

## **GREEN HUMAN RESOURCE MANAGEMENT AND ENVIRONMENTAL MANUFACTURING PERFORMANCE**

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**Abstract:** *Recently environmental matters become important issues around sociality which encouraged organization to improve their environmental performance. For example the activities and operation of manufacturing companies can contribute to pollution, waste, resources depletion, reduction biodiversity and ecosystem integrity that can affect the overall performance of organization. This paper aims to discuss the concept of green human resources management (GHRM) environmental management system (EMS) and environmental manufacturing performance (EMP) with providing conceptual framework of GHRM, EMS and EMP. GHRM is important factor to ensure the sustainability of EMP through making improvement on the function/key areas of GHRM that integrate with corporate environmental management. Meanwhile, EMS as moderate factor of GHRM towards EMP. EMS aimed to promote continual improvement in organization environmental performance and EMS also provides framework/tools that helps organization achieve its corporate environmental objective through control its operations and activities. EMP can be measures through efficient resource usage; waste and pollution reduction; and environmental ethics.*

**Keywords:** GHRM, EMP, EMS

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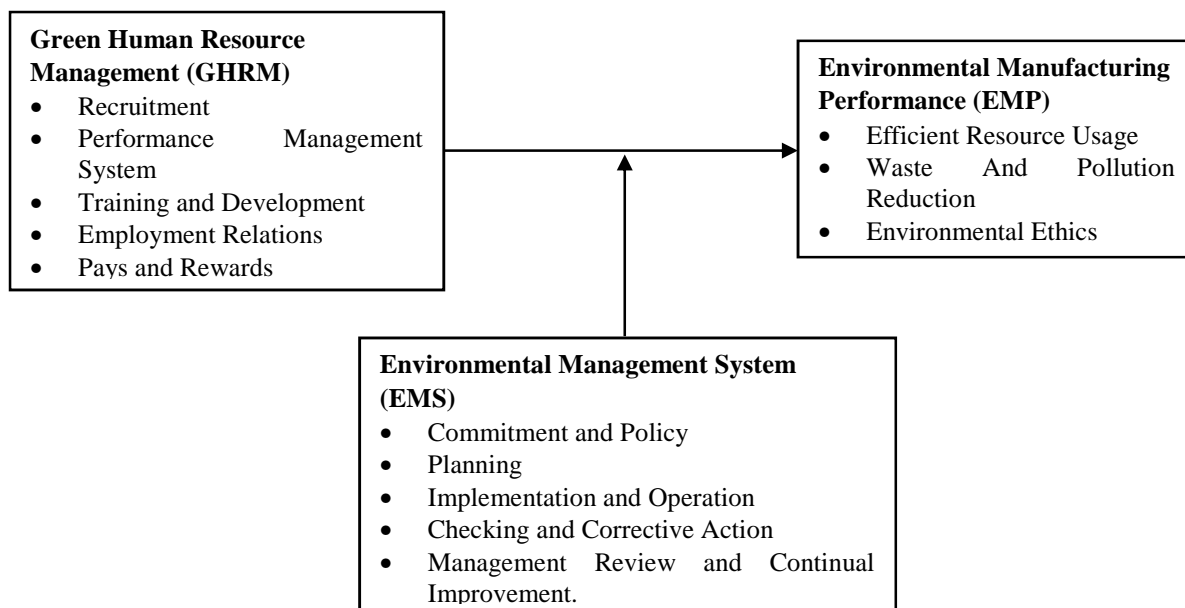
### **Introduction**

In current globalization, environmental performance become crucial issues for organization including manufacturing business because the activities and operation of manufacturing organization give bad impact on environment (e.g. pollution, waste, resources depletion, reduction biodiversity, climate change and ecosystem integrity). The environmental

matters are becoming more complex and interconnected and it became important factor for decision-making process of organization around the world. Thus, this situation led manufacturing organization to improve green human resources management (GHRM) to support corporate green management practice in organization, besides implementation environmental management system (EMS) to set up management process, identify, measures and control environmental impacts. GHRM and EMS can help organization to provide better and sustainability of environmental manufacturing performance (EMP) through preventing pollution, reducing waste and energy consumption and enhance resources usage. According to Daily, Bishops and Steiner, (2007), there are related relationship of the human resources factors such as EMS training, EMS rewards and empowerment with perceived environmental performance and EMS plays a mediating role between some of the independent variables leaving top management support and employee empowerment which was perceived to be related to their individual jobs. While Harjeet (2011) conduct research on manufacturing companies had shown the results which is human resources factors such as management commitment, feedback and review and empowerment have a significant positive relationship to perceived environmental performance, but rewards insignificant with perceived environmental performance. Therefore the objective of this paper is to review the concept of GHRM, EMS and EMP through develop conceptual framework that show the relationship among others. This paper used a systematic review of previous literature performed by using archival method since this paper is a desk research rather than a survey or any other method of research in order to achieve the objective.

