

## ***HUMAN RESOURCE PLANNING IN THE UTILIZATION OF COCONUT SHELLS AS RENEWABLE ALTERNATIVE FUEL***

**<sup>1</sup>Lyan NF Jeheo**

<sup>1</sup>Universitas Esa Unggul Jakarta  
Email<sup>1</sup> : [lyan.jeheo@gmail.com](mailto:lyan.jeheo@gmail.com)

**<sup>2</sup>Dimas Angga Negoro**

<sup>2</sup>Universitas Esa Unggul Jakarta

**<sup>3</sup> Ketut Sunaryanto**

<sup>3</sup>Universitas Esa Unggul Jakarta

Correspondence Author: [lyan.jeheo@gmail.com](mailto:lyan.jeheo@gmail.com)

**Abstract:** *The use of coconut shells as a renewable alternative fuel has great potential to support the clean energy transition and environmental sustainability. As one of the largest coconut producing countries in the world, Indonesia has abundant resources that can be processed into energy products such as briquettes, charcoal, and bioenergy. However, the success of this utilization requires mature human resource (HR) planning to ensure the availability of competent workers, high productivity, and empowerment of local communities. This study aims to analyze the strategic role of HR planning in supporting the development of the coconut shell-based fuel industry. The method used involves a descriptive-qualitative approach, which includes identifying workforce needs, developing training, and collaborative strategies between the government, private sector, and local communities. Effective HR planning can increase the efficiency of the production process, open new jobs, and empower rural communities. In addition, synergy between stakeholders is key to creating a sustainable work ecosystem. Thus, the use of coconut shells as an alternative fuel not only contributes to reducing carbon emissions but also encourages local economic growth.*

**Keywords:** *Human Resource Planning, Coconut Shells, Alternative Fuels, Renewable Energy, Sustainability.*

## **INTRODUCTION**

Coconut tree (*Cocos nucifera*) is one of the plants that has high economic value and is widely used in various sectors, including food, industry, and energy. In Indonesia, coconut production is very abundant, but often produces waste, especially coconut shells that are not optimally utilized. This waste, if not managed properly, can become an environmental problem. (Satria Gunawan Zain et al., 2023). One solution to overcome this waste problem is to process coconut shells into charcoal briquettes, which can be used as an environmentally friendly alternative energy source. (Budi, 2017).

The potential for coconut shell production that is so large needs to be utilized as a productive activity to increase its added value, because the technology for processing coconut shells is relatively simple and can be implemented. The export market potential for coconut shell charcoal briquette products is very large. Coconut shells are one of the activated carbon materials whose quality is good enough to be used as activated charcoal. (Nassor Faiza Ali, 2013). Especially for grilling food such as chicken satay, barbecue, besides coconut briquettes in Middle Eastern countries are used for shisha cigarettes. While in Asia such as South Korea and Japan coconut charcoal briquettes are used for cooking purposes in restaurants that serve grilling.

Based on data from the Central Statistics Agency (BPS) in 2023, Riau is the province with the largest coconut plantations. This province has an area of 437,800 hectares (ha). Indonesia has an abundant supply of coconut shell raw materials to be processed into briquettes. These scattered coconut plantations support the coconut briquette industry by providing sustainable resources. The availability of abundant raw materials from coconut plantations in Indonesia is a competitive advantage that supports the growth and development of the coconut briquette industry. The production capacity of coconut shell briquettes can vary depending on the factory facilities and technology used. Large factories can produce thousands of tons of briquettes per month, while small factories may produce on a smaller scale. The distribution network includes shipping briquettes from the factory to distributors and end customers.

From the data above, PT BIN plans Central Java as the main location for coconut supply and briquette production. The selection of Central Java as our operational center is based on a number of mature considerations, including good accessibility to raw material sources, adequate transportation and growing market potential. With a strategic production location, PT BIN aims to improve operational efficiency and accelerate the distribution process to customers, especially in the HoReCa market segment. In addition, PT BIN's presence in Central Java is expected to support local economic development by creating jobs and making a positive contribution to the surrounding community.

The HoReCa market segmentation offers significant opportunities for coconut briquette producers, but also brings its own challenges regarding consistent and quality supply. Based on our survey, we found 30 HoReCa places that use coconut briquettes as cooking utensils. The demand for briquettes has increased from year to year, indicating a growing market interest in briquette products. This increase in availability and demand reflects the significant growth of the briquette market. This creates a surplus that PT Briket Inovasi Nusantara can utilize to improve marketing and distribution strategies.

