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Green Training in Green Human Resources Management: A Study on PT Celebes Railway Indonesia

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ABSTRACT

Various organizations or companies must try to maintain and protect the environment. Therefore, green training is needed as one of the important factors in the practice of green human resources management. This study aims to analyze the development of green training research and also explain green training at PT Celebes Railway Indonesia. Then, it could find out what aspects can be influenced by it so that it can be used as a reference for organizations to pay more attention to these aspects and also become opportunities for future research. This research method, with a descriptive qualitative approach and a review of literature on green training, was obtained through the Scopus and Mendeley.com. The results of the study show that research on green training started from 1913 to 2024, and 2023 is the year with the highest number of publications. Various organizational sectors have widely applied green training. Then, PT Celebes Railway Indonesia has implemented green training as one of the green human resources management practices through several stages ranging from the implementation of Green HRM, training need analysis, trainee application, training approval, trainee appointment, training implementation, training evaluation, and up to training reporting. However, research is still needed with comprehensive methods such as mixed methods to know better the impact and implementation of green training for organizations. In the future, researchers can develop research models and use other research methods or approaches to make research results more comprehensive.

Keywords: Green Human Resource Management, Green Training, Human Resource, Sustainability

1) INTRODUCTION:

Increasing awareness and education about the environment so that people and organizations can play an active role in protecting the environment is currently a special concern [1]. The existence of Green Human Resource Management (GHRM) practices, which is an approach that focuses on integrating environmental sustainability into the human resource management function [2], [3]. Green Human Resource Management (GHRM) has a high urgency in the current era due to increased awareness of environmental and sustainability issues. [4], [5], [6]. This is because HRM not only helps organizations achieve sustainability and environmental goals, but also provides long-term benefits in terms of reputation, performance, and employee engagement [7], [8]. Problems that exist until green training is needed include lack of environmental awareness and knowledge among employees. Many employees may not understand the importance of environmentally friendly practices or the negative impacts of environmental degradation. In addition, lack of motivation or incentive to engage in proenvironmental behavior is also a problem that needs to be addressed. With a lack of understanding and skills when it comes to eco-friendly practices, employees may be unable or unmotivated to take actions that support environmental sustainability. Therefore, green training is needed to provide knowledge, skills, and motivation to employees so that they can carry out pro-environmental behavior, both in the work environment and outside the work environment. Thus, green training is important in overcoming these problems and encouraging behavior change towards environmental sustainability [9].

The current phenomenon of green training also reflects the efforts of companies to build green competencies among their employees, thus creating a more sustainable and efficient work environment in the use of resources. With green training, companies can improve their environmental performance and contribute to overall

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sustainable development [10]. Through training and development focused on eco-friendly practices, employees can learn how to save energy, reduce waste, and spread environmental awareness. It can also strengthen employees' ability to manage organizational change and increase positive attitudes related to environmental issues [11], [12] Green training can then be considered an important practice that can significantly improve the organization's citizenship behavior toward the environment and environmental performance [13]. In green training, some everyday activities and practices include 1) providing an understanding of environmental issues, environmental policies, and the importance of environmental protection, 2) training employees in good waste management, including waste sorting, recycling, and waste reduction, 3) providing knowledge on how to save energy, reduce energy consumption, and use environmentally friendly energy sources, 4) train employees in practices to protect the environment, such as greening, pollution control, and natural resource preservation, 5) teach how to reduce the carbon footprint of individuals and organizations, including green transportation and the use of renewable energy, 6) provide training on work safety related to the environment, such as handling hazardous materials and environmental emergencies, 7) train employees in the use of green technology, environmentally friendly product development, and sustainable innovation. By conducting various activities in green training, organizations can increase employees' environmental awareness, encourage environmentally friendly behavior, and create a sustainable work culture [14], [15]. However, there are barriers to implementing GHRM practices, such as lack of support from senior management, lack of skills to adapt to green technologies, and lack of motivation to implement environmental initiatives [16]. Then most companies in various sectors today have realized the importance of Green HRM and follow these practices. This shows the potential to integrate Green HRM practices across different sectors further to drive greater sustainability and environmental awareness [4].

