

**ENVIRONMENTAL RESPONSIBILITY:
THE ROLE OF INSTITUTIONAL AND INDIVIDUAL FACTORS**

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by

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*This Thesis is Dedicated to Mahadev, my grandparents,
my parents, my in-laws, my husband, and my son*

Mrs. Basanti Devi & Mr. Amar Singh Tanwar

Mrs. Rajni & Mr. Jaidev

Mrs. Rajni Sharma & Dr. Anand Kumar

Mr. Ankit Kashyap

Baby Dharv Kashyap

who stood by me in every situation

CERTIFICATE

This is to certify that the thesis titled “**Environmental Responsibility: The Role of Institutional and Individual Factors**”, being submitted by **Ms. Venu Shankar** to the Indian Institute of Technology Delhi, for the award of the degree of **Doctor of Philosophy (Ph.D.)**, is a record of bonafide research work carried out by her. She has worked under my supervision and has fulfilled the requirements for the submission of this thesis, which has attained the standard required for a Ph.D. degree of the Institute. The results presented in this thesis have not been submitted elsewhere for award of any degree or diploma.

(Prof. Kanika T. Bhal)

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ABSTRACT

With exponentially increasing environmental degradation around the globe, environmental responsibility has gathered larger importance in the last decade. As a developing economy, India's development is being fueled by urban production-based growth which is combined with slower growth of rural agrarian production, this makes India's economy complex, which necessitates a focus on environmental quality while managing its growth. Despite implementing environmental strategies, policies and overarching environmental awareness programs at several levels, environmental degradation is incessantly increasing, and India ranks third in carbon emissions. Although growing research on environmental responsibility exhibits its unavoidable relevance, environmental responsibility is a multi-level question that needs to be addressed in management research. Research concentrating environmental responsibility is fragmented into several forms that do not focus on multi-level approaches that envisage *institutional* (also known as macro level), *organizational*, and *individual level*. Undoubtedly the exploration of organizational level with respect to environmental responsibility has been highlighted in several forms such as corporate environmental responsibility, environmental management systems, organizational carbon taxing etc. in existing literature (Aguilera et al., 2021), however, levels such as institutional and individual have been given relatively less attention. Therefore, the focal point of the present study is associated with *institutional* and *individual* levels of environmental responsibility.

Past literature on environmental responsibility was reviewed to extract suitable theoretical lenses that are beneficial in understanding institutional and individual levels of environmental responsibility. We found *institutional theory* and *behavioral reasoning theory* as well-suited theories for our studies for institutional and individual level respectively. For institutional level, we have implemented a novice use of institutional theory to understand macro-level forces of

environmental responsibility and their impacts in India. The individual level of environmental responsibility is studied in terms of employees' voluntary green behavior. The rationale behind selecting *employees* was to arrest the ideas on voluntary green behavior as it has several managerial as well as societal implications.

For methodology, we adopted mixed-methods research design as it furnishes a strong theoretical base for guiding and directing the researcher for data collection. Analysis has been done using qualitative and quantitative approaches. In this study, we have used primary as well as secondary data. The primary data approach is bifurcated into two categories – *qualitative and quantitative*. The qualitative approach is based on the researcher's ability to interpret and analyze the data and draw inferences from transcripts created after interviews/discussion. Whereas the quantitative approach relies more on statistical tools and techniques for measuring the reliability and validity of constructs. Hence, integrating both (qualitative and quantitative) renders us more authentic and reliable results. Apart from that, the mixed method imparts the benefits of multiple data sources and saves from common method bias.

The research started with a study based on secondary data which aimed to understand the institutional level of environmental responsibility. As mentioned earlier, institutional theory has been utilized to understand the country level forces of environmental responsibility in the form of regulatory and cultural cognitive pressures. Till now, institutional theory has been used by researchers for interpreting the pressures that an organization faces (Delmas & Toffel, 2008), however, we claim that just like organizations, country also faces similar pressures which need to be focused as the overall foundation of environmental responsibility recline on how country's regulations and cultural cognition are being navigated in the ecosystem. In this study, we conceptualized regulatory quality as mandatory regulatory and environment awareness as