Human resource planning includes identifying workforce needs, developing competencies, and empowering strategies for local communities to be involved in the production process. In addition, the success of this initiative also depends on the synergy between the government, the private sector, and local communities to create a productive and sustainable work environment. This paper aims to explain the importance of human resource planning in supporting the utilization of coconut shells as a renewable alternative fuel. With this approach, it is expected to provide solutions to global energy challenges and provide positive impacts on social and economic development at the local and national levels.

## RESEARCH METHODS

This study uses a descriptive-qualitative approach to explore the role of human resource (HR) planning in the utilization of coconut shells as renewable alternative fuels. This approach was chosen to gain an in-depth understanding of the processes, challenges, and strategies in HR management that support the development of coconut shell-based renewable energy. This research is descriptive in nature with a focus on qualitative data analysis sourced from interviews, observations, and literature studies. The research aims to describe best practices and constraints faced in HR planning in this sector. The research was conducted in areas that have great potential in coconut shell production, such as coconut production centers in Indonesia.

1. Small and medium entrepreneurs engaged in coconut shell processing.
2. Local workforce involved in the production process.

3. Local government officials and institutions related to renewable energy.

Data collection is In-depth Interview: Conducted with business actors, workers, and related officials to identify needs, competencies, and challenges in HR management. Observation: Directly observe the production process and workforce management in the field to obtain empirical data. Document Study : Analyze government policies, company reports, and literature related to renewable energy and HR planning.

## RESULTS AND DISCUSSION

Human Resource Planning is one of the key elements in achieving the strategic goals of an organization. Through careful and targeted planning, Human Resource planning ensures that the company has a competent, trained and ready workforce to face the challenges in the industry. The purpose of HR Planning at PT Briket Inovasi Nusantara is to develop quality and highly competitive human resources to support the achievement of the company's vision. Human Resource Planning focuses on efforts to improve employee retention and satisfaction by providing a supportive work environment, competitive compensation, and clear career development opportunities. The objectives of the Human Resource plan of PT Briket Inovasi Nusantara for a minimum period of 5 years are as follows:

**Table 1. Objectives of Human Resource Planning**

No.	Short Term Company Goals (Years 0-2)
1	PT BIN recruits 52 positions for finance, operations, sales, HR management divisions
2	Establishing Vision and Mission and creating company regulations and company SOPs
3	Creating HR regulations and organizational development by creating Job Analysis, Job Evaluation and setting standard KPI and wage scales, payroll systems and employee performance indicators.
4	Implementing a structured new employee induction training program in accordance with the company's Vision, Mission and culture.
5	Improving employee skills through production technology training programs and sustainable K3 practices.
No.	Company Medium Term Goals (Years 3-4)
1	Fulfillment of workforce of 82 staff and non-staff and formation of SMK3 team
2	Building company values, namely Leadership, Integrity, Teamwork, Passion, Trust, Quality, and Innovation through various knowledge between employees about technology research, energy business, SMK3, markets, and risk management.
3	Implementing a digital-based employee performance management system that includes e-learning and KPI monitoring and is carried out monthly, quarterly and annually.
4	Enhance ongoing training programs for staff with a focus on mastery of efficient production technology and waste management.
5	Create an internal reward and recognition system to motivate employees and increase job retention.
No.	Company Long Term Goals (Year 5 onwards)
1	Addition of 35 employees for production operators and QC to support downstream product development and improvement of quality standards
2	Implement a comprehensive career development program to create future leaders, including talent management programs and annual performance evaluations.
3	Increasing employee retention through annual recognition and awards programs for high-performing employees.

### Human Resources Targets

PT Briket Inovasi Nusantara has a plan that has been prepared by the company's internal which will then be managed in every activity and activity to achieve the company's goals. PT BIN's target is to realize the company's Human Resources goals above.