With increasing awareness of environmental issues worldwide, research on GHRM is becoming increasingly important. These studies can later help organizations stay relevant in the face of market demands increasingly concerned about the environment [17]. Through GHRM research, organizations can identify new innovations in human resource management that can improve their operational efficiency and reduce negative impacts on the environment [18]. Thus, research on green training has important implications in promoting environmental awareness, upskilling employees, strengthening commitment to the environment, improving organizational environmental performance, and creating a sustainable work environment [19]. Based on the explanation that has been described, this study wants to know the implementation of green training at PT Celebes Railway Indonesia and also analyze various studies on green training that have been carried out so that it can contribute to the application of green training in organizations in any sector and help future researchers find out what can be developed related to green training.

2) Methods and Methodology:

This research uses qualitative methods with the aim of 1) Analyze and find out the development of research related to green training as an important factor in the practice of green human resources management in an organization or company through data collection with literature review, namely reviewing books, scientific articles, and other sources relevant to specific problems, fields of research, or theories that aim to provide descriptions, summaries, or can be in the form of critical evaluations of these works [20]. 2) Knowing the implementation of green training case studies at PT Celebes Railway Indonesia. Data was collected through interviews, documentation, and literature review information collection obtained from the Scopus database using the keyword "green training" and other data collected from searches through Mendeley.com. Then, to answer the research objectives, the data collected through observation, interviews, and literature reviews are reviewed and analyzed, and then the data is explained systematically, and finally, conclusions are drawn.

3) RESULTS AND DISCUSSION

a. Analysis Data from Scopus

Based on the Scopus database, publications about green training started in 1913 and have reached a total of 197. 2023 is the year with the highest number of publications, since the start of this study, as shown in Figure 1 about research trend about green training below.

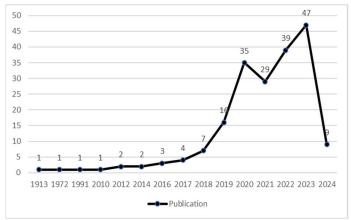


Figure 1: Research Trends About Green Training

Then, here are 10 journals that have contributed the most to this research. The sustainability switzerland journal is the journal with the most publication contributions, namely 17 publications, as shown in Table I about journal that have contributed to publication of green training below.

Table 1. List	of Journals That I	Have Contributed to	Publications Abo	ut Green Training
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No	Journal	Publication
1	Sustainability Switzerland	17
2	Journal Of Cleaner Production	13
3	Environmental Science And Pollution Research	6
4	International Journal Of Manpower	5
5	International Journal Of Sustainable Development And Planning	5
6	Business Strategy And Development	4
7	Business Strategy And The Environment	4
8	Industrial And Commercial Training	4
9	Management Of Environmental Quality An International Journal	4
10	Frontiers In Psychology	3

Furthermore, from figure 2 below, there are countries that have contributed to publications on green training as many as 51 countries and Malaysia is the country with the most publication contributions, namely 39 publications as shown in the following figure which shows the 10 countries with the most contributions shown in the following figure.

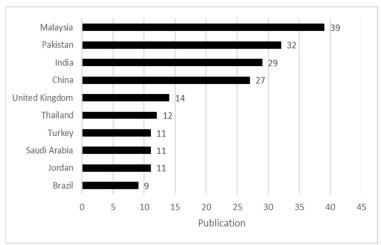


Figure 2: Top 10 Countries With The Most Published Contributions

Furthermore, there are 160 affiliates/universities in figure 3 that have contributed to research on green training, but here are the 10 universities with the highest number of contributions, as shown in the following figure.

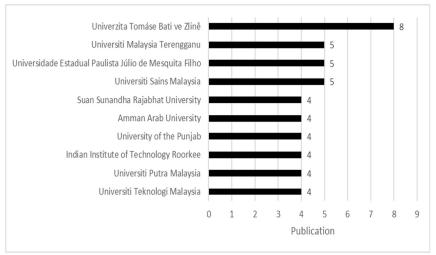


Figure 3 10 Affiliates With The Most Publication Contributions

b. Analysis Data From Mendeley

The following analysis in table 2 is from the results of a review of previous studies on green training in the Mendeley.com, as for 30 research articles that have been selected for review.

