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# The Effectiveness of Safety Star Grading (SSG) in Improving Compliance of ICOP RTA 2010 among Express Bus Operators

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**Abstract** – *Occupational Safety and Health Industry Code of Practice for Road Transport Activities 2010 (ICOP RTA 2010) was introduced in Malaysia in 2010 as a gazette under the Occupational Safety and Health Act 1994 (OSHA 1994). This initiative objectively was to improve the safety and health of the transportation sector. Since the introduction of ICOP RTA 2010, MIROS had conducted a Safety, Health, and Environment (SHE) Audit on bus and fleet operators to assess the compliance level of ICOP RTA 2010 among operators. Later, in 2013, MIROS introduced Safety Star Grading (SSG) which is a voluntary program focused to express bus operators. The main purpose of SSG is to improve the level of safety and health in the public transportation sector. Thus, this paper aims to explore the effectiveness of SSG in improving the compliance of ICOP RTA 2010 among selected express bus operators. The study shows that compliance to ICOP RTA 2010 increased by 15% among the assessed express bus operators after the implementation of Safety Star Grading (SSG). Hence, the findings reflected that SSG act as a support program to motivate express bus operator in compliance with ICOP RTA 2010.*

**Keywords:** Safety Star Grading (SSG), ICOP RTA 2010, express bus, Occupational Safety and Health (OSH)


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## 1.0 INTRODUCTION

The Occupational Safety and Health Industry Code of Practice for Road Transport Activities 2010 (ICOP RTA 2010) was introduced in Malaysia in 2010, which was gazetted under the Occupational Safety and Health Act 1994 (OSHA 1994). This initiative objectively was to improve the safety and health of the transportation sector. Compliance with ICOP RTA 2010 was aimed to ensure that persons other than their employees or the public are not exposed to their safety and health risks because of the transport activities that have been carried out (DOSH, 2010). The main elements of ICOP RTA 2010 as illustrated in Figure 1. The elements are consistent with the main elements of the Occupational Safety and Health (OSH) Management System (International Labour Office, 2001).

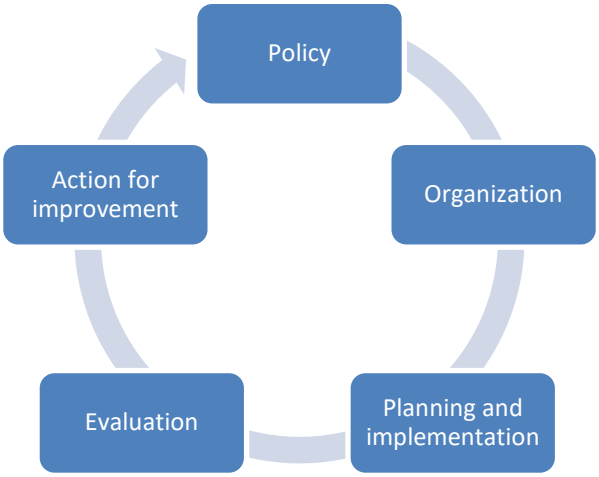


**Figure 1:** Five principal elements of ICOP RTA 2010 (DOSH, 2010)

Since the introduction of ICOP RTA 2010, the Malaysian Institute of Road Safety Research (MIROS) had conducted SHE Audit on bus and fleet operators. The audit aimed to assess the compliance level of ICOP RTA 2010 among operators. From 2010 until 2013, about 33 operators were assessed in the audit. Later, in 2013, MIROS introduced the Safety Star Grading or SSG. SSG is a voluntary program that was focused to express bus operators at its initial stage (Mohamed et al., 2013). It is a safety rating that will be awarded ranging from 1 star to 5 stars. This program is based on the assessment of compliance with ICOP RTA 2010. Most of its assessment criteria were developed by referring to ICOP RTA 2010 element (Mohamed et al., 2013; Ahmad et al., 2021). The framework of SSG assessment criteria is further described in Figure 2.

