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***Research paper***

# Overcoming Issues in Occupational Safety and Health Compliance among Contractors in Paddy and Rice Industry

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## Abstract

Issues related to occupational safety and health (OSH) in the agriculture sector is gaining extra attention, especially accidents that occur at workplace. This study is focusing in Selangor, Malaysia where the state shows the highest number of fatality accident rate in 2014 for this sector. The aim of this study was to propose strategies for improvement of OSH compliance among contractors in paddy and rice industry based on their main problems. A set of questionnaire was distributed to 40 registered and active contractors' company in paddy and rice industry with a response rate was 100%. Total of 10 interview sessions were conducted in order to collect information on their issues and opinions into details. The result shows that the lack of attitude of workers towards OSH; inappropriate and inadequate of OSH training among workers; and lack of effective communication between the company and its employees were the three main problems faced by these contractors. The study was then successful in identifying the 10 main necessary steps to be taken in improving the level of OSH based on the three main problems faced by these contractors.

***Keywords***: *OSH issues; OSH compliance; Improvement strategies; Paddy and rice industry*

## 1. Introduction

The agriculture sector contributed RM455 billion to the GDP, average annual growth rate of 2.4% in labor productivity in this sector increased by 2.2% per year. It is supported by better agricultural practices, input quality, use of modern agricultural technology, infrastructure improvements and the implementation of training programs on an ongoing basis [7-1]. In 11th Malaysian Plan, paddy production is expected to increase by 10 metric tons per hectare in 2020 In 2015, a total of 1.62 million or 11% of the total workforce in Malaysia are in the agriculture sector [8-2].

However, accident occurred during working is always a concern that remains to be unsolved effectively. Preventive action and programme such as OSH training activities, dissemination of information and enforcement has been carried out have not shown significant results. This is evidenced by statistical trend of occupational accidents from 2013 till 2014 as shown in Table 1. There are three main sectors namely manufacturing, construction and agriculture that always surpass other sector in terms of temporary disability (TD), permanent disability (PD) and fatality. In term of TD and PD reported, agriculture sector was the second highest after manufacturing in both years. It also shows that agricultural was the third highest in term of number of fatality reported after manufacturing and construction sector. Although accident and fatality rates are more likely to occur in manufacturing and construction respectively agriculture sector, OSH aspect for this sector should not be neglected.

The trend of accident also show increasing in 2012 till 2014 in term of rice, grains and flour as shown in Table 2. Meanwhile Selangor, Sarawak and Johor are the three of highest states in number of fatal accident shown in Table 3.

**Table 1:** Occupational Accidents Statistics by Sector from 2013-2014 [1-3], [2-4]

| Sector | 2013 | | | 2014 | | |
|---|---|---|---|---|---|---|
| | TD | PD | Fatal | TD | PD | Fatal |
| Manufacturing | 1469 | 128 | 58 | 1519 | 112 | 45 |
| Construction | 83 | 12 | 69 | 94 | 6 | 72 |
| Agriculture | 488 | 14 | 33 | 441 | 9 | 42 |

**Table 2:** Occupational Accidents Statistics in Argriculture Based Industry (Rice, grains and flour) [3-5], [4-6], [5-7]

| Type | No. of Cases Reported | | |
|---|---|---|---|
| | 2012 | 2013 | 2014 |
| Rice, grains and flour | 89 | 74 | 93 |

**Table 3:** Fatal accidents in Selangor [6-8].

| Type | No. of Cases Reported | |
|---|---|---|
| | 2010 | 2011 |
| Selangor | 33 | 35 |
| Sarawak | 16 | 25 |
| Johor | 20 | 25 |

According to the Chairman of NIOSH, implementation of OSH management system is essential to the main contractor and the subcontractor because some elements in the OSH management system known as MS 1722: 2011 Occupational Safety and Health Management Systems – Requirements related to procurement, contract management and hazard identification, risk assessment and the risk control. Implementation of OSH is very important in ensuring compliance with the regulations and at the same time reduce the compensation paid by the Social Security Organisation (SOCSO). Occupational Safety and Health Act 1994 is the starting point to the importance of OSH for employers and employees. Although in general, awareness of OSH showed an increase from year to year, however, accidents and injuries that occur in the workplace is an issue of concern for every organisation. Bad

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management and unsafe and incorrect handling activities can lead into accidents especially for equipment, machinery and paddy handling activities as well as the use or suitability of personal protective equipment (PPE).