Table 2 Summary of Previous Research on Selected Green Training

N.T	Table 2 Summary of Flevious Research on Selected Green Franking				
N o	Author	Sector	Location	Method	The Effect of Green Training
1	Yafi et al., (2021)	Education	Malaysia	Quantitative	Has an influence on environmental performance
2	Usmal et al., (2023)	General	Pakistan	Quantitative	Has an influence on employees' eco-friendly behaviors outside of work
3	Judeh & Khader (2023)	Tourism	Yordania	Quantitative	Has an influence on green employees behavior and employee retention
4	Wu et al., (2021)	Public	China	Quantitative	Has an influence on green creativity
5	Bataineh et al., (2023)	Education	Iran	Quantitative	Has an influence on organizational citizenship behavior towards the environment
6	Colombo et al., (2022)	Energy	Brazil	Quantitative	Has an influence on individual green performance
7	Yadav & Mathew (2023)	IT	India	Quantitative	Has an influence on organizational sustainable performance
8	Memon et al., (2022)	Manufacture	Pakistan	Quantitative	Has an influence on organizational citizenship behaviour towards the environment
9	Darnimala & Prajogo (2022)	General		Quantitative	Has an influence on green organizational citizenship behavior dan green employee involvement
10	Moradeke et al., (2021	Business	Afrika	Quantitative	Has an influence on environmental sustainability
11	Aremu & Adepoju (2022)	Food and Beverages	Nigeria	Quantitative	Has an influence on environmental performance
12	Septiawati et	Tourism	Indonesia	Quantitative	Has an influence on employee

	al., (2022)				environmental performance
13	Hattali et al., (2023)	Education	Oman	Quantitative	Has an influence on environmental and financial performance
14	Jain & Kalapurackal (2023)	Manufacture	India	Quantitative	Has an influence on green innovation
15	Alam et al., (2023)	Pharmacy	Bangladesh	Quantitative	Has an influence on organizational performance
16	Makarim & Muafi (2021)	Transportati on	Indonesia	Quantitative	Has an negative influence on pada turnover intention
17	Anyona (2023)	Goverment	Kenya	Quantitative	Has an influence on employee performance
18	Ratnamiasih et al., (2022)	Business	Indonesia	Quantitative	Has an influence on green human capital
19	Ab & Wahyuni (2023)	Hospital	Indonesia	Quantitative	Has an influence on environmental performance
20	Hameed et al., (2022)	Organization	China	Quantitative	Has an influence on pro- environmental behavior
21	Mayangsari et al., (2021)	Oil and Gas Company	Indonesia	Quantitative	Has an influence on environmental performance
22	Uddin (2022)	Manufacture	Bangladesh	Quantitative	Has an influence on environmental performance
23	Dewi et al., (2022)	Tourism	Prancis	Quantitative	Has an influence on environmental performance
24	Arora & Kaul (2020)	General	India	Quantitative	Has an influence on environmental awareness
25	Nisar et al., (2023)	Tourism	Malaysia	Quantitative	Has an influence on green behaviors
26	Faisal & Naushad (2020)	Business	Saudi Arabia	Quantitative	Has an influence on green organizational performance
27	Li et al., (2023)	Company	China	Quantitative	Has an influence on green employee behavior
28	Gharibeh (2019)	Education	Yordania	Quantitative	Has an influence on competitive advantage of the organization
29	Chreif & Farmanes (2022)	Organization	Lebanon	Quantitative	Has an influence on green sustainability performance
30	Khan et al., (2022)	Business	Pakistan	Quantitative	Has an influence on employee performance

Based on previous research tables that have been reviewed, it is known that many studies were conducted with quantitative approaches to test the effect of green training, then from the results of the review in figure 4 there are many sectors that have implemented green training, including from the public sector, energy, IT, food and beverages, pharmaceuticals, transportation, government, oil and gas, companies, general, manufacturing, organizations, education, tourism, business, to health as shown in the picture below.

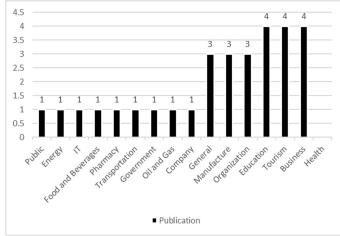


Figure 4 Research on Green Training from Various Sectors

Of the many sectors above that have implemented green training, it is known that the education, tourism, business, and health sectors are the sectors with the most publications related to green training. Then the following in figure 5 is an illustration of the influence that can be provided by green training if applied to green human resources management practices.



Figure 5: The Effect of Green Training

From the picture above, it is known that green training can affect 17 things in practice in green human resources management, the first of which is 1) Environmental performance: namely the measure or evaluation of an organization's performance in managing its impact on the environment [6], [10], [21], [22], [23], [24], [25]. 2) Employee eco-friendly: is employee behavior that supports environmentally friendly practices [9]. 3) Employee green behavior: can be defined as individual employee actions aimed at minimizing negative impacts on the environment, such as saving energy use and reducing waste [12], [26], [27]. 4) Employee retention: the efforts made by organizations to retain qualified employees to achieve their organizational goals [12], [28]. 5) Green creativity: can be defined as the ability of individuals to produce ideas, concepts, or solutions that are innovative and environmentally friendly [3]. 6) Organizational Citizenship Behavior towards the Environment (OCB-E): refers to voluntary actions and behaviors of employees within an organization that exceed their formal job responsibilities and make a positive contribution to environmental sustainability and environmental protection efforts [1], [15]. 7) Employee green performance: is a concept that refers to the level of performance or behavior of individuals in an organization that support environmentally friendly or sustainable practices [29], [30], [31]. 8) Organizational sustainability performance: refers to the ability of an organization to achieve long-term success while minimizing negative impacts on the environment, society, and economy [2], [13], [32]. 9) Green employee involvement: refers to the involvement or participation of employees in activities related to environmentally friendly practices in the workplace [33]. 10) Environmental sustainability: efforts to maintain ecological balance and ensure that natural resources are used responsibly in order to meet the needs of current generations without harming the ability of future generations to meet their needs [19]. 11) Financial performance: is an evaluation to assess how well the organization manages its financial assets and liabilities to achieve the financial goals set [34]. 12) Green innovation: refers to the development and application of new environmentally friendly technologies, products and processes to create more sustainable solutions and reduce negative impacts on the environment [35]. 13) Organizational performance: refers to the overall effectiveness and efficiency of an organization in achieving the goals and objectives that have been set [36][2]. 14) Green human capital: refers to the skills, knowledge, and abilities possessed by individuals in an organization to support environmentally friendly and sustainable business practices [37]. 15) Pro-environmental performance: refers to the level of performance or behavior of an individual, group, or organization in adopting practices or actions that support environmental preservation and contribute to sustainability [38]. 16) Environmental awareness: refers to knowledge and understanding of environmental issues, concerns, and the impact of human activities on the environment [4]. 17) Competitive advantage of the organization: refers to the ability of an organization to differentiate itself from its competitors and create unique added value for its customers or market [39].

From the many aspects that can be influenced by green training described above, it is known that applying green-based training to an organization or any sector can provide many benefits and help maintain and preserve the organization's environment. Therefore, research on green training will continue to be an interesting topic to discuss because of its benefits for organizations and the environment.