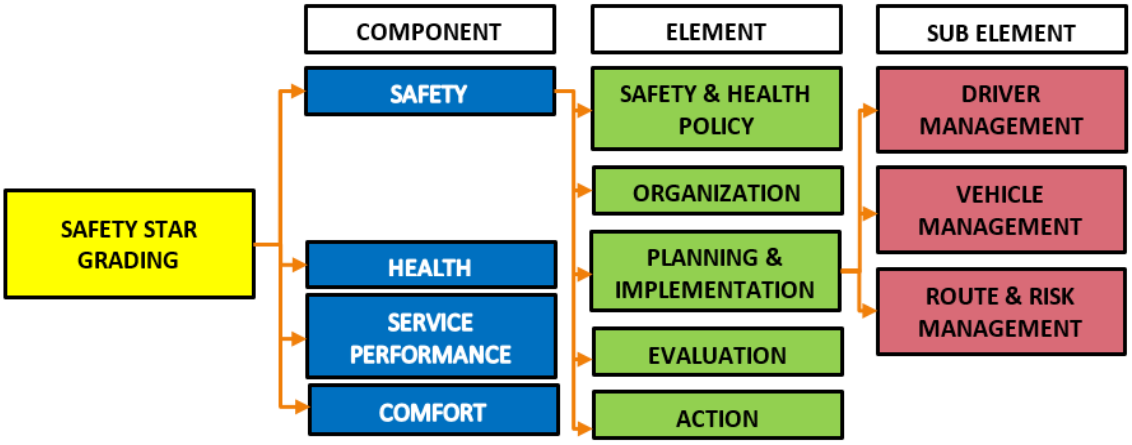


**Figure 2:** Conceptual framework of SSG (Mohamed et al., 2013; M. S. Ahmad et al., 2021)

The main purpose of SSG was to improve the level of safety and health in the public transportation sector. The rating resulting from SSG would provide an indicator of safety practice and performance to all relevant stakeholders including the operators as well as the public. A study by MIROS in 2010 showed that about 95.5% of 736 express bus passengers choose safety as their priority (Marjan et al., 2011). Thus, for the public, the rating could be useful information in making the right choice for a better and safer journey. Public or

passengers would be able to distinguish between different safety standards practiced by bus operators.

In 2016, MIROS conducted a study on the impact of SSG on public decisions among 480 express bus users (Ahmad et al., 2016). The study found that about 75.5% of the respondent will choose the bus operators with a star rating and almost 76% will choose operators with a higher star rating. In consequence, SSG would serve as a platform for the operators to continually enhance their safety practice and performance to improve their service, image, reputation, and publicity. Thus, this paper aims to explore the effectiveness of SSG in improving compliance with ICOP RTA 2010 among selected express bus operators.

## 2.0 METHODOLOGY

This section shall explain how the author conducted the study.

### 2.1 Study Design and Sampling

A pre-post intervention program study design was used to assess compliance to ICOP RTA 2010 among express bus operators before and after implementation of SSG. The express bus operators were audited twice, the first was before the implementation of SSG which was through SHE Audit. This audit was a baseline to identify the level of compliance with ICOP RTA 2010. The SSG was the second one – before the SSG audit was conducted, bus operators were briefed on the elements of SSG. The overall flow of SSG is illustrated in Figure 3.

