvali M (2008). Necessity and characteristics of research in environmental ethics. *Ethics in Science and Technology*, 3(3-4): 56-61. (In Persian).
3. Azadkhani P, Sadatnejad M, Sharafkhani J. (2018). Investigating environmental education and environmental protection behaviors. *Human & Environment*, 16(1). (In Persian).
4. Teixeira AA, Jabbour CJC, De Sousa Jabbour ABL, Latan H, De Oliveira JHC. (2016). Green training and green supply chain management: evidence from Brazilian firms. *Journal of Cleaner Production*, 116: 170-176.
5. Mousa SK, Othman M. (2020). The impact of green human resource management practices on sustainable performance in healthcare organizations: A conceptual framework. *Journal of Cleaner Production*, 243.
6. Yusliza MY, Othman NZ, Jabbour CJC (2017). Deciphering the implementation of green human resource management in an emerging economy. *Journal of Management Development*, 36(10): 1230-1246.
7. Tang G, Chen Y, Jiang Y, Paillé P, Jia J (2018). Green human resource management practices: scale development and validity. *Asia Pacific Journal of Human Resources*, 56(1): 31-55.
8. Jabbour CJC, De Sousa Jabbour ABL, Govindan K, Teixeira AA, De Souza Freitas WR (2013). Environmental management and operational performance in automotive companies in Brazil: the role of human resource management and lean manufacturing. *Journal of Cleaner Production*, 47: 129-140
9. Nejati M, Rabiei S, Jabbour C JC. (2017). Envisioning the invisible: Understanding the synergy between green human resource management and green supply chain management in manufacturing firms in Iran in light of the moderating effect of employees' resistance to change. *Journal of Cleaner Production*, 168: 163-172.
10. Abedi-Sarvestani A, Shahvali M, Mohaghegh-Damad SM (2007). The nature and views of environmental ethics with emphasis on the Islamic view. *Ethics in Science and Technology*, 2(1-2): 59-72. (In Persian).
11. Soleymanpour M, Yarmohamadian MH, Kashtiaray N (2016). Comparative study of environmental approaches and theories. *Curriculum Research*, 2(21): 14-29. (In Persian).
12. Hatcher T. (2004). Environmental ethics as an alternative for evaluation theory in for-profit business contexts. *Evaluation and Program Planning*, 27: 357-363.
13. Gupta H, Barua MK (2018). A framework to overcome barriers to green innovation in SMEs using BWM and Fuzzy TOPSIS. *Science of The Total Environment*, 633: 122-139.
14. Tooranloo HS, Azadi MH, Sayyahpoor A (2017). Analyzing factors affecting implementation success of sustainable human resource management (SHRM) using a hybrid approach of FAHP and type-2 fuzzy DEMATEL. *Journal of Cleaner Production*, 1621: 252-1265.

[Downloaded from ijethics.com on 2024-04-27]

15. Agyemang, M, Zhu Q, Adzanyo M, Antarciuc E, Zhao S (2018). Evaluating barriers to green supply chain redesign and implementation of related practices in the West Africa cashew industry. *Resources, Conservation and Recycling*, 136: 209-222.
16. Dube A, Gawande R (2017). Barriers for green supply chain management implementation. 3rd International Conference on Recent Trends in Engineering & Technology, India.
17. Da Silva FC, Shibao FY, Barbieri JC, Librantz AF, Dos Santos MR (2017). Barriers to green supply chain management in the automotive industry. *Journal of Business Management*, 58(2): 149-162.
18. Movahedipour M, Zeng J, Yang M, Wu X (2017). An ISM approach for the barrier analysis in implementing sustainable supply chain management: An empirical study. *Management Decision*, 55(8): 1824-1850.
19. Prakash C, Barua MK. (2015). Integration of AHP-TOPSIS method for prioritizing the solutions of reverse logistics adoption to overcome its barriers under fuzzy environment. *Journal of Manufacturing Systems*, 37: 599-615.
20. Tumpaa AJ, Alia SM, Rahmana H, Kumar Paulb S, Chowdhuryc P, Rehman Khan SA (2019). Barriers to green supply chain management: An emerging economy context. *Journal of Cleaner Production*, 236: 1-12
21. Kahraman C, Süder A, Kaya I (2014). Fuzzy multicriteria evaluation of health research investments. *Technological & Economic Development of Economy*, 20 (2): 210-226.
22. Abdullah L, Zulkifli N. (2015). Integration of fuzzy AHP and interval type-2 fuzzy DEMATEL: An application to human resource management. *Expert Systems with Applications*, 42(9): 4397-4409
23. Kumar P (2010). New dimension to human resource management: A focus on strategic human resource management (SHRM). International Conference on Emerging Trends in Technology & Education, India.
24. Sheehan C, De Cieri H, Brian Cooper, Robert Brooks (2014). Exploring the power dimensions of the human resource function. *Human Resource Management Journal*, 24(2).
25. Chitescua RI, Lixandru M. (2016). The influence of the social, political and economic impact on human resources, as a determinant factor of sustainable development. *Procedia Economics & Finance*, 39: 820 – 826.
26. Krypa AN (2017). Social economic development and the human resources management. *Academic Journal of Interdisciplinary Studies*, 6(1).
27. Gratton L, Truss C. (2003). The three-dimensional people strategy: putting human resources policies into action. *The Academy of Management Executive*, 17(3): 74-86
28. Kapur R. (2020). The ethical dimension of human resource management. Available at: https://www.researchgate.net/publication/338522493_The_Ethical_Dimension_of_Human_Resource_Management. Accessed: 2 May 2020.

[Downloaded from ijethics.com on 2024-04-27]