c. Green Training on PT Celebes Railway Indonesia

PT Celebes Railway Indonesia is a company engaged in the construction business, infrastructure procurement, and railway operations. The project that has been implemented is the "Makassar-Parepare Railway Infrastructure Project." This project aims to encourage and increase economic growth and regional development, especially in South Sulawesi Province, Indonesia. Then, the first railway construction outside Java and Sumatra was completed. After completing construction, currently, PT Celebes Railway Indonesia (CRI) is responsible for operating railways, especially in South Sulawesi, with a railway network of approximately 145 kilometers stretching across five regencies/cities in the South Sulawesi area, namely Maros Regency, Pangkajene, and Islands Regency (Pangkep), Barru Regency, Makassar City, and Parepare City. The role of this line is not only to support passenger transportation between cities and ports but also to facilitate the movement of goods and build national connectivity. Including integration with Sultan Hasanudin International Airport and Makassar International Port (Makassar New Port), some factors make trains superior to buses, private vehicles, and other land transportation modes. Based on data from the Directorate General of Railways of the Ministry of Transportation, trains are the most efficient mode in fuel (energy) consumption, travel distance, and transportation volume.

Based on the above, it can be seen that PT CRI is responsible for the operation of railways in South Sulawesi; then, it must also be responsible for the maintenance of railway infrastructure. As stated in the Minister of Transportation Regulation No. 32 of 2011 concerning Standards and Procedures on Railway Infrastructure Maintenance [40] in article 1, verse 10, it is known that railway infrastructure maintenance is an activity carried out to maintain the reliability of railway infrastructure so that it remains fit for operation. Then, in article 6, verse 1, it is revealed that the maintenance of railway infrastructure must be carried out by maintenance personnel who already have a certificate of competence using maintenance equipment in accordance with the type of railway infrastructure. Treatments are carried out periodically, daily, monthly, and yearly.

Having been responsible for railways in South Sulawesi, PT Celebes Railway Indonesia must empower its human resources competently, one of which is through training. PT CRI's training program is carried out with the aim of increasing employee awareness, skills, and expertise in environmental matters. Then, through the integration of training, PT CRI wants to encourage employees' emotional involvement in managing the environment and adopt green knowledge management to link education and environmental knowledge with behavior to develop preventive solutions.

The training conducted by PT CRI has two types, namely routine training conducted once a year, which includes training for 1) Local Train Trip Arranger, 2) Inspection of Railway Tracks and Buildings at the Implementation Level, 3) Railway Track and Building Maintainer at the Implementation Level, 4) Inspection of Railway Operation Facilities at the Implementation Level, 5) Maintainer of Railway Operation Facilities at the Implementation Level. The second type is incidental training conducted 1 to 3 times a year, which is helpful for the development of soft skills. In the training conducted, PT CRI collaborates with verified and certified institutions such as the Indonesian Railway Polytechnic (PPI), the Directorate of Railway Human Resources Ministry of Transportation of the Republic of Indonesia, the National Professional Certification Agency (BNSP), the Center for Accounting Development, University of Indonesia (PPA UI), and also Prasetiya Mulya University. Based on table 3, the training is carried out at varying times, as shown in the following table.

Table 3: Training on PT Celebes Railway Indonesia

No.	Training	Training Type	Duration of Training
1	Training for train operation/trip arranger certification	Dtime	46 Days
2	Training for inspector certification	Routine	7 Days
3	Training for maintainer certification		23 Days
4	Soft skills training	Incidental	7 Until 30 Days

Then, in figure 6 shows that PT Celebes Railway Indonesia carried out several stages of green training.



Figure 6 Green Training Process on PT Celebes Railway Indonesia

Based on the results of the training that has been carried out by applying green principles to the training that has been applied to PT CRI, employees can apply green behavior in the company environment, such as increasing employee awareness and commitment to maintaining the organizational environment and affecting organizational citizenship behavior toward the employee environment. Then implementing green training in human resource management at PT CRI has several challenges, namely employees' commitment to integrating green principles into their work processes or activities in their daily lives. Therefore, the company measures the effectiveness of green training by comparing the green behavior of its employees through observations, survey questions, and assessments of green performance.