voluntary cultural-cognitive institutional mechanisms and looked at the impact of the two on environment quality in India. In response to the mixed results on the impact of regulatory quality on environmental quality, we hypothesized a short-term positive impact and a long-term negative impact of regulatory quality on environmental quality. Next, we hypothesized the long-term positive impact of environmental awareness on environmental quality assessed as greenhouse emissions in India. Further, in response to the call of researchers for exploring the joint effect of mandatory and voluntary measures (Aragón-Correa et al., 2020), we hypothesized a positive moderating role of environmental awareness on the regulation quality-environment quality relationship in the long term. Given the government initiatives over the last 16 years, especially the launch of the environment awareness program in 2004, secondary data from sources like the World Bank and Google Trends from 2004 to 2019 is used to develop the study measures and test the hypotheses. Data supported our hypotheses and underscored the relevance of regulatory quality in the short run and cultural cognitive elements both independently and jointly in impacting environmental quality in the long run.

After exploring institutional level questions, we explored environmental responsibility at the individual level, which was studied as voluntary green behavior as this variant of green behavior is not only an outcome of environmental awareness (as explored in study 1) but it also enhances emotional involvement towards ameliorating environmental quality. We selected automobile (high polluting) and IT sectors (low polluting) for our second study. The selection of the two industries is based on the Ministry of Environment and Forests' 2016 notification. This 2016 notification divides the industries based on their pollution index and sets out the standards related to the range of pollution index. Whereas Automobile is low on environmental responsibility, IT industry is high on it. We have used the Behavioral Reasoning Theory as the base for testing employee voluntary

green behavior. To show the robustness of the theory and its relevance in all contexts, we chose two different industries with different levels of environmental responsibility. The theory is shown to be universal and applicable in all contexts.

As often endorsed by organizational leaders that “*employees are our most important assets*” (Fulmer and Ployhart, 2014, p. 162), we have echoed this perspective in our work and have focused on employees’ green behavior. Extant literature does not present much empirical evidence on voluntary employees’ green behavior, several studies have focused on task-related green behavior which only checks the behavior at workplace. However, voluntary green behavior goes beyond task-related behavior and helps employees to improve their psychological climate and their environmental actions in work as well as nonwork context. EGB refers to as “*scalable actions and behaviors that employees engage in or bring about that are linked with, and contribute to, environmental sustainability*”(Ones et al., 2012, p. 87). We opted *behavioral reasoning theory* as it eliminates the drawback such as *reasons’ gap* that is present in the most widely used behavioral theory, *theory of planned behavior*. The merit of behavioral reasoning theory is that it includes reasons that also serve as an underlying factor along with other cognitive factors (Fishbein, Martin; Ajzen, 1975), for adopting intentions for a particular behavior.

Behavioral reasoning theory is a novel theory that has not been tested much empirically but its relevance in the domain of behavioral studies cannot be ignored as it provides a new understanding of intentions in the milieu of context-specific reasons (Westaby, 2005). In behavioral reasoning theory, it is mandated to explore context-specific reasons before proceeding with the empirical testing of its antecedents. As we wanted to see the applicability of behavioral reasoning theory across two industries, we divided our study pertaining to individual level into three phases. Phase 1 (study 2a) is associated with exploring context specific reasons for voluntary employees’ green

behavior and assessing the explored reasons. Phase 2 (study 2b) is associated with testing behavioral reasoning theory in automobile sector (high polluting industry) and phase 3 (study 2c) is related to IT sector (low polluting industry). Using the logic that Goodman (1977) provided, we argue that employees may display voluntary green behavioral practices because of *organizational situational factors* which also activate and interact with behavior. Therefore, in study 2c, we have extended our conceptual framework and have added *green human resource management* as a moderator to see its interacting effects on green intentions through context-specific reasons and green attitudes.

Study 2a was based on semi-structured interviews of managers working in the automobile and IT sectors. The content analysis with deductive approach formulated by Braun & Clarke (2006) that aims to understand the emerging themes from the respondents' point of view has been used. The rationale for this study was to extract context specific reasons with respect to voluntary green behavior. After interviewing 21 managers, we culled out seven third order and five second order relevant themes that have been seen as prime drivers for reasons for and reasons against. The third-order themes reflected as "paperless", "less use of plastic", "green nudges", "organization's own initiatives", "lifestyle issues", "lack of time", "could do more" which were translated into "5" second-order themes "internal green organizational culture (paperless, less use of plastic, green nudges)", "organization's environmental involvement (organization's own initiatives)", "environmental lifestyle barrier (lifestyle issues)", "time barrier (lack of time)", "personal impediments (could do more)". The first two are related to reasons for and the last three are related to reasons against. After exploring the themes pertaining to reasons, we translated themes into statements format and conducted exploratory factor analysis on a sample of 149 respondents. All

seven themes were included in our study 2b and 2c as the factor score for each theme was more than 0.75 according to principal axis factoring method.