Previous studies have found that any support or assistance received by the employer in implementing OSH programmes can encourage proper implementation of the OSH at the workplace [9]. OSH programme conducted in the company itself is more effective because it can be customised with the company [10]. However, employers have the right and option to choose whether to perform external or inhouse OSH programme. Various advantages when Safe Operation Procedure (SOP) is used and developed by a organisastion. This is because the SOP is part of a successful quality system as it provides individuals with information to do the job properly, and facilitates consistency in the quality and integrity of the product or end result [11]. Communication among workers and between workers and their employers should be effective. Clear communication and easy to understand information on safety issues between management, supervisors and workers are management practices that are effective for improving safety at work [12], [13], [14], [15].

According to Fleming and Lardner [16] found that 90 percent of accidents at work are caused by employee errors and only 10 percent were classified as unsafe workplaces and the use of unsuitable equipment. Safety management practices is one of the subsystems in the overall management of the organisation and is designed to control hazards that may affect the health and safety of workers [17]. OHSAS 18001 is a safety and health management system was developed specifically for the welfare of employees through health and safety aspects and to provide positive benefits to organisations that implement them [18]. There are many ways to demonstrate management's commitment to implement OSH, by giving education and training, rewarding and empowering employees to make decisions in the field of OSH [19]. Safety compliance is defined as the extent to which employees behave to comply with any safety regulations, the Act or the safety code as in the guidelines [20]. Therefore, training and supervision, safe operation procedure, OSH risk management, communication and safety reporting, management commitment, workers' attitude towards OSH are the important element in complying with OSH. A new approach towards understanding the problem-solution needs to be initiated to address the issues faced by contractors in this sector in Selangor in order to comply with the OSH elements and become the focus of this study.

## 2. Methods

Methods used for this research were quantitative and qualitative. The framework of this study is shown in Figure 1. The study started with quantitative method where a set of questionnaire was used to get the information from respondents. The questionnaire consists of six element and 39 close-ended questions as shown in Table 4.

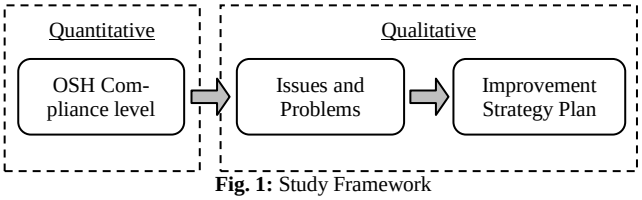



**Fig. 1:** Study Framework

**Table 4:** Element of Questionnaire

| Part | Element | No.of Item |
|---|---|---|
| 1 | Training and supervision | 7 |
| 2 | Safe Operation Procedure | 7 |
| 3 | OSH Risk Management | 9 |
| 4 | Communication and Safety Reporting | 7 |
| 5 | Management Commitment | 6 |
| 6 | Workers' Attitude towards OSH | 4 |

Each respondent is required to answer all these questions in the form around 10 to 15 minutes. Five point Likert scale was used in questionnaires as shown in Table 5. Respondents were approached through closed meetings, exhibition, training and workshop. The questionnaire had been targeted towards 40 registered and active contractors' company in paddy and rice industry. Response rate was 100% which is take five months to complete. Respondents selected from those who work as supervisors and above. There are four major locations involved of this study which are Bagan Terap, Sungai Besar, Sekinchan and Tiram Jaya in Selangor, Malaysia as shown in Table 6 where most of the respondents perform their services.