### Conceptual Framework

The conceptual framework of this paper is based on the concept on GHRM, EMS and EMP (refer Figure 1). GHRM consist of five keys areas which are recruitment; performance management systems; training and development; employment relations; and pays and rewards, while EMP comprise efficient resources usage; waste and pollution reduction; and environmental ethics. EMS include commitment and policy; planning; implementation and operation; checking and corrective action; and management review and continual improvement.



**Figure 1: Conceptual Framework**

## **Green Human Resources Management (GHRM)**

In this new era, it seems that many organization practice GHRM in the global context in order to protect environmental performance and GHRM issues also have been discussed by many literature since 1990s (e.g.: Arulrajah, Opatha & Nawaratne 2015; Anusigh & Shikha, 2015; Opatha & Arulrajah 2014; Renwick, Redman & Maguire, 2008; and Daily & Huang, 2001). GHRM refer to integration environmental management into human resources management (Renwick et al, 2008) and GHRM can be define as level of GHRM practices in terms of functional and competitive dimensions of human resources management (Jabbour, 2011). Functional or tools of GHRM refer to field of recruitment, performance management and appraisal, training and development and pays rewards (Renwick et al, 2008; Jabbour, Santos & Nagano, 2010). Opatha (2013) and Opatha et al (2014) define GHRM as follows:

*“All the activities involved in development, implementation and on-going maintenance of a system that aims at making employees of an organization green. It is the side of HRM that is concerned with transforming normal employees into green employees so as to achieve environmental goals of the organization and finally to make a significant contribution to environmental sustainability. It refers to the policies, practices and systems that make employees of the organization green for the benefit of the individual, society, natural environment, and the business”*

GHRM seems important to reduce global warming; reduce natural disasters; avoid health diseases due to pollution; ensure balance relationship among plants, people, and their environment; and ensure survival of human and business organization for a long period Opatha et al (2014). Generally, GHRM refer to key areas of human resources management practices that integrate with corporate environmental management to ensure organization is ‘green’ and protect survival of human and organization itself from any negative environmental performance. The keys of GHRM that discussed in this paper are recruitment, performance management system, training and development, employment relations, and pays and rewards.

### **Recruitment**

In GHRM, the first important key area is searching and recruit the best green employees and according to Arulrajah et al (2015), green recruitment is more proactive and cost effective rather than training and development. Clarke (2006) state that, survey by British Carbon Trust show more than 75% of employees consider to work in organization which have environmental policy in reducing carbon emissions. Thus, green organization can attract best green employees. It supported by CIPD (2007); Philips (2007); and Stringer (2009) who mentioned that green employer is an effective way to attract new potential employees who have environmental orientation. Organization may implement several initiative in the key areas of recruitment in GHRM as follows:

- i. Job advertisement – organization can express environmental values and preferences to recruit new potential green employees (Arulrajah et al 2015).
- ii. Recruitment policy – organizations’ recruitment policy should integrate with corporate environmental policy and strategies (Arulrajah et al 2015).
- iii. Provide general job description – specify environmental pieces that include environmental reporting roles and health and safety tasks (Renwick et al, 2008).
- iv. Induction new recruit – to ensure they understand corporate environmental culture (Wehrmeyer, 1996)

## **Performance Management System**

Performance management system in GHRM seems essential to gain data on environmental performance, develop green information system and measure environmental performance. The examples of organization use performance management system are Amoco in United States, Union Carbide (Milliman & Clair, 1996) and Infosys (Melton, 2012). The initiative that can be taken by organization are:

- i. Establish environmental performance standards and indicators – cover on-site use and waste management in order to measure environmental performance (Milliman & Clair, 1996).
- ii. Developing green information systems – in order to gain data and information on managerial environmental performance (Milliman & Clair, 1996).
- iii. Green audit programmer – fields audits to gain information and feedback on past and future environmental performance of organization, besides can detect any problems on environmental performance (Milliman & Clair, 1996).