After exploring the themes, we proceeded with our empirical studies based on behavioral reasoning theory on automobile and IT sectors. For these studies, the survey method was followed to collect data set from 253 cross-sectional data for automobile industry and 248 six-week time lagged data with two waves for IT sector. The data was collected through Amazon Mturk with two constraints i.e. i) respondents should be working in the automobile sector for study 2b and IT sector for study 2c, ii) respondents should be working in India. Structural equation modelling was employed using AMOS v26 and SPSS v26 to evaluate the direct and indirect effects of variables on employees' voluntary green behavior and for moderation effects of green human resource management, model 1 from PROCESS HAYES' MACRO was used to see interaction between green human resource management, green attitudes, reasons for & reasons against. For structural model fit, confirmatory factor analysis on AMOS was utilized. Partial mediation, serial (as well as sequential mediation), moderation in form of indirect effects were tested. Results indicate consistency across both industries i.e., *high polluting* and *low polluting* that explain the relevance of behavioral reasoning theory for voluntary green behavior. Biospheric values are positively influencing reasons for, however, negatively impacting reasons against. Reasons for are positively leading to green attitudes and reasons against are not significant in impacting green attitudes. For green intentions, reasons for turned out to be more significant in comparison to reasons against. Green attitudes are positively impacting green intentions which in turn is positively impacting voluntary employees' green behavior. For indirect effects, first we checked partial and sequential mediation across our theoretical framework and found out the presence of partial mediation in the model between i) biospheric values & green attitudes (when reasons for is a mediator, hypothesis

7a), ii) biospheric values & green intentions (when reasons for is a mediator, hypothesis 8a), iii) reasons for and green intentions (when green attitudes is considered as a mediator, hypothesis 9a). However, it should be noted that when reasons against are included in the model, the results of partial mediation are non-significant across both the industries (hypothesis 7b, 8b, and 9b). This highlights the relevance of favorable reasons (also known as reasons for) for encouraging employees to embrace green behavior voluntarily.

The second type of indirect effects were tested in the form of sequential mediation (serial mediation). Five paths were discovered for sequential mediation from biospheric values to voluntary green behavior – i) biospheric values to voluntary green behavior with reasons for, green attitudes, and green intentions as serial mediators (hypothesis 10a), ii) biospheric values to voluntary green behavior with reasons against, green attitudes, and green intentions as serial mediators (hypothesis 10b), iii) biospheric values to voluntary green behavior with green attitudes and green intentions as serial mediators (hypothesis 11), iv) reasons for to voluntary green behavior with green attitudes and green intentions as serial mediators (hypothesis 12a), and v) reasons against to voluntary green behavior with green attitudes and green intentions as serial mediators (hypothesis 12b). The results of sequential mediation were significant when reasons for was present in the sequential paths which means hypothesis 10a, 11, and 12a were supported. On the other hand, hypothesis 10b and 12b were not supported as the models for these hypotheses have reasons against in the model. According to serial (or sequential) mediation, the importance of reasons for is persistent across both the sectors. Therefore, organizations should pay undivided attention towards adopting a culture that promotes ‘reasons for’ for voluntary employees’ green behavior. The third and last variant of indirect effects was tested through including moderator in the behavioral reasoning theory model in our study 2c. As Goodman (1977), suggested the role of