**Table 1. PT BIN Human Resources Targets**

No.	Short Term Company Goals (Years 0-2)
1	Before the operation, we recruited 52 people divided into management and subsequent construction implementers after the operation was running. Local residents were also recruited for operations
2	The company creates regulations for employees and management according to its vision and mission with the aim of increasing work efficiency.
3	We develop organizational standards through Job Evaluation, establish KPIs, salary payment systems, wage structures, and develop employee performance indicators.
4	The company holds induction and orientation programs to facilitate the integration of new employees, as well as focus on improving employee quality and performance.
No.	Company Medium Term Goals (Years 3-4)
1	We meet the needs of qualified candidates in production positions. In addition, we also form an SMK3 team to improve work safety and security
2	PT BIN socializes the values of Leadership, Integrity, Teamwork, Passion, Trust, Quality, and Innovation to strengthen employee norms and behavior, and conducts training on various knowledge and information in a structured and more focused manner. Providing insight to employees
3	The company will routinely evaluate employee performance through a work management system and KPI monitoring to improve operational efficiency and employee retention.
No.	Company Long Term Goals (Year 5 onwards)
1	The company is again looking for qualified candidates for production positions in order to improve quality and increase production output.
2	Developing employee retention strategies through career development programs, work-life balance to retain the best talent, and providing ongoing leadership development programs, focusing on innovation, sustainability, and adaptability in the energy industry.
3	The company implements an employee champions program through human resource management and continuous improvement focused on efficiency and sustainability to support energy and efficient operations.

(Source: Author Team, 2024)

### Human Resource Strategy

PT Briket Inovasi Nusantara's Human Resources Strategy is to improve employee competency or ability according to their field. This strategy is carried out by all HR, must attend certified training or seminars 2 times/year for short, medium, and long term.

### Corporate Culture and Values

Corporate culture is an important element in determining the success of an organization because it is directly related to employee welfare, service quality, and business sustainability. Corporate culture is the basic values held by the company and

applied in daily operations.

### Artifact

Artifacts are symbols of corporate culture that reflect the values, norms, and beliefs of the organization. Artifacts include everything that can be seen, felt, or heard. PT Briket Inovasi Nusantara has artifacts in the form of company logos, buildings, and employee uniforms.

### Employee Uniform

Uniforms reflect the identity and unity among the company team members. Blue and green are the dominant colors that can be seen in various fields. PT. Briket Inovasi Nusantara will provide strong uniforms (not easily torn) and remain comfortable to wear, usually used are hot materials. Work uniforms still prioritize comfort in working for employees, neat but still stylish.

### Company Values

Company values are beliefs that are held firmly as a foundation and carried out every day through work activities that will shape the character of harmonious workers so as to form a culture. PT Briket Inovasi Nusantara determines company values based on vision and mission.

**Table 2. The Value of PT Briket Inovasi Nusantara**

Mark	Explanation
Leadership	Effective company management and high market value
Integrity	Have high integrity by implementing service guidelines and policies
Teamwork	Working harmoniously for the benefit of all stakeholders
Passion	Work with enthusiasm and high dedication, and give the best in the production process to service.
Trust	Gaining trust for long-term mutually beneficial relationships with consumers
Quality	Consistently provide the best quality service
Innovation	Creating new comfort and distinctive characteristics for products and services

(Source: Author Team, 2024)

### Human Resource Planning

#### Estimated Number of Employees

In the early stages, PT Briket Inovasi Nusantara requires a core team that includes management, operational, financial, marketing and sales divisions. As the business grows, the number of employees can be increased gradually to accommodate increasing work volume, market demand, and needs in terms of specialization and resource management.

#### Training and Development Strategy

The training provided by PT Briket Inovasi Nusantara is aimed at improving good work performance capabilities individually and in groups based on position within the company.

## Compensation System

PT Briket Inovasi Nusantara's compensation system consists of:

a) Direct Compensation

Direct compensation is compensation given to employees directly in the form of money as a reward for work done. PT Briket Inovasi Nusantara has several direct compensation systems, including:

1) Basic salary

Basic payment received by employees is fixed and periodic. The basic salary of PT BIN employees is based on the minimum wage standard of Central Java province.

2) Fixed Allowance

Fixed allowance is wage compensation other than basic salary which is given every month without being influenced by attendance, performance or achievement factors.

3) Non-Fixed Allowance

- Incentive

Incentives are additional payments given based on the achievement of certain performance or work results.

- Overtime

PT BIN overtime wages are regulated based on the overtime needs required by the company, with the calculation (Overtime wages =  $1/173 \times$  basic salary).

b) Indirect Compensation

Indirect compensation is a form of reward given to employees, in the form of welfare facilities provided outside of basic salary and allowances. In this case, PT BIN provides indirect compensation in the form of:

- Allowance

PT Briket Inovasi Nusantara provides benefits for employees in the form of THR, BPJS Employment and BPJS Health. THR given to employees is in the form of 1x basic salary.

- Leave

The annual leave granted is guided by Law No. 11 of 2020, Article 81 concerning Manpower, where every employee has the right to apply for annual leave of at least 12 days in one working year.