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**Table 5:** Likert Scale

| Scale | 1 | 2 | 3 | 5 | 6 |
|---|---|---|---|---|---|
| Status | Strongly disagree | Disagree | Not Sure | Agree | Strongly Agree |

**Table 6:** Study Location

| No. | Location | No. of Respondent |
|---|---|---|
| 1 | Bagan Terap | 20.3 % |
| 2 | Sungai Besar | 32.9 % |
| 3 | Sekinchan | 16.5 % |
| 4 | Seri Tiram Jaya | 20.3 % |
| 5 | Others | 10.1 % |

The reliability of scale in this study was tested using the Cronbach Alpha to ensure the coefficient alpha is higher than 0.7. Therefore the questionnaire is reliable as shown in Table 7. The results from quantitative analysis determine the level of compliance on OSH. After performing a thorough survey, data gathered from respondents' answers are analyzed through the use of SPSS software (Version 21) statistically.

**Table 7:** Cronbach's Alpha analysis for each element

| No. | Element | No. of Item | Cronbach's Alpha (r) |
|---|---|---|---|
| 1 | Training and supervision | 7 | 0.937 |
| 2 | Safe Operation Procedure | 7 | 0.907 |
| 3 | OSH Risk Management | 9 | 0.923 |
| 4 | Communication and Safety Reporting | 7 | 0.744 |
| 5 | Management Commitment | 6 | 0.892 |
| 6 | Workers' Attitude towards OSH | 4 | 0.876 |

In order to have better understanding on their issues and the action recommended to be taken, the study was followed by 13 random interview sessions as the qualitative part of this study. Interview was use to describe and the meanings of central themes in the life world of the subjects [21]. Semi-structured interview kit developed as shown in Table 8 which is taking 25-30 minutes to complete. Principle employer also has been interviewed to collect input and OSH issue faced by their contractors.

**Table 8:** Topics of Interview

| No. | Topic | Time |
|---|---|---|
| 1 | Greetings and briefing about the study to respondent | 2 min |
| 2 | Knowledge and experience respondent on OSH | 5 min |
| 3 | Issues and problems faced | 8-10 min |
| 4 | Improvement actions needed | 8-10 min |
| 5 | Summary and closing | 2-3 min |

The selected respondents for this interview are based on their level of compliance which is come from the survey conducted previous-

ly. Two major topics had been asked to respondent which related to common issues faced by them in order to have better compliance towards OSH and the short term and long term practically solution. The data has been transcribed to determine the theme stated by these respondents.

## 3. Results and Discussion

The result show that most of respondents aged between 35-50 years (41%) compared to age 51 years and above was the lowest (28.2%). Male respondents was majority (87.2%) compared to women (12.8%). Highest education was Malaysian Certificate of Education (MCE) (41%) the highest and the lowest was skills certificate (10.3%). Majority of the respondents involved in mechanical Works (27.8%) and husk or waste management (2.8%) was the lowest. In term of location of workplace of respondent where their service provided, Sekinchan (32.9%) is majority compared to Bagan Terap. Number of worker mostly was less than 5 workers (53.8%) and only 5.1% company have more than 75 numbers of workers. Respondent company's experience less than 10 years (74.4%) was the highest and only 5.1% is more than 21 years. Full demographical result shown in Table 9.

**Table 9:** Demographical Analysis

| Characteristic | N | % |
|---|---|---|
| **Age** | | |
| 18-35 years | 12 | 30.8 |
| 35-50 years | 16 | 41.0 |
| >51 years | 11 | 28.2 |
| **Gender** | | |
| Male | 34 | 87.2 |
| Female | 5 | 12.8 |
| **Education** | | |
| MCE | 16 | 41.0 |
| Certificate | 4 | 10.3 |
| Diploma | 9 | 23.1 |
| Bachelor | 6 | 15.4 |
| Master | - | - |
| Ph.D. | - | - |
| Others | 4 | 10.3 |
| **Scope of work** | | |
| Rice handling and related works | 6 | 8.3 |
| Husk/Waste management | 2 | 2.8 |
| Cleaning works | 10 | 13.9 |
| Civil/Construction Works | 13 | 18.1 |
| Electrical works | 10 | 13.9 |
| Mechanical works | 20 | 27.8 |
| Others | 11 | 15.3 |
| **Location of service provided in Selangor** | | |
| Sungai Besar | 16 | 20.3 |
| Sekinchan | 26 | 32.9 |
| Bagan Terap | 13 | 16.5 |
| Seri Tiram Jaya | 16 | 20.3 |
| Others | 8 | 10.1 |
| **No. Worker** | | |
| <5 (micro) | 21 | 53.8 |
| 6-30 (small) | 13 | 33.3 |
| 31-75 (medium) | 3 | 7.7 |
| >76 (large) | 2 | 5.1 |
| **Company Experience** | | |
| <10 years | 29 | 74.4 |
| 11-20 years | 8 | 20.5 |
| >21years | 2 | 5.1 |

In addition, the study also identified 74.4% respondent had never involved in any OSH related training for the last 24 months where only 25.6% respondents participate in OSH training. Table 10 shows the details on the number of OSH programme involved by their staffs.

**Table 10:** Number of OSH Programme participated for the last 24 months

| No. of OSH Programme Involved | N | % |
|---|---|---|
| None | 31 | 79.5 |
| One | 2 | 5.1 |
| Two | 2 | 5.1 |
| Three | 1 | 2.6 |
| Four and Above | 3 | 7.7 |

Based on the results shown in Table 11, it was found that management commitment (mean = 3.53) is the most critical part of the level of compliance. Secondly was issues relating to OSH Risk Management (mean = 3.63). The third issue that needs attention is the Communication & safety reporting (mean = 3.73). This result also supported by the issue of lack of OSH related training provided by their employer. At same time, most of the company has less experience (less than 10 years) in the field of work they been carried out. In fact, most of these respondents also do not have good management of OSH to determine any risk and hazard during work.

**Table 11:** Level of Compliance by Components

| Element | Mean | Rank |
|---|---|---|
| Training and supervision | 3.91 | 3 |
| Safe Operation Procedure | 3.97 | 2 |
| OSH Risk Management | 3.63 | 5 |
| Communication and Safety Reporting | 3.73 | 4 |
| Management Commitment | 3.53 | 6 |
| Workers' Attitude towards OSH | 4.10 | 1 |

This study is conducted not in conjunction with the harvesting season in the state of Selangor, where the lack of related activities carried out during the study. This become limitation for the study in order to have better input and respond. This limitation was overcome by getting close contact with several respondents through interview session.

The interview results in Table 12 stated 3 main issues faced by the respondents. Lack of attitude of workers towards OSH was the highest issue. It is followed by inappropriate and inadequate of OSH training. Lack of effective communication between the company and its employees is also one of their main problems.

**Table 12:** Main Issues faced by Respondent

| Theme Issue | % | Rank |
|---|---|---|
| Lack of attitude of workers towards OSH | 46.2 | 1 |
| Inappropriate and inadequate of OSH training | 30.1 | 2 |
| Lack of effective communication between the company and its employees | 23.1 | 3 |

From this result, both principle and direct employer has shown the similarities and the consensus of opinion in stating the issues faced by them. At this point, confirmation of the issues faced by these respondents can be done since there really exist. This study extends to the way in which these issues can be addressed in effectively and practically.