## **Training and Development**

Environmental training and development of employees and members in organization also important in order to educate and develop knowledge and skills about GHRM and environmental performance in organization. According to Arulrajah et al (2015), training and development in environment concern are key areas of GHRM in organization and without proper training and development, sustainability of environmental performance is very difficult to achieve. The examples of organization that implement training and development in their GHRM are Allied Signal Incorporated, Nordstrom (May & Flannery, 1995), Polaroid (Milliman & Clair, 1996), Adam Opel AG, Imperial Chemical Industries and General Electric Company (North & Daig, 1996). The initiative that organization can implement in training and development in GHRM as follows:

- i. Encourage recycling and waste management and reducing long-distance business travel to reduce negative environmental impacts (Jackson, Renwick, Jabbour & Camen, 2011).
- ii. Seminars and workshop to create environmental awareness and achieve good environmental performance (North, 1997).
- iii. Environmental education to change attitude and behavior of employees and members (North, 1997).

## **Employment Relations**

Employment relations in GHRM support is important in implementing environmental management programs in organization. Philips (2007) state that *'the use of employee participation in green HR has been noted to help prevent pollution from workplaces'*. Employment relations in GHRM have been use by Tennant Company, American Airlines (May & Flannery, 1995), AT&T and Wheeling-Pittsburgh Steel (Hanna, Newman & Johnson, 2000). The organization initiative in improving employment relations in GHRM are:

- i. Key stakeholder in environmental management - joint consultations, gain sharing, recognizing union to support corporate environmental management initiatives (Arulrajah et al 2015).
- ii. Employee involvement and participation in green suggestion scheme and problem-solving – form and experiment green ideas, maintenance, and help-line for guidance in green issue (Renwick et al 2008).

## **Pays and Reward**

Pays and rewards is another crucial key areas of GHRM towards sustainability environmental performance and according to Arulrajah et al (2015), green reward management has significant contribution to motivate employees and members of organization on environmental management. This ways have been practice by many organization such as Monsanto, Dow Chemical, ICI Americas Incorporated (Whitenight, 1992), and Xerox (Bhushan and Mackenzie, 1994). The initiative that can be taken by organization as follows:

- i. Financial or monetary rewards - incentives, bonuses, cash and premiums (Arulrajah et al 2015; Renwick et al, 2008)
- ii. Non-financial or non-monetary – sabbaticals, leave, gifts, awards, honors and special recognition (Arulrajah et al 2015; Renwick et al, 2008).
- iii. Salary review – Rewarded for extraordinary environmental performance, practices and ideas (Crosbie & Knight 1995).
- iv. Recognition – awards, dinners, publicity, external roles and daily praise (Renwick et al, 2008).

## **Environmental Management System (EMS)**

EMS have discussed in the standard of ISO 14001 which aimed promoting continual improvement in organization environmental performance and EMS also provides framework/tools that helps organization achieve its corporate environmental objective through control its operations and activities. The concept of ISO 14001 refer to organization identify opportunities for improvement and implementation in environmental matters through review and evaluate its EMS. GIIRS define EMS as a set of processes and practices that enable organization to reduce badly impact on environmental and increase their operating efficiency and the importance of EMS are:

- Cost savings; reduced resources consumption
- Increased operational efficiency
- Improved environmental performance
- Legal and regulatory compliance
- Increase trust of customer and public relations
- Enhanced employees skills and satisfaction

While Department of the Environmental, Water, Heritage and the Arts (DEWHA) in Australia define EMS as set of management tool that can help organization to identify environmental impacts resulting from business operations and making the improvement on getting sustainable environmental performance. The framework/tools of EMS cover commitment and policy, planning, implementation and operation, checking and corrective action and management review and continual improvement.

## **Commitment and Policy**

The first important step in implementing EMS, management should establish environmental policy and communicate the policy with employees and members of organization and launching EMS requires commitment and understand from all members to ensure they know their role and how to implement it (GIIRS). ISO 14001 requires three commitments in establish policy which are compliance with all applicable legal requirements; prevention pollution; and continual improvement (DEWHA).

## **Planning**

Planning include identification environmental aspects; identification and access to legal and others requirement; and establish with document objectives, targets and programs. Organization must identify how their activities influence environmental aspects, for example electricity for lighting, air conditioning, computers and other equipment that use routinely and daily basis which these activities can give significant impact on environment like emission of greenhouse gases from electricity generation. Besides that, organization must ensure that environmental policy in organization is based on commitment to compliance with legal and other requirements in order they can meet the standard that can benefit to them for obtain permits, licenses and contracts. Organization also should establish environmental objectives that contain overall organization goals to achieve on environment, while establish targets refer to detailed performance requirements that arise from the establish objectives. Then, organization should establish programs to achieve objective and targets through environmental action plans, environmental management plans, environmental improvement programs and environmental management programs (DEWHA).

