

Incentive Pay Plan for Improving Safety Performance of Seaport Employees

MD. Rayhanul Kabir¹ and Wei Liu²

¹Student, College of Transport & Communication, Shanghai Maritime University, CHINA

²Professor, College of Transport & Communication, Shanghai Maritime University, CHINA

¹Corresponding Author: sukantasen.sh@amassfreight.com

ABSTRACT

Safety is a proactive, continuous, systemic, and comprehensive process which focuses on reducing risk, injuries, and fatalities in work. Seaports have still higher rate of injuries and therefore innovative initiatives to reduce accidents and improving safety conditions are needed at seaports. Chittagong Seaport is one of the busiest seaports in the world. Due to the complexity and forceful nature of work, management of health and safety may not continuously be up-front in CPA. This study focuses on the health and safety aspects of the Chittagong seaport labor system. In this paper, the incentive as an approach to motivate port employees in using safety equipment was assessed. After applying this method in Chittagong Seaport, there is a behavioral change among the employees. It has been found from the result that there is a significant relationship between incentive and safety performance. The result of this study showed that how incentive has a positive impact in enhancing safety performance of port employees. The use of incentives can be helpful for seaport's labors to be associated with safety programs.

Keyword-- Seaports, Safety, Incentives, Injuries

uncomfortable to use PPE. If no monitoring system is applied they don't use PPE. As a result the chance of Accidental incident will increase.

Personal protective equipment comes with specific OSHA standards for General Industry. It is also applied in Shipyard Employment, Marine Terminals, Longshoring, and Construction. OSHA requires a various type of personal protective equipment meet or be equivalent to standards developed by the American National Standards Institute (ANSI).

In this Paper we invented a way to increase the motivation for using PPE. And that is Implementation of incentive for using PPE properly. In first time it may sounds as it will increase the cost of operation/ increase the cost of labor. But overall by Applying this method we will able to describes the amount of accident /health hazard .At the same time it will describes the amount of loss of working hour for injury in workplace Which can play a vital role in a company's progress and efficiency. And that value is more than its cost. And that will also help for organizations reputation.

I. INTRODUCTION

Safety of labor is very important for any ports efficiency. Accidental Injury, Near miss those are very common for maritime labor (Dockyard, Ship yard, Port and ships labor). A simple injury may create cost for the company. This is for not only economical prospective but also it cuts labors daily working hours. For those the organization will lose its productivity. The relative solutions for minimizing those accidents are both costly and complex moreover it may create problem for company's regular operation. The ways of minimizing hazard are Eliminating, Substitution, Engineering control, Administrative control, PPE. But the first four ways are relatively costly and sometimes it may non compliance for regular operation. Last option that means using PPE is the most cost effective way to control health and safety hazard. But in practically it is very hard to ensuring use of PPE in root levels labor. If they are not motivated for using PPE it is very hard to ensure proper use of PPE. They feel

II. LITERATURE REVIEW

From a study of Griffin and Neal, "safety performance means the individual behavior of workers by which their personal safety as well as their co-workers safety would be promoted. Safety performance has two aspects, namely, safety compliance [e.g., using personal protective equipment (PPE), following safety procedures and rules] and safety participation (e.g., voluntarily participating in safety-related activities such as safety meetings)". According to aforementioned studies, "one of the most important preconditions for enhancing employees' safety performance is motivating them with a granted and proper incentive". Sulzer-Azaroff et al stated that incentives improve safety performance at construction sites. Teo et al reported that incentive, policy, process, and personnel (3P + I) were the key factors that must be considered while managing safety at construction sites. Vredenburg mentioned that incentive is one of the six management practices that can proactively decrease the rate of injuries in industries. A lot of studies have been

carried out on constructions employees regarding safety issues. Maritime organizations are such places where accidents rate is still very high and safety is very important facts over there.

III. METHODOLOGY

In this paper both primary and secondary data are used. Primary data have been collected from personal interview and questionnaires whereas secondary data were taken from different journals, articles and book chapter. We asked some safety officers about different safety issues and noted down their views on enhancing safety performance. Moreover we threw relevant questions to ports labors regarding the usage of personal protective equipments. A hypothetical cost benefit of implementing incentives is also applied in this research.

IV. POSSIBLE OUTCOME OF THIS STUDY

By this study we can minimize the accident which is caused by lack use of PPE in a ports operation (loading and discharging of bulk or container and movement of goods). There is more possible outcome we can expect from this study. They are-

- Labor will be self motivated for using PPE.
- First it may sound it will make extra cost for the company but at the end company can reduce the cost of giving compensation to labor for injury.
- The amount of lost time for any injury can also reduce. It will increase the company's profit.
- Proper use of PPE can be ensured.
- By increasing the amount of using PPE we can reduce the percentage of accident caused for not using PPE. And by doing that the company's reputation will increase.
- That will make a compliance with OSHAS requirement.