## Employee Working Hours

PT Briket Inovasi Nusantara is a coconut briquette production service business that has earlier working hours than other standard businesses. This is because the briquette production process requires earlier time. Non-shift division is applied to PT Briket Inovasi Nusantara Staff employees, while shifts are applied to factory/production, operational and security employees.

## Employee Performance Appraisal

Employee performance assessment is a work evaluation at PT Briket Inovasi Nusantara carried out with a one-year review cycle which is divided into two stages of assessment, namely a mid-year assessment to conduct an initial review and provide an opportunity for each division to make the improvements needed to achieve the set targets. Then at the end of the year, a year-end assessment is carried out which is the final assessment in seeing the achievement of targets as a whole and is used as a reference for designing the next target. PT Briket Inovasi Nusantara uses a performance management

tool with the balanced scorecard method, referring to the company's vision, mission and goals which will be used to identify and improve the performance of each division and its influence on the strategy for achieving business goals.

### **Employee Status**

The status of employees working at PT Briket Inovasi Nusantara is based on Law No. 11 of 2020 concerning Job Creation Article 56 paragraph (1) which states that work agreements are made for a specific time and an indefinite time. Thus, in employee status there are two categories of workers, namely permanent employees (PKWT/Fixed Term Work Agreement) and contract employees (PKWTT/Indefinite Term Work Agreement).

- 1) PKWT employees are employees who are employed based on a work contract for a certain period of time. PT BIN implements a work system for contract employees in accordance with the laws and regulations of Law No. 11 of 2020 concerning Job Creation, articles 57 to 59.
- 2) PKWTT employees are employees who are employed based on a work contract for a certain period of time, but with the provision that there is no time limit for the duration of the contract. PT BIN applies Law No. 11 of 2020 concerning Job Creation, Article 60 paragraph (1).

### **Job Evaluation**

Employee performance evaluation is conducted to measure and identify employee strengths and weaknesses. Performance assessment stages:

- a. PT BIN sets targets to be achieved
- b. PT BIN employees determine the targets to be achieved
- c. Providing feedback for continuous improvement

### **Work termination**

Termination of employment is the termination of employment by a company towards an employee. Termination of employment is carried out for several reasons and circumstances, both internal and external. Based on PP 35 of 2021 concerning Manpower, there are several circumstances in which a company can terminate employment as follows:

- a. Resignation submitted by employees in a good manner
- b. Resignation submitted by employees due to the end of the employment contract
- c. Resignation due to retirement age
- d. Dishonorable dismissal due to serious misconduct
- e. The worker was detained by the authorities
- f. The company went bankrupt
- g. Workers are consistently absent
- h. Worker died
- i. Workers commit violations
- j. Change of status, merger, amalgamation or change of ownership
- k. Termination of employment due to efficiency reasons

### **CONCLUSION**

Utilization of coconut shells as a renewable alternative fuel is a strategic step to support the clean energy transition, carbon emission reduction, and sustainable resource management. In this effort, human resource (HR) planning plays an important role as the

main factor determining the success of the development of this industry. Effective HR planning involves identifying workforce needs according to the production process, providing training to improve competency, and empowering local communities. In addition, strengthening collaboration between the government, private sector, and local communities is key to creating an inclusive and sustainable work ecosystem. Good HR planning can improve operational efficiency, open new jobs, and provide positive social and economic impacts for communities, especially in rural areas. In addition, it also supports national and global goals in renewable energy development and climate change mitigation. Thus, the integration of HR planning in the utilization of coconut shells as a renewable alternative fuel not only provides a solution to global energy challenges, but also becomes a catalyst for sustainable development in Indonesia.