dispositional as well as organizational situational variables, we included green human resource management as a moderator in our conceptual framework to see its interactions with an external variable (hypothesis 13a, 13b, and 13c). Hypothesis 13a and 13c were supported and it was observed that green human resource management positively interacts with reasons for and green attitudes to create a stronger influence on green intentions. On the other hand, when green human resource management interacts with reasons against, it is not leading to significant impacts on green intentions. This study helps in investigating the new paradigm by including institutional and individual level factors that drive environmental responsibility. At institutional level, the role of cultural cognitive forces and their interaction with regulatory forces for environmental responsibility are of utmost importance, and we studied voluntary employees' green behavior for individual environmental responsibility as it has societal as well as managerial implications. Since behavioral reasoning theory is a novel framework, we tested our model in high as well as low polluting industry to see its relevance. The findings of this study help us in understanding that both reasons for and reasons against that lead to one's intentions to behave in eco-friendly ways. The robustness of context specific reasons can be ascertained through our exploratory investigation as well as exploratory factor analysis. We not only assessed direct associations within the model but also indirect associations wherein we obtained the significance of 'reasons for' for impacting voluntary employees green behavior intentions. In addition, the role of green human resource management as an external force, is also outlined in this study. This work is expected to help in creating an organizational culture that encourages voluntary green behavior rather than task-related green behavior. Besides, organizations can organize training programs commonly focusing on facilitating skills such as eco-friendly practices.

सार

दुनिया भर में पर्यावरण क्षरण में तेज़ी से वृद्धि के साथ, पिछले दशक में पर्यावरणीय ज़िम्मेदारी ने बड़ा महत्व प्राप्त कर लिया है। एक विकासशील अर्थव्यवस्था के रूप में, भारत का विकास शहरी उत्पादन-आधारित वृद्धि से प्रेरित है, ग्रामीण कृषि उत्पादन से दूर जा रहा है, यह भारत की अर्थव्यवस्था को जटिल बनाता है, जिसके लिए इसके विकास को प्रबंधित करते समय पर्यावरण की गुणवत्ता पर ध्यान देने की आवश्यकता है। कई स्तरों पर पर्यावरणीय रणनीतियों, नीतियों और व्यापक पर्यावरण जागरूकता कार्यक्रमों को लागू करने के बावजूद, पर्यावरणीय क्षरण लगातार बढ़ रहा है, और भारत कार्बन उत्सर्जन में तीसरे स्थान पर है। हालाँकि पर्यावरणीय ज़िम्मेदारी पर बढ़ते शोध इसकी अपरिहार्य प्रासंगिकता को प्रदर्शित करते हैं, पर्यावरणीय ज़िम्मेदारी एक बहु-स्तरीय प्रश्न है जिसे प्रबंधन अनुसंधान में संबोधित करने की आवश्यकता है। पर्यावरणीय ज़िम्मेदारी पर केंद्रित शोध कई रूपों में विखंडित है जो संस्थागत (जिसे मैक्रो लेवल भी कहा जाता है), संगठनात्मक और व्यक्तिगत स्तर की परिकल्पना करने वाले बहु-स्तरीय दृष्टिकोणों पर ध्यान केंद्रित नहीं करता है। निस्संदेह पर्यावरणीय ज़िम्मेदारी के संबंध में संगठनात्मक स्तर की खोज को मौजूदा साहित्य (एगुइलेरा एट अल., 2021) में कॉर्पोरेट पर्यावरणीय ज़िम्मेदारी, पर्यावरण प्रबंधन प्रणाली, संगठनात्मक कार्बन टैक्सिंग आदि जैसे कई रूपों में उजागर किया गया है, हालाँकि, संस्थागत और व्यक्तिगत जैसे स्तरों पर अपेक्षाकृत कम ध्यान दिया गया है। इसलिए, वर्तमान अध्ययन का केंद्र बिंदु पर्यावरणीय ज़िम्मेदारी के संस्थागत और व्यक्तिगत स्तरों से जुड़ा है।

पर्यावरणीय ज़िम्मेदारी पर पिछले साहित्य की समीक्षा उपयुक्त सैद्धांतिक लेंस निकालने के लिए की गई थी जो पर्यावरणीय ज़िम्मेदारी के संस्थागत और व्यक्तिगत स्तरों को समझने में फायदेमंद हैं। हमने संस्थागत सिद्धांत और व्यावहारिक तर्क सिद्धांत को क्रमशः संस्थागत और व्यक्तिगत स्तर के लिए हमारे अध्ययन के लिए उपयुक्त सिद्धांत के रूप में पाया। संस्थागत स्तर के लिए, हमने भारत में पर्यावरणीय ज़िम्मेदारी की