The results of the interviews conducted have also identified 10 key actions suggested by respondents who also include the principal employer. Table 13 shows the proposed action plan by the respondents based on their main issues. The result indicates that attitude of workers is needed to give more attention when it became the main issues. To do that, OSH education has been selected by the respondent to be the best practices and prevention at the very beginning. OSH subjects were proposed to be core subject in for secondary and tertiary education. It was also proposed that institution of higher learning can initiate to provide OSH awareness for students since they are future workers to be. This student will easily adapt with the working environment where OSH aspect applicable. OSH is the way of work is also one of the main theme proposed plan during the interview session. OSH aspect should be first priority before and during project to be committed. OSH management system can be taken as the best approach for the company to manage machines and materials as well their men (workers). The success of a company is not only measured by income alone, but also the loss that can be reduced. So that, Employees Reward Programme (ERP) was suggested to be implemented instead of given a penalty to workers. The employees who always consider safety aspects at the first place during performing their duties should be appreciated.

**Table 13:** Main Issues faced by Respondent

| Theme of Issue | Proposed Action Plan Theme |
|---|---|
| Lack of attitude of workers towards OSH | (a) OSH education for workers to be<br>(b) OSH is the way of work through OSH Management<br>(c) Introducing rewards programme among direct employers and their employees. |
| Inappropriate and inadequate of OSH training | (a) Introducing OSH Induction training Programme<br>(b) Setting of yearly KPI for training for each company.<br>(c) Developing specific and comprehensive modules for the contractor in this sector |
| Lack of effective communication | (a) Adapting the use of current technology for communication at work<br>(b) Organising OSH related yearly programme between principle and direct employers<br>(c) Integrating of certification for quality and OSH management system<br>(d) Promoting the use of OSH Guideline on Contract Management 2015 [22] |

The result also recommended OSH related training should be taken into high consideration. It can be done by setting appropriate number of days required for relevant OSH training to workers within a year. For entry level of the contractor need to be exposed on OSH such as related regulation, availability of competencies and trainings, enforcement by the regulator, compensation due to workplace accident etc. It can be done by introducing of OSH Induction Training Programme. The development of OSH training modules that are specific to this sector had also need to be introduced to increase the effectiveness and practicability between the training courses with the actual work done.

There is also having several recommendations to deal with the third main issue that is lack of effective communication. The use and adaption of current technology such as social media will be more effective in term of instant communication. It is also suggested that principle and direct employer should organising OSH related yearly programme together for their staff development and awareness. Integrating of certification for quality and OSH management system is also one of the proposed plans. It is systematic approach as well cost savings to have 2 in 1 certification. In order to define the roles and responsibilities of employer and contractor on OSH management, the use of OSH Guideline on Contract Management 2015 should be promoted among the contractor in this sector. It is also recommended this guideline can be upgraded into Malaysian Standard in future in order to obtain a larger mandate at the national and regional level.

## 4. Conclusion

The study able to determine the level of compliance on OSH in order of the best to the poor which are workers' attitude towards OSH, safe operation procedure, training and supervision, communication and safety reporting, OSH risk management and management commitment.

There are three major issues agreed by respondents faced towards better compliance on OSH. Indeed, with the lack of attitude of workers towards OSH, Inappropriate and inadequate of OSH training and lack of effective communication between the company and its employees may be the most issues for contractors in order complying with the element of OSH effectively. Agreeing to the overcome these issues brought the need of practical solutions.

The study identified the 10 main necessary proposed plans to be taken in improving the level of OSH among the contractor in paddy and rice industry. It can be concluded that most of the respondent suggesting facing the lacking of attitude of workers towards OSH is through OSH education for workers to be, OSH Management System approaches and to introduce rewards programme among direct employers and their employees. Secondly, the introduction of OSH Induction Training Programme. Setting of yearly KPI for OSH related training for each company and the development of specific and comprehensive modules for the contractor in this sector were proposed to solve the issues of inappropriate and inadequate of OSH training. There are also several recommendations to improve the communication is by adapting the use of current technology for communication at work. Organising OSH related yearly programme between principle and direct employers. Integrated of certification for quality and OSH management system and promoting the use of OSH Guideline on Contract Management 2015. The finding from this study should be taken into high consideration and review by regulator and relevant stakeholders in this sector in order to invite more outcome to come. It also can be extend to other sector to develop the holistic and workable OSH solution not only in Selangor but the whole nation.

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