## **BIBLIOGRAPHY**

- Central Bureau of Statistics (BPS). (2023). Indonesian Coconut Production Data. Jakarta: Central Bureau of Statistics.
- Deloitte Market Analysis. (2023). Charcoal Briquette Market Trends in HoReCa Industry. Jakarta: Deloitte Indonesia.
- Global Market Insights. (2023). Coconut Shell Price and Demand Trends in International Markets. New York: GMI Reports.
- Indonesian Logistics Association. (2023). Distribution and Logistics Efficiency in the Briquette Industry. Jakarta: Indonesian Logistics Association.
- International Energy Agency (IEA). (2022). Energy Efficiency Comparison: LPG vs Charcoal Briquettes. Paris: IEA Publications.
- Rothaermel, F.T. (2021). Strategic Management: Concepts. New York: McGraw Hill Education.
- World Bank. (2023). Political Stability and Economic Growth in Indonesia. Washington, DC: World Bank Group.
- Nielsen Consumer Insights. (2023). Consumer Preferences for Environmentally Friendly Products. Jakarta: Nielsen Indonesia.
- Tech Industry Review. (2023). The Use of Modern Technology for Briquette Production. Jakarta: Tech Review Indonesia.
- Indonesian Charcoal Producers Association. (2023). Briquette Industry Annual Report. Jakarta: APAI.
- HORECA Market Report. (2023). Use of Alternative Fuels in the HoReCa Sector. Jakarta: HORECA Indonesia.
- Grant, R. M. (2016). Contemporary Strategy Analysis: Concepts, Techniques, Applications. West Sussex: Wiley.
- Ministry of Trade of the Republic of Indonesia. (2021). PP No. 29 of 2021 concerning the Implementation of the Trade Sector. Jakarta: Ministry of Trade of the Republic of Indonesia.
- Ministry of Environment and Forestry of the Republic of Indonesia. (1999). PP No. 41 of 1999 concerning Air Pollution Control. Jakarta: KLHK.
- Nassor Faiza Ali. (2013). Utilization of Coconut Shell in Activated Charcoal Production. *Journal of Coconut Technology*, 6(1), 45-55.
- Satria Gunawan Zain et al. (2023). Potential Utilization of Coconut Shell Waste for Briquettes. *Journal of Environmental Technology*, 12(2), 45-56.
- Mochammad Agung Indra Iswara et al. (2020). Study of Calorific Value of Coconut Shell Briquettes. *Journal of Separation Technology*, 7(3), 22-30.



- Digital 2024 Report. (2023). Internet Penetration in Indonesia. Jakarta: Digital Trends Indonesia.
- Indonesian Coconut Association. (2023). Annual Report on Coconut Production. Jakarta: ICA.
- Green Energy Reports. (2023). Trends in Green Fuel Use. New York: GER Publications.
- Law No. 8 of 1999. Consumer Protection. Jakarta: Ministry of Law and Human Rights of the Republic of Indonesia.
- Law No. 13 of 2003. Manpower. Jakarta: Ministry of Manpower.
- Nielsen Marketing Analysis. (2023). The Impact of Social Media on Briquette Sales. Jakarta: Nielsen Indonesia.
- Meteorology, Climatology, and Geophysics Agency (BMKG). (2023). Impact of Climate Change on the Agricultural Sector. Jakarta: BMKG.
- ISO 14001. (2015). Environmental Management Systems - Requirements with Guidance for Use. Geneva: International Organization for Standardization.
- Indonesian Coconut Journal. (2023). Development of Coconut Charcoal Industry in Indonesia. Jakarta: ICJ.
- Budi, H. (2017). Coconut Shell Charcoal Briquette Manufacturing Technology. Indonesian Renewable Energy Journal, 6(1), 30-42.
- HORECA Journal. (2023). HoReCa Consumer Preferences for Briquettes. Jakarta: HORECA Insights.
- Indonesian Coconut Shell Suppliers Association. (2023). Coconut Shell Supply Report. Jakarta: APTKI.
- Global Sustainability Report. (2023). Sustainable Product Trends. London: GSR Publications.
- Central Statistics Agency (BPS). (2023). Availability and Demand Data for Coconut Briquettes. Jakarta: Central Statistics Agency.
- Market Watch Indonesia. (2023). Competitive Analysis in the Coconut Briquette Market. Jakarta: Market Watch.
- Frank T. Rothaermel. (2021). Porter's Five Forces in Strategic Management. New York: McGraw Hill Education.
- Coconut Charcoal Industry Report. (2023). Briquette Quality Standards in Export Market. Jakarta: ICA.
- Tech Review Indonesia. (2023). Briquette Production Efficiency through Modern Technology. Jakarta: TRI Publications.
- Ministry of Energy and Mineral Resources. (2023). Household LPG Gas Consumption Data. Jakarta: Ministry of Energy and Mineral Resources.
- HORECA Market Trends. (2023). Growth of Briquette Market for Commercial Sector. Jakarta: HORECA Insights.
- BMKG. (2023). The Effect of Extreme Weather on the Availability of Coconut Shells. Jakarta: BMKG.
- Journal of Environmental Technology. (2023). Environmentally Friendly Production Strategy for Briquettes. Jakarta: JTL Publications.
- Market Research Reports. (2023). Potential of Coconut Briquette Industry in Southeast Asia. Singapore: Market Research Reports