V. DETAILS OF THE PAPERS TOPIC

Maritime labor fully supports ship and port safety as intended by the IMO. Safety of self and co-workers is the prime priority in the terminal operation of a port. To achieve highest safety and to avoid accidents, the basic step is to make sure that everybody wears their personal protective equipment's. Because of the nature of the work it is necessary to develop a disciplined and professional approach to the management of safety in the port. The main focus of implementation of Incentive for labor is to motivate them for using PPE. A number of very serious accidents occurred because of not wearing PPEs properly.

Major danger factors in Port operation:

- Large, Heavy, Fast moving equipment
- Size and activity of terminal
- Mixture of equipment, vehicles and pedestrians
- 24 hours working
- Weather

Steps of implementing incentives for labor to use PPE:

- ❖ Organizational structure
- ❖ Operational Procedure
- ❖ Plan for implementing the incentive pay
- ❖ Port policy
- ❖ Documentation and guided performance ratings
- ❖ Review (cost benefit analysis)
- ❖ Implementation

For implementing the incentives to motivate the labor to use the PPE's it is necessary to look after the organizational structure and operational procedures. There are berth operators who only provide the stevedoring service and the terminal operators who maintain the whole operation of a terminal. But the common thing is there are labors commonly known as lashing man, gang who is working in along quayside, in yard and delivery point. Prime mover drivers, crane operators, maintenance engineers are also included. The main observation is the berth and terminal operating company provides the all safety equipment's but the labors are not willing to use it. So, the main focus is to motivate the labor with incentives which is comply with the port policy. After implementing the policy, proper documentation and periodical assessment is necessary.

Employee occupations covered by work accident statistics of last three months'

Site/ Employee Sectors	GCB	CCT	NCT	Minimum days of absence	Accident rates (per 100 employee)
Supervisors	Y	N	Y	5	3
Crane operators	N	N	NS	3	0
Fork lift operators	Y	N	Y	2	4
Signalmen	Y	Y	Y	7	4
Stevedores	Y	Y	Y	10	8
Tractor/Container tractor drivers/Straddle carrier	Y	Y	Y	7	3
Office staff	Y	NS	NS	3	1
Other sectors	NS	NS	Y	6	1

(GCB: General Cargo Berthing, CCT- Chittagong Container Terminal, NCT: Y – Yes, N- No, NS- Not Specified)

VI. COST BENEFIT ANALYSIS

List of PPE needed for a maritime labor especially in a port.

1. Safety Footwear.
2. Hi –Visibility Clothing
3. Hand Protection
4. Head Protection

We make a cost benefit analysis over a project which included about 1000 labor. In there no safety harness is needed because there is no scope of working in a hanging position.

In here we make a possible amount of incentive which will give the labor for using PPE. If we give 5 USD in (1% of a labor's salary) every month then for 1000 labor the company has to give 5,000 USD in every month.

On the other hand if they use PPE properly the amount of accident, sickness and ill health will decrease. If about 40% accident and sickness can prevented by using PPE then it will save more than 5,000 USD.

The following facts will be counted for taking that decision.

1. If the rate of minor accident or illness per day which are created for not using PPE is only 2% then for 1000 labor the amount of illness will be 20. If the medicine and doctor's cost needed for each labor is 2.5USD. Then for 20 labors it will be 50 USD.

And for that treatment, assume only 2 working hour is lost, and then the total amount of lost working hour will be $(2 * 20) = 40$ hour. If a workers daily payment is 20 USD (for 8 hour) then the amount to pay per hour is 2.5 USD. So for 40 hour the amount will be $(2.5 * 40) = 100$ USD. So the total amount will be $(50 + 100) = 150$ USD.

So total loss for not using PPE is $(150 + 50) = 200$ per day. In a month that will be $(200 * 30) = 6000$ USD.

2. Now if the rate of major accident or illness is only 0.25% per day then the amount for illness will be 2.5

If the medicine and doctor's cost needed for each labor is 15 USD. Then for 2.5 labors it will be 37.5 USD.

And for that treatment, assume 24 working hour is lost, and then the total amount of lost working hour will be $(24 * 2.5) = 60$ hour. If a workers daily payment is 20 USD (for 8 hour) then the amount to pay per hour is 2.5 USD. So for 60 hour the amount will be $(2.5 * 60) = 150$ USD. So the total amount will be $(37.5 + 150) = 187.5$ USD.

So total lost for major injury will be $(187.5 + 37.5) = 225$ USD. So in month it will be $(225 * 30) = 6750$ USD.

3. If the rate fatality (Death or lost of any organ) per day which are created for not using PPE is only 0.001% then for 1000 labor the amount of illness will be 0.01

If the medicine and doctor's cost needed for each labor is 500 USD. Then for .01 incidents it will be 5 USD.

And in one month the amount will be $(5 * 30) = 150$ USD. And additionally for fatality the company has to give compensation of about 1,500 USD. In a month total number of fatality will be $(.01 * 30) = 0.3$ then the amount of compensation is $(1500 * 0.3) = 450$ USD.

So the total cost will be $(450 + 150) = 600$ USD.

At the end total loss of this company (for not using PPE) will be $(6000 + 6750 + 600) = 13350$ USD

And if we can reduce at list 40% of accident by properly use of PPE then the loss will be 6,932 USD. And our cost of this project was 5000 USD. So net saving will be 1,932 USD.

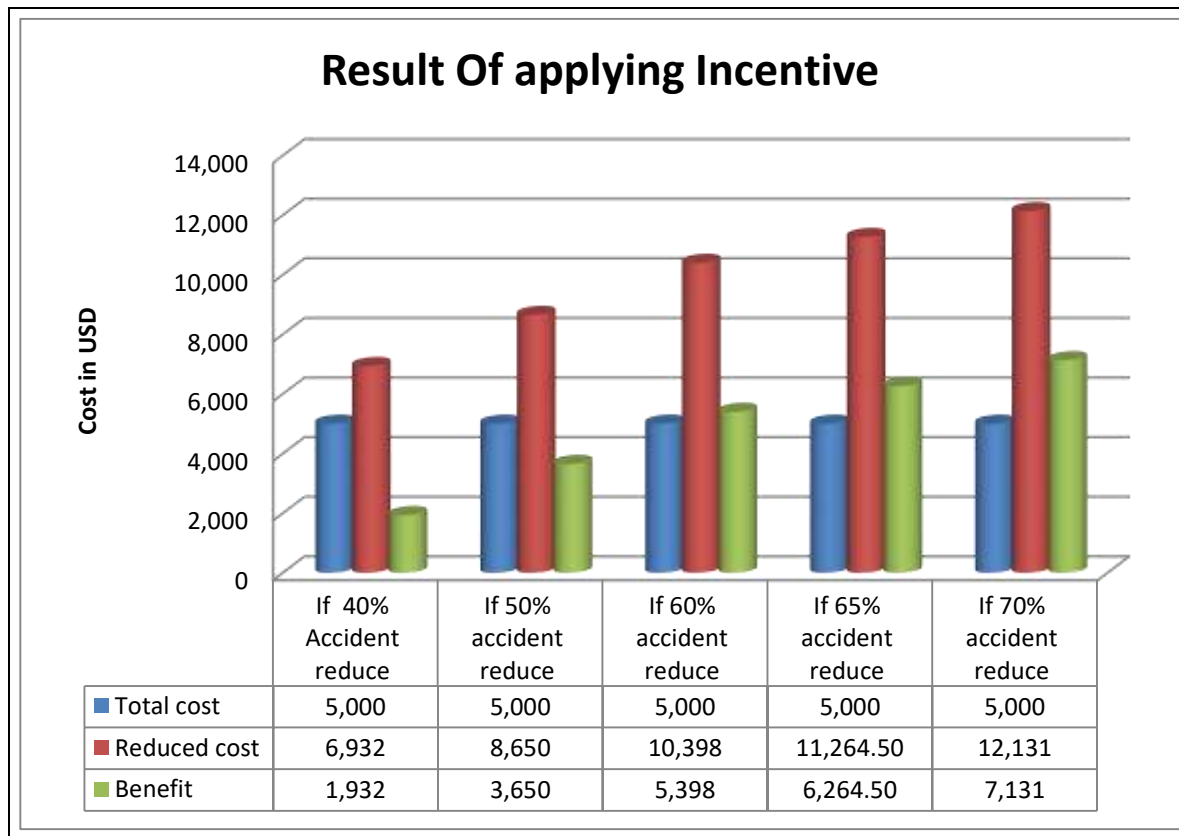
If by proper use of PPE we can reduce 50% of accident or illness then total loss will be 8,650

USD. So on that time we can save companies 3,650 USD.

If by proper use of PPE we can reduce 60% of accident or illness then total loss will be 10,398 USD. So on that time we can save companies 5,398 USD.

If by proper use of PPE we can reduce 65% of accident or illness then total loss will be 11,264.5 USD. So on that time we can save companies 6,264.5 USD.

If by proper use of PPE we can reduce 70% of accident or illness then total loss will be 12,131 USD. So on that time we can save companies 7,131 USD.



VII. LIMITATION OF STUDY

The limitation of this study is given below:

- There wasn't any opportunity of applying this theory practically. So a hypothetical research is given.
- Accidental record of any company is very confidential. So it is very hard to collect details of that record.
- There isn't much research upon this topic.

VIII. FINDINGS OF THE STUDY

- By offering a small amount of incentive for using PPE can be very effective to make proper use of PPE.
- By this incentive companies higher authority didn't need any extra monitoring staff for ensuring the use of PPE.
- The company can save a lot of money by reducing the incident of ill health, and injury which are caused by not using PPE.
- The company's reputation can be increased. (By reducing Accident)

IX. CONCLUSION

Incentives are a proactive approach which should be applied by management to the safety-related performances of employees. Both financial and nonfinancial rewards can be used as incentives where financial incentives include prizes and money, and nonfinancial rewards might be positive appraisal, feedback or even recognition. These can be helpful for encouraging workers to be involved in safety programs. However according to our analysis incentive system in terms of rewards had a greater positive impact to motivate port employees in using PPE. Though it seems just adding of extra cost to companies ultimately it will not only help companies to save their money but also enhance their safety performance and reputation.

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