मैक्रो-स्तरीय ताकतों और उनके प्रभावों को समझने के लिए संस्थागत सिद्धांत के एक नौसिखिए उपयोग को लागू किया है। पर्यावरणीय जिम्मेदारी के व्यक्तिगत स्तर का अध्ययन कर्मचारियों के स्वैच्छिक हरित व्यवहार के संदर्भ में किया जाता है। कर्मचारियों के चयन के पीछे का तर्क स्वैच्छिक हरित व्यवहार के विचारों को रोकना था क्योंकि इसके कई प्रबंधकीय और साथ ही सामाजिक निहितार्थ हैं। कार्यप्रणाली के लिए, हमने मिश्रित-पद्धति अनुसंधान डिजाइन को अपनाया क्योंकि यह डेटा संग्रह के लिए शोधकर्ता को मार्गदर्शन और निर्देशन के लिए एक मजबूत सैद्धांतिक आधार प्रदान करता है। गुणात्मक और मात्रात्मक दृष्टिकोणों का उपयोग करके विश्लेषण किया गया है।

इस अध्ययन में, हमने प्राथमिक और द्वितीयक डेटा का उपयोग किया है। प्राथमिक डेटा दृष्टिकोण को दो श्रेणियों में विभाजित किया गया है - गुणात्मक और मात्रात्मक। गुणात्मक दृष्टिकोण शोधकर्ता की डेटा की व्याख्या और विश्लेषण करने और साक्षात्कार/चर्चा के बाद बनाए गए प्रतिलेखों से निष्कर्ष निकालने की क्षमता पर आधारित है। जबकि मात्रात्मक दृष्टिकोण निर्माणों की विश्वसनीयता और वैधता को मापने के लिए सांख्यिकीय उपकरणों और तकनीकों पर अधिक निर्भर करता है। इसलिए, दोनों (गुणात्मक और मात्रात्मक) को एकीकृत करने से हमें अधिक प्रामाणिक और विश्वसनीय परिणाम मिलते हैं। इसके अलावा, मिश्रित विधि कई डेटा स्रोतों के लाभ प्रदान करती है और सामान्य विधि पूर्वाग्रह से बचाती है।

अब तक, शोधकर्ताओं द्वारा एक संगठन के सामने आने वाले दबावों की व्याख्या करने के लिए संस्थागत सिद्धांत का उपयोग किया गया है (डेल्मास और टॉफिल, 2008), हालांकि, हमारा दावा है कि संगठनों की तरह, देश भी समान दबावों का सामना करता है, जिन पर ध्यान केंद्रित करने की आवश्यकता है क्योंकि पर्यावरणीय जिम्मेदारी का समग्र आधार इस बात पर निर्भर करता है कि देश के नियमन और सांस्कृतिक अनुभूति को पारिस्थितिकी तंत्र में कैसे संचालित किया जा रहा है। इस अध्ययन में, हमने नियामक गुणवत्ता को अनिवार्य नियामक और पर्यावरण जागरूकता को स्वैच्छिक सांस्कृतिक-संज्ञानात्मक संस्थागत तंत्र के

रूप में अवधारणाबद्ध किया और भारत में पर्यावरण की गुणवत्ता पर दोनों के प्रभाव को देखा। पर्यावरण की गुणवत्ता पर नियामक गुणवत्ता के प्रभाव के मिश्रित परिणामों के जवाब में, हमने पर्यावरणीय गुणवत्ता पर संस्थागत गुणवत्ता के अल्पकालिक सकारात्मक प्रभाव और दीर्घकालिक नकारात्मक प्रभाव की परिकल्पना की। इसके बाद, इसके अलावा, अनिवार्य और स्वैच्छिक उपायों (अरागॉन-कोरिया एट अल., 2020) के संयुक्त प्रभाव की खोज के लिए शोधकर्ताओं के आह्वान के जवाब में, हमने दीर्घकालिक रूप से विनियमन गुणवत्ता-पर्यावरण गुणवत्ता संबंध पर पर्यावरण जागरूकता की सकारात्मक मध्यस्थ भूमिका की परिकल्पना की। पिछले 16 वर्षों में सरकार की पहलों को देखते हुए, विशेष रूप से संगठन की पर्यावरणीय भागीदारी (संगठन की अपनी पहल), "पर्यावरणीय जीवनशैली बाधा (जीवनशैली के मुद्दे)", "समय बाधा (समय की कमी)", "व्यक्तिगत बाधाएं (अधिक कर सकते थे)"। पहले दो कारणों से संबंधित हैं और अंतिम तीन कारणों से संबंधित हैं।

कारणों से संबंधित विषयों की खोज करने के बाद, हमने विषयों को कथन प्रारूप में अनुवादित किया और 149 उत्तरदाताओं के नमूने पर खोजपूर्ण कारक विश्लेषण किया। सभी सात विषयों को हमारे अध्ययन 2बी और 2सी में शामिल किया गया था क्योंकि प्रमुख अक्ष फैक्टरिंग विधि के अनुसार प्रत्येक विषय के लिए कारक स्कोर 0.75 से अधिक था। विषयों की खोज करने के बाद, हम ऑटोमोबाइल और आईटी क्षेत्रों पर व्यवहार तर्क सिद्धांत पर आधारित अपने अनुभवजन्य अध्ययनों के साथ आगे बढ़े। इन अध्ययनों के लिए, ऑटोमोबाइल उद्योग के लिए 253 क्रॉस-सेक्शनल डेटा और आईटी क्षेत्र के लिए दो तरंगों के साथ 248 छह-सप्ताह के समय विलंबित डेटा से डेटा सेट एकत्र करने के लिए सर्वेक्षण पद्धति का पालन किया गया था। डेटा को दो बाधाओं के साथ अमेज़न एमटर्क के माध्यम से एकत्र किया गया था यानी i) उत्तरदाताओं को अध्ययन 1 के लिए ऑटोमोबाइल क्षेत्र में और अध्ययन 2 के लिए आईटी क्षेत्र में काम करना चाहिए, ii) उत्तरदाताओं को भारत में काम करना चाहिए। कर्मचारियों के स्वैच्छिक हरित व्यवहार पर चर के प्रत्यक्ष

और अप्रत्यक्ष प्रभावों का मूल्यांकन करने के लिए AMOS v26 और SPSS v26 का उपयोग करके संरचनात्मक समीकरण मॉडलिंग को नियोजित किया गया था और हरित मानव संसाधन प्रबंधन के मॉडरेशन प्रभावों के लिए, PROCESS HAYES' MACRO से मॉडल 1 का उपयोग हरित मानव संसाधन प्रबंधन, हरित दृष्टिकोण, कारणों और विरुद्ध कारणों के बीच बातचीत देखने के लिए किया गया था। संरचनात्मक मॉडल फिट के लिए, AMOS पर पुष्टि कारक विश्लेषण का उपयोग किया गया था। आंशिक मध्यस्थता, धारावाहिक (साथ ही अनुक्रमिक मध्यस्थता), अप्रत्यक्ष प्रभावों के रूप में मॉडरेशन का परीक्षण किया गया कारण सकारात्मक रूप से हरित दृष्टिकोण को बढ़ावा दे रहे हैं और विपक्ष में कारण हरित दृष्टिकोण को प्रभावित करने में महत्वपूर्ण नहीं हैं। हरित इरादों के लिए, कारण विपक्ष में कारणों की तुलना में अधिक महत्वपूर्ण साबित हुए। हरित दृष्टिकोण हरित इरादों को सकारात्मक रूप से प्रभावित कर रहे हैं जो बदले में स्वैच्छिक कर्मचारियों के हरित व्यवहार को सकारात्मक रूप से प्रभावित कर रहे हैं।

अप्रत्यक्ष प्रभावों के लिए, सबसे पहले हमने अपने सैद्धांतिक ढांचे में आंशिक और अनुक्रमिक मध्यस्थता की जाँच की और मॉडल में i) जैवमंडलीय मूल्यों और हरित दृष्टिकोण (जब कारण मध्यस्थ होते हैं, परिकल्पना 7a), ii) जैवमंडलीय मूल्यों और हरित इरादे (जब कारण मध्यस्थ होते हैं, परिकल्पना 8a), iii) कारण और हरित इरादे (जब हरित दृष्टिकोण को मध्यस्थ माना जाता है, परिकल्पना 9a) के बीच आंशिक मध्यस्थता की उपस्थिति का पता लगाया। हालाँकि, यह ध्यान दिया जाना चाहिए कि जब कारण विपक्ष में मॉडल में शामिल किया जाता है, तो आंशिक मध्यस्थता के परिणाम दोनों उद्योगों (परिकल्पना 7b, 8b और 9b) में गैर-महत्वपूर्ण होते हैं। यह कर्मचारियों को स्वेच्छा से हरित व्यवहार अपनाने के लिए प्रोत्साहित करने के लिए अनुकूल कारणों (जिन्हें कारण भी कहा जाता है) की प्रासंगिकता पर प्रकाश डालता है। दूसरे प्रकार के अप्रत्यक्ष प्रभावों का परीक्षण अनुक्रमिक मध्यस्थता (सीरियल मध्यस्थता) के रूप में किया गया। जैवमंडलीय मूल्यों से स्वैच्छिक हरित व्यवहार तक क्रमिक मध्यस्थता के लिए पाँच रास्ते खोजे गए - i) जैवमंडलीय मूल्य

स्वैच्छिक हरित व्यवहार के लिए कारण, हरित दृष्टिकोण और हरित इरादे क्रमिक मध्यस्थों के रूप में (परिकल्पना 10a), ii) जैवमंडलीय मूल्य स्वैच्छिक हरित व्यवहार के लिए कारण, हरित दृष्टिकोण और हरित इरादे क्रमिक मध्यस्थों के रूप में (परिकल्पना 10b), iii) जैवमंडलीय मूल्य स्वैच्छिक हरित व्यवहार के लिए कारण, हरित दृष्टिकोण और हरित इरादे क्रमिक मध्यस्थों के रूप में (परिकल्पना 11), iv) स्वैच्छिक हरित व्यवहार के लिए कारण, हरित दृष्टिकोण और हरित इरादे क्रमिक मध्यस्थों के रूप में (परिकल्पना 12a), और v) स्वैच्छिक हरित व्यवहार के लिए कारण, हरित दृष्टिकोण और हरित इरादे क्रमिक मध्यस्थों के रूप में (परिकल्पना 12b)। क्रमिक मध्यस्थता के परिणाम तब महत्वपूर्ण थे जब कारण क्रमिक पथों में मौजूद थे, जिसका अर्थ है कि परिकल्पना 10a, 11 और 12a समर्थित थे। दूसरी ओर, परिकल्पना 10बी और 12बी का समर्थन नहीं किया गया क्योंकि इन परिकल्पनाओं के मॉडल में इनके विरुद्ध कारण मौजूद हैं। धारावाहिक (या अनुक्रमिक) मध्यस्थता के अनुसार, कारणों का महत्व दोनों क्षेत्रों में लगातार बना रहता है। इसलिए, संगठनों को एक ऐसी संस्कृति को अपनाने की ओर पूरा ध्यान देना चाहिए जो स्वैच्छिक कर्मचारियों के हरित व्यवहार के लिए 'कारणों' को बढ़ावा दे। हमारे अध्ययन 2सी में व्यवहार तर्क सिद्धांत मॉडल में मॉडरेटर को शामिल करके अप्रत्यक्ष प्रभावों के तीसरे और अंतिम प्रकार का परीक्षण किया गया। जैसा कि गुडमैन (1977) ने स्वभावगत और साथ ही संगठनात्मक स्थितिजन्य चर की भूमिका का सुझाव दिया था, हमने बाहरी चर के साथ इसकी अंतःक्रियाओं को देखने के लिए हरित मानव संसाधन प्रबंधन को अपने वैचारिक ढांचे में मॉडरेटर के रूप में शामिल किया (परिकल्पना 13ए, 13बी, और 13सी)। परिकल्पना 13ए और 13सी का समर्थन किया गया और यह देखा गया कि हरित मानव संसाधन प्रबंधन हरित इरादों पर अधिक प्रभाव डालने के लिए कारणों और हरित दृष्टिकोणों के साथ सकारात्मक रूप से अंतःक्रिया करता है। दूसरी ओर, जब हरित मानव संसाधन प्रबंधन विरुद्ध कारणों के साथ अंतःक्रिया करता है, तो यह हरित इरादों पर महत्वपूर्ण प्रभाव नहीं डालता है।