Innovation results from green training by creating sustainable innovations with environmentally friendly principles, PT CRI employees created railcart V.1 in 2023, railcart is a vehicle specifically designed to operate on rails. This vehicle is usually used to facilitate the process of inspecting railway maintenance, especially in railway infrastructure. The railcart has wheels that fit the size and type of rails used, so they can run smoothly on the rails. The creation of this railcart is based on several reasons, including:

- 1. High costs for purchasing Operation and Maintenance tools, such as Lori for rail inspection.
- 2. High operational costs when using wheeled vehicles, such as lorries, can increase operational costs because they tend to have higher fuel consumption and require more maintenance compared to railcart.
- Limited accessibility because some rail locations have limited accessibility for wheeled vehicles, such as the absence of intersections.
- 4. If you use a Lori vehicle, it will require a longer manufacturing and modification time.
- 5. Limited vendors can supply Lori
- 6. There are limitations of vendors who can modify two-wheeled/four-wheeled vehicles into lori.

Based on the considerations that have been expressed, PT CRI made an innovation by creating railcart V.1

because it has a positive impact on the following:

- 1. **Efficiency:** Railcart V.1 was created to help Line Inspectors do their job every day, achieving efficiency rates of 80% in terms of time and 60% in terms of cost. Then, in 17 years, the need for employee fulfillment costs for railroad inspections if using Railcart V.1 is only 15.3 billion, down from 31.6 billion for 17 years.
- 2. **Effectiveness:** the effect of using Railcart V.1 Workaround, the Line Inspection Team that originally required 20 people can be reduced by utilizing only 6 Track Inspectors, This is evidence of Effectiveness increased by 70%.
- 3. **Eco-friendly:** Railcart has sustainability advantages because it uses existing rail systems and reduces fuel consumption. This helps reduce greenhouse gas emissions and other negative environmental impacts.
- 4. Low operating costs: In the long run, railcart can provide savings in operating costs, require little maintenance, and have a long service life. In addition, with large load capacity and travel efficiency, railcart can reduce overall transportation costs.
- 5. **Safety:** railcart have a stable and controllable structure, which reduces the risk of overturning or accidents during travel. Rails also provide clear natural boundaries, keeping railcart on track.
- 6. **Reliability:** A consistent and orderly rail system helps maintain railcart reliability. Rails tend to be more stable than regular road surfaces, so railcart rarely suffer significant disruption or damage.
- 7. **Flexibility:** railcart can be designed and adapted to various needs, equipped with drive systems or motors to provide additional thrust, or used with external traction such as tractors or cranes. In addition, railcarts can be modified to operate in different environments, such as in railway areas.

Railcart is equipped with a GPS system as a tracker to create a safety system on the track. Railcarts that operate on predefined rails, have clear paths and mechanical arrangements to direct trip. The use of this GPS technology to monitor and track the position of railcart, ensure a safe distance between railcart, or provide warnings in emergency situations. The railcart is also able to drive up to 65 kilometers/hour, carry loads up to 500 kilograms, and help work effectiveness, which was originally the distance between road plots traveled for 2 hours, with the railcart travel time becoming 30 minutes. Furthermore, the railcart with 1 liter of fuel can drive as far as 20 kilometers, so it is very economical and environmentally friendly. Next, further innovations will be carried out by PT CRI to develop an electric version of the railcart based on environmentally friendly solar panels.

4) CONCLUSION

The application of green training on PT Celebes Railway Indonesia helps to increase employee awareness as human resources to protect the environment and affect organizational citizenship behavior toward the environment. Then, related to the topic of green training in research, it is known that it has been quite widely researched since 1913, namely as many as 197 publications from various journals, universities, and countries. In an effort to maintain and preserve the environment, the practice of green training is very helpful for organizations or companies from various sectors ranging from the public sector, energy, IT, food and beverages, pharmaceuticals, transportation, government, oil and gas, companies, general, manufacturing, organizations, education, tourism, business, and health. The practice of green training also provides various benefits and influences for the organization or its environment, so the application of green training is needed and can attract attention to other research. This research has limitations because it only examines one company in the railway transportation sector, and the literature review only uses data in Scopus and Mendeley references; therefore, future researchers can develop research in various companies and different sectors. Then, further research can modify multiple aspects that can influence or affect green training in green human resources management practices. Furthermore, future researchers can use other research methods or approaches to make the research results more comprehensive.

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