## **Implementation and Operation**

Implementation and operation of EMS covers documentation and communication about resources, roles, responsibility and authority; provision of training for competence and awareness; adequate communication; appropriate documentation; appropriate procedure for document control; appropriate procedure for operational control; and procedures for emergency preparedness and responses. Resources refer to organizational infrastructure, many and technology and also people with specialized skills and knowledge while roles, responsibility and authority refer to people in organization with various position in manage EMS and managing environmental aspects. Training used by organization to ensure people in organization have competence (refers to the knowledge, understanding, skills or abilities required) in manage EMS and raise awareness about environmental aspects. Organization should have procedure for communicating internally on its environmental aspects and environmental management system and managing communication on environmental aspects from external parties. Furthermore, organization must have appropriate documentation for EMS implemented that include environmental policy, objectives and targets; description of the scope of the EMS; documented roles, responsibilities and authorities; and records of training, external communication, monitoring, measurement, results of corrective, preventive action and management review. Document control refer to activities of document approval; document review, update and re-approval; identification of changes and current revision status; availability at points of use; legibility and identification; identification and distribution of external documents; and management of obsolete documents to ensure it meet quality management of requirement standard. In appropriate procedure for operational control organization should provide document procedures to control operations which could have a significant environmental impact and this document must include operational procedure for normal operations, emergency situations, shut down, and maintenance. Then, organization also should prepare for emergency situation through identify potential emergency situations that can have environmental impact and determine how it will respond to them (DEWHA).

## **Checking and Corrective Action**

In checking and corrective action, organization should have procedure for monitoring and measuring the characteristics of its operations that can have a significant environmental impact. Then, organization should continuously evaluate its compliance with applicable legal

requirements and with other requirements to which it subscribes, and keep records of the results of the evaluations. Organization also should provides a mechanism for identification of actual nonconformity (i.e. non-fulfilment of a requirement, that is, when something does not go to plan) to contribute to continual improvement of the environmental management system through corrective action and preventive action, respectively and the lastly organization should implement internal audit procedures to EMS in determine whether the system conforms to planned arrangements and has been properly implemented and maintained (DEWHA).

### **Management Review and Continual Improvement**

Management review refer to the opportunity for top management to take a holistic and strategic look at the continuing suitability, adequacy and effectiveness of the environmental management system, and approve actions to improve the system, thereby reducing exposure to environmental risk and improving the environmental performance of the organisation. Meanwhile in ensuring continual improvement, organization may implement the cycle process of Plan-Do-Check-Act (DEWHA).

### **Environmental Manufacturing Performance (EMP)**

Lobber (1996) refer environmental performance to the degree which organization are committed to protect natural environment and it can be evaluated by set of indicators such as low environmental releases, pollution prevention, waste minimization, and recycling activity. Meanwhile, the organization performance and sustainability development can be refer to development activities in organization that can meet present demand without comprising ability of future generation to meet their needs (WCED, 1987). Kleindorfer, Singhal and Wassenhove (2005) define sustainable operation management through profit and efficiency orientation of operations management that include company's internal and external stakeholders and its environmental impact. In other words, above literatures suggest that environmental is one of element to measure organization performance. This organization also include manufacturing companies, according to Vachon and Klassen (2008); and Caniëls, Gehrsitz and Semeijn (2013) manufacturing companies nowadays attempting to be competitive in terms of flexibility, delivery, quality, cost, social and environment aspects. It supported by Chen (2015) in the result that state environmental improvement practices had a direct and positive correlation with product and process innovation.

In this paper, there are three aspects of EMP will be look which are efficient resource usage; waste and pollution reduction; and environmental ethics. Efficient resources usage refer to reducing the total environmental impact of the consumption of goods and services, from raw material extraction to final use and disposal in order to ensure natural resources are produced, processed and consumed in a more environmentally sustainable way (UNEP). Waste means unwanted material includes scrap material, effluent or unwanted surplus substance or article that requires disposal because it is broken, worn out, contaminated or otherwise spoiled (CIPS, 2007) and pollution refer to negative/undesirable change in the environment, usually the addition of something hazardous or detrimental. Safely and legally manage waste and pollution are needed in order to improve work environment and worker safety, increased efficiency and better environment protection. Meanwhile ethics can be define what action is right and what action is wrong and environmental ethics refer to people concern about environmental impacts from action taken. Environmental ethics focuses on the moral foundation of environmental responsibility and how far this responsibility extends.

## Conclusion

The above explanation from literature review suggest that function/key areas in GHRM are important and more powerful to promote organization become greener in their business operations and activities. Besides that, EMS can act as moderator factor for making sustainable EMP through improvement of GHRM, it is because EMS can be refer as a set of processes and practices that enable organization to reduce badly impact on environmental and increase their operating efficiency. In conclusion, the understanding and increasing the scope and depth with give more priority to key areas and tools of GHRM and EMS can help organizations to improve their environmental performance in a more sustainable manner than before.

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