यह अध्ययन पर्यावरणीय जिम्मेदारी को संचालित करने वाले संस्थागत और व्यक्तिगत स्तर के कारकों को शामिल करके नए प्रतिमान की जांच करने में मदद करता है। संस्थागत स्तर पर, सांस्कृतिक संज्ञानात्मक शक्तियों की भूमिका और पर्यावरणीय जिम्मेदारी के लिए नियामक शक्तियों के साथ उनकी अंतःक्रिया अत्यंत महत्वपूर्ण है, और हमने व्यक्तिगत पर्यावरणीय जिम्मेदारी के लिए स्वैच्छिक कर्मचारियों के हरित व्यवहार का अध्ययन किया क्योंकि इसके सामाजिक और प्रबंधकीय निहितार्थ हैं। चूंकि व्यवहारिक तर्क सिद्धांत एक नया ढांचा है, इसलिए हमने इसकी प्रासंगिकता देखने के लिए अपने मॉडल का उच्च और साथ ही कम प्रदूषण करने वाले उद्योग में परीक्षण किया। इस अध्ययन के निष्कर्ष हमें यह समझने में मदद करते हैं कि पक्ष और विपक्ष दोनों ही कारण किसी के पर्यावरण के अनुकूल तरीके से व्यवहार करने के इरादों को जन्म देते हैं। संदर्भ-विशिष्ट कारणों की मजबूती का पता हमारी खोजपूर्ण जांच के साथ-साथ खोजपूर्ण कारक विश्लेषण के माध्यम से लगाया जा सकता है। हमने न केवल मॉडल के भीतर प्रत्यक्ष संबंधों का मूल्यांकन किया, बल्कि अप्रत्यक्ष संबंधों का भी मूल्यांकन किया, जिसमें हमने स्वैच्छिक कर्मचारियों के हरित व्यवहार इरादों को प्रभावित करने के लिए 'कारणों' के महत्व को प्राप्त किया। इसके अलावा, इस अध्ययन में एक बाहरी शक्ति के रूप में हरित मानव संसाधन प्रबंधन की भूमिका को भी रेखांकित किया गया है। इस कार्य से एक संगठनात्मक संस्कृति बनाने में मदद मिलने की उम्मीद है जो कार्य-संबंधित हरित व्यवहार के बजाय स्वैच्छिक हरित व्यवहार को प्रोत्साहित करती है। इसके अलावा, संगठन आमतौर पर पर्यावरण के अनुकूल प्रथाओं जैसे कौशल को सुविधाजनक बनाने पर ध्यान केंद्रित करते हुए प्रशिक्षण कार्यक्रम आयोजित कर सकते हैं। सैद्धांतिक और व्यावहारिक निहितार्थों के साथ, यह अध्ययन सार्थक और दिलचस्प सुझाव प्रदान करता है जिसका उपयोग भविष्य के शोधकर्ताओं द्वारा इस क्षेत्र में काम करने के लिए किया जा सकता है।

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LIST OF ABBREVIATIONS

ABDC	Australian Business Deans Council's
ADF	Augmented Dickey Fuller Test
AMOS	Analysis of Moment Structure
ARDL	Autoregressive Distributed Lag
ATT	Green Attitudes
AUT	Automobile
AVE	Average Variance Extracted
BIO	Bio-spheric Values
BRT	Behavioral Reasoning Theory
BSES	Bharat Stage Emission Standards
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CMB	Common Method Bias
CMIN	Chi-square fit statistics
CMIN/df	Chi-square fit statistics/degree of freedom
CR	Composite Reliability
CUSUM	Cumulative Sum
CUSUMSQUARES	Squares of Cumulative Sum
df	Degree of Freedom
EGB	Employees' Green Behavior
ER	Environmental Responsibility
F-Statistics	Ronald Fisher Statistics

GB	Green Behavior
GFI	Goodness-of-Fit Index
GHRM	Green Human Resource Management
HR	Human Resource
HRM	Human Resource Management
INST	Institutional Theory
INTENT	Green Intentions
IT	Information Technology
KMO	Kaiser–Meyer–Olkin
LGEA	Environmental Awareness
LGEQ	Environmental Quality
LGISU	Innovation Support
LGRQ	Regulatory Quality
LGTO	Trade Openness
MTurk	Amazon Mechanical Turk
PCLOSE	P of Close Fit
PP	Phillips Perron Unit Root Test
REAA	Reasons Against
REAF	Reasons For
RMSEA	Root Mean Square Error of Approximation
SD	Standard Deviation
SE	Standard Error
SET	Social Exchange Theory

SRMR	Standardized Root Mean Square Residual
TLI	Tucker-Lewis's index
VEGB	Voluntary Employees' Green Behavior
ZA	Zivot Andrews Unit Root Test