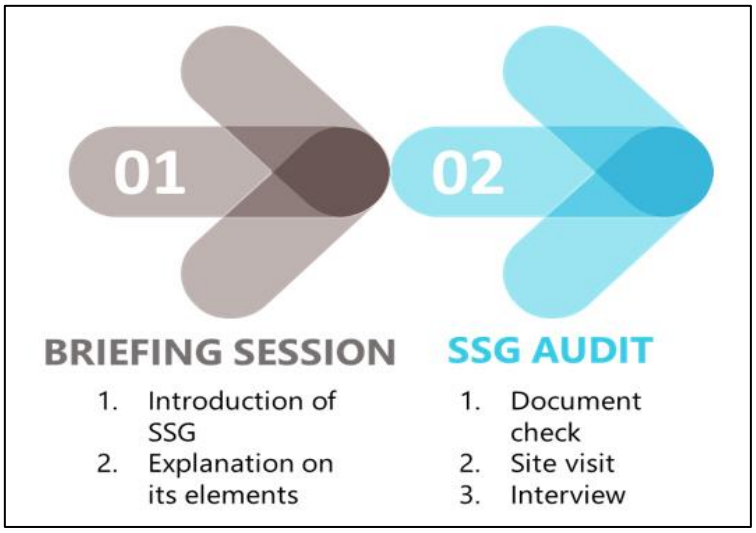


**Figure 3**: Flow of SSG

### 2.2 Data Set and Data Analysis

The compliance of ICOP RTA 2010 was assessed through a developed audit checklist used for SHE Audit and SSG Audit. The compliance of ICOP RTA 2010 was presented as scores. The score comprises marks for elements: (1) policy; (2) organization; (3) driver management; (4) vehicle management; and (5) route and risk management. In total, both audits contained 40 items. The score was presented in percentages. The data of both groups were obtained from audit finding stored in an established audit database maintained by MIROS. The data on ICOP RTA 2010 before the introduction of SSG for each sample was obtained through the findings

of the SHE Audit. Meanwhile, the data of ICOP RTA 2010 after the introduction of SSG was obtained through the findings of the SSG Audit. The author performed descriptive analysis to determine the distribution of compliance to ICOP RTA 2010 before and after the implementation of SSG.

## 3.0 RESULTS AND DISCUSSION

### 3.1 Distribution of Express Bus Operators

Overall, 25 express bus operators were assessed in SHE Audit from 2009 to 2012 (representing a group before SSG). The express bus operators were briefed on SSG before SSG Audit was conducted. As SSG is a voluntary program, thus, only five of the express bus operators participated in SSG (Figure 4). Furthermore, Table 1 presented the distribution of the express bus operators. The number of employees in the express bus companies ranged from 25 to 173 personnel with the number of buses ranging from 4 to 92.


**Figure 4**: Phases of audits

**Table 1**: Distribution of the express bus operators

| Express Bus Operators | Number of Bus | Number of Employees | Number of Drivers |
|---|---|---|---|
| A | 92 | 78 Permanent staff<br>650 Contract staff | 96 |
| B | 50 | 94 | N/A* |
| C | 4 | 25 | 12 |
| D | 40 | 50 | N/A* |
| E | 25 | 173 | 76 |

** N/A = Not Available*

### 3.2 Distribution on ICOP RTA 2010 Compliance

This study aims to assess compliance of ICOP RTA 2010 before and after the implementation of SSG among selected express bus operators. The compliance of ICOP RTA 2010 comprises elements of: (1) policy; (2) organization; (3) driver management; (4) vehicle management; and (5) route and risk management. Marks of each element were totaled up into scores. The score was then presented in percentage.

### *3.2.1 Compliance with ICOP RTA 2010 Before Implementation of SSG*

The results of the first audit for each express bus operator are shown below in Table 2. The scores ranged from 7.5 to 67.5 percent. About three of the express bus operators obtained a score above 50 percent. Meanwhile, one of the operators scored below 10 percent. The results of the first audit indicated that the audit was able to demonstrate levels of achievement in terms of implementing ICOP RTA 2010. These could be served as feedback to the relevant authorities and enforcement agencies on the compliance to ICOP RTA 2010 after it was introduced in 2010. Thus, appropriate intervention could be strategies for an improved level of compliance among express bus operators.

Further distribution by elements of ICOP RTA 2010 is described in Table 3. The study found that the express bus operators complied at an average of 70 percent for policy elements. The high percentage might be due to compliance with legal requirements as stipulated in OSHA 1994. In contrast, the finding showed that elements of driver management, vehicle management as well as route and risk management were scored below 50 percent. These elements should be managed properly and efficiently as the elements are fundamental for daily operation specifically in the transportation sector (MIROS, 2007). Thus, the findings provide indicators on elements that need to be prioritized for improvement in compliance with ICOP RTA 2010 by the express bus operators.

**Table 2**: Score obtained by express bus operators in the first audit (SHE Audit)

| Company | A | B | C | D | E |
|---|---|---|---|---|---|
| Percent of Audit Score | 67.5 | 65.0 | 7.5 | 30.0 | 62.5 |

**Table 3**: Distribution of score by elements of ICOP RTA 2010

| Element | Policy | Organization | Driver Management | Vehicle Management | Route Management |
|---|---|---|---|---|---|
| Average Percent of Score | 70.0 | 88.9 | 43.3 | 42.5 | 36.3 |

### *3.2.2 Compliance with ICOP RTA 2010 After Implementation of SSG*

The results of the second audit for each express bus operator are shown below in Table 4. The scores ranged from 16.3 to 85.0 percent. About two of the express bus operators obtained a score of 70 percent and above. Meanwhile, the other two operators scored almost 50 percent. Further comparison of the audit score before and after SSG revealed that four out of five of the operators showed improvement in the audit score (as presented in Figure 5).

On average, the audit score among these operators increased by 15 percent after the implementation of SSG as described in Table 5. This finding is similar to another study conducted by Pearse (2001) on the effectiveness of OSH Management System implementation in Southwest Sydney, Australia. The study found that implementation of the OSH Management System had improved in 15 of the companies in the period between the baseline and first audit.

On average, the audit scores of the companies improved by nine percentage points (on a 100-point scale).

**Table 4**: Score obtained by express bus operators in the second audit (SSG Audit)

| Company | A | B | C | D | E |
|---|---|---|---|---|---|
| Percent of Audit Score | 47.5 | 47.8 | 16.3 | 48.8 | 85.0 |

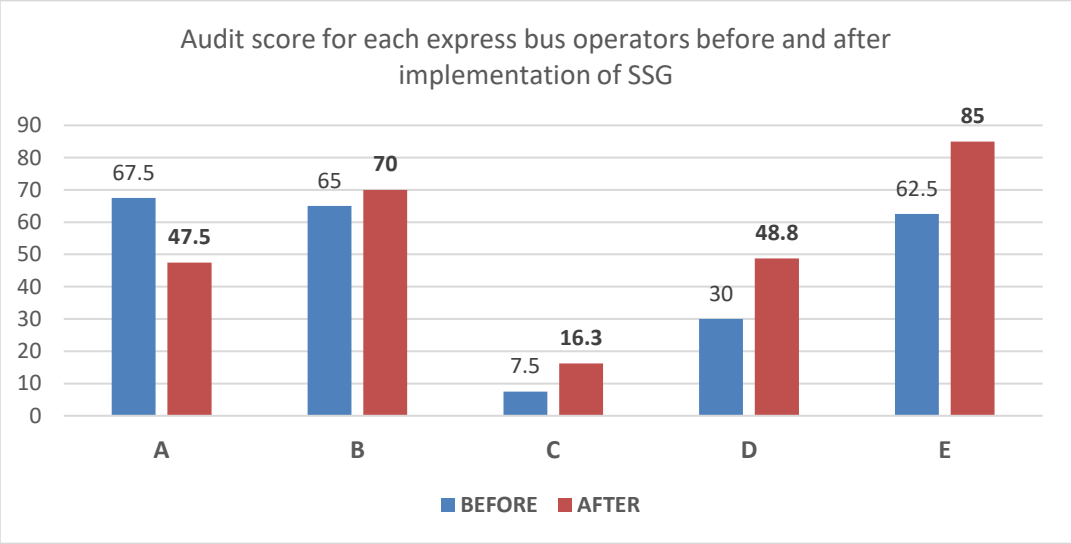


**Figure 5**: Comparison of audit scores before and after implementation of SSG

**Table 5**: Percentage of difference in audit score

| Phase | Percentage of Audit Score | | Percentage of Increase |
|---|---|---|---|
| | Range | Average | |
| Before | 7.5 – 67.5 | 46.5 | 15.1 |
| After | 16.3 – 85.0 | 53.5 | |

In addition, further distribution of audit scores by elements is presented in Table 6. The finding showed that on average, scores for the policy were maintained between the two audits. Meanwhile, scores for driver, vehicle, as well as route and risk management elements, had increased after the implementation of SSG. This indicates that an increase in scores of these elements had improved the total audit score for the express bus operators.

**Table 6**: Score obtained by express bus operators in the second audit (SSG Audit)

| Element | Policy | Organization | Driver Management | Vehicle Management | Route Management |
|---|---|---|---|---|---|
| Average Percent of Audit Score | 70.0 | 47.8 | 46.7 | 57.5 | 61.3 |

Thus, the findings reflected that SSG act as a support program to accommodate express bus operator in compliance with ICOP RTA 2010. SSG increased awareness through briefing which ultimately motivated the express bus operators to improve their compliance with ICOP RTA 2010. As illustrated in Figure 4, before the operators were assessed in SSG, they were invited to participate in a briefing session. The briefing session was carried out to introduce the SSG and to explain its elements which comprise ICOP RTA 2010 elements. A review by Gallagher et al. (2001) revealed that significant OSHMS implementation difficulties especially in small businesses include a lack of familiarity with systems generally and a lack an understanding of OHSMS. This is supported by a study among Norwegian enterprises one year after the regulation of internal control (IC) for health, environment, and safety (HES) was put into force (Saksvik and Nytrø, 1996). The study found that 66% of the enterprises surveyed had not begun implementation. Out of the 66% of firms that had not started implementation, 58% had not heard of the regulation and most were small business size. Hence, Curran & Mahon (2001) also highlighted that it is important for employees to understand the benefits of the system, their role, and the importance of compliance with the system to fully implement the OHS management system.

In addition, SSG was designed using a rating system that ranged from 1 to 5 indicating the level of compliance, safety, and services. A higher rating reflects a higher level of compliance with ICOP RTA 2010. The rating would help the operators to identify their level of compliance. Thus, this approach will encourage express bus operators to comply with ICOP RTA 2010 gradually and indirectly will promote them to continually improve their compliance from time to time. Similar support programs are also observed in other countries with the main purpose is to encouraging small-medium companies to adopt the OSH management system. For example, the NSW Workcover ‘D-I-Y Kit’ pilot project with small-medium companies. This pilot project was a strategy to provide information and support to the industry to make adjustments due to the introduction of OSH Regulation. NSW Workcover is aware that many employers will find it difficult to adjust to the requirements of a risk management approach, thus, they developed the kit to enable workplaces to develop their risk management strategies as a practical way to meet their OHS responsibilities (Costello & Merrett, 2001).

## 4.0 CONCLUSION

The study provides a few key findings which the compliance to ICOP RTA 2010 increased by 15% among the assessed express bus operators after the implementation of Safety Star Grading (SSG). The program provides support to the express bus operators to help them improve their compliance to ICOP RTA 2010 in two approaches. First, through the briefing session which to increase awareness and knowledge of ICOP RTA 2010. The second is through the rating system outlined in SSG. The purpose of the rating system is to encourage express bus operators to comply with ICOP RTA 2010 by stages. Consequently, will promote continuous improvement in compliance from time to time. Few recommendations to be highlighted from this study which is appropriate support from agencies and transport authorities such as through Safety Star Grading to the transportation sector especially those in the small-medium company is needed to encourage full implementation of ICOP RTA 2010.

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