Work Safety System on River Click Reinforcement Works

Rusmadani

[1] *Student, Master of Civil Engineering at LambungMangkurat University, Indonesia*
Master of Civil Engineering Study Program,

ABSTRACT
In government projects, of course, they have made efforts to implement K3 in each of their operations and are listed in the technical specifications of each work, but work accidents still occur at construction work sites. So that the implementation of an occupational safety and health management system in a work construction project needs to be optimized by involving various levels of management in order tocreateandmaintain a safer, moreefficient , andproductiveworkenvironment.

There are accidents that occur in the implementation of river bank reinforcement, lack of use of safety equipment, lack ofknowledgeaboutworksafety, noworksafetyequipmentisavailable. In addition to discussing work safety, the researchers also discussed how to implement the right work safety strategy in riverbank reinforcement projects in the implementation of riverbank reinforcement work.

The research was conducted by collecting primary data obtained through questionnaires on a sample ofinformantsandinterviewswiththeheadofthe Water Resources DivisionofthePublic Works and Spatial Planning Office of Balangan Regency . The data were analyzed using the SPSS version 26.00 computer program (Statistics). Productand Service Solutions). To determine the level of participant satisfaction, theCustomermethodisusedSatisfaction Index (CSI). Currently for determine the necessary service factors upgraded used method Importance Performance Analysis (IPA).

participant satisfaction level profession reinforcement cliff river by7 2 ,6 7% Soitcanbeconcludedthat that perception and or Performance Existing current _ on . (5) Execution socialization the dangers of K3 in the company; (8) Existence procedure state emergency in the company; and (13) Investigation problem with determine cause and take action so as not repeated OHS hazards; not yet satisfied so that party management must allocate source sufficient power _ To use Upgrade performance these various factors.

Keywords: Safety work ; satisfaction; performanceandexpectations; CSI; science.

I. PRELIMINARY

In this study, we will discuss the perception of the K3 work safety system on riverbankreinforcementworkwith a valuebelow Rp. 200,000,000.00 with the Direct Appointment system because based on the experience of the providers, work accidents are often found but are not reported. There are accidents that occur in riverbank reinforcement work, lack of use of safety equipment, remote project locations are more likely to have work accidents, disturbances from the community such as protests from land owners affected by the work project and finally the lack of attention from each party because the valueoftheworkisonlybelow Rp. 200,000,000.00 so that it is considered easy and trivial.

Shouldrequired existencetool safety work in the form of vest buoy and also existence review bulk rain in System Safety work. in the area Regency Balangan often found overflowing river _ consequence rain from downstream river to upstream river. It is necessary attention special for job reinforcement cliff river, plus again no all worker can swim .

II. LITERATURE REVIEW

Definition Health and Safety Work

Safety work originated from language edge that is the word ' safety ' and usually linked with state free from events accident (accident) or almost woe (near -miss). so on essentially safety as something approach science nor as something approach practical study the factors that could cause happening accident and attempt

develop various ways and approaches for zoom out risk happening accidents (Shaaf, 2007). Definition health and safety work according to researchers is as following:

1. Mangkunegara(2002) "means" safety and health work is something thought and effort for ensure wholeness and perfection good physical nor spiritual power work on in particular, and humans on generally, result works and culture for going to public just and prosperous".
2. Mathis and Jackson (2002), "stated that safety is going to on protection to well-being physique somebody against related injuries with job. Health is going to on condition general physical, mental, and stability emotion by general ".
3. Simanjuntak(1994), "Safety" work is condition risk - free safety _ accident and damage where we work that includes about condition building , condition machinery , equipment safety , and conditions workers ".
4. According to the Big Indonesian Dictionary, safety and health work is " a " condition work free from threats _ disturbing danger _ process activity and result in injury, disease, damage treasure things , as well disturbance environment ".

Regulation About Occupational K3 Construction

To use guaranteed safety and health work on maintenance construction in Indonesia, there are a number of Settings regarding K3 which is general and _ special for maintenance construction, several including:

1. Law No. 2 of 2017 RegardingServiceConstruction
2. RegulationGovernment No. 50 of 2012 concerningApplication of SMK3
3. Regulation President Number 07 of 2019 concerning Disease Consequence Work
4. Regulation government no. 88 of 2019 concerning Occupational Health
5. Permenakertrans RI No. 1 of 1980 concerning Safety Work on Construction building.
6. Decree of the Minister of Manpower of the Republic of Indonesia No. Kep-196/Men/1999 concerning guarantee program administration social power work for power work daily freelance, wholesale, and agreement work time certain in the service sector construction.
7. Republic of Indonesia Decree No. 384/KPTS/M/2004 concerning Guidelines Technical Safety and Health Work on The place Activity Construction Dam.
8. Regulation Minister Employment Number 5 of 2018 concerning Safety and Health Work Environment Work
9. PU Ministerial Decree No. 9 of 2008 concerning SMK3 Guidelines
10. PU Ministerial Decree No. 5 of 2014 concerning Construction SMK3 Guidelines Field Profession General
11. PERMEN PUPR Number 02/PRT/M/2018 Year 2018.

Aspect of *Safety Management* (Management safety)

one _ system management safety and health work that has been developed and made reference is OHSAS (*Occupational Health and Safety Assessment Series*) 18000. OHSAS 18000 includes OHSAS 18001 namely system management safety and health (OHSMS- Occupational *Health and* Safety *Management Systems*).

The characteristics and specifications of OHSAS provide condition on system management health and safety (OH&S- Occupational Health & Safety). The OHSAS Specification apply by common and can applied for all organization where range implementation Depend on organizational OH&S policy factors, the nature of activity as well as consequences and levels complexity.

Profession Reinforcement cliff River

Reinforcement slopes / Revetments isthe structure that placed on the cliff river for absorb water energy protect something cliff plot river to erosion and runoff wave (*overtopping*) to land and _ overall Upgrade stability plot river or body protected embankment.

Beside used for protect slope river, reinforcement cliff also usually used for protect embankment. Protected area _ reinforcement cliff is mainland right behind _ building. Surface building facing coming wave could be vertical or tilted. This building can made of couple Gabions, couple stone, concrete, pile of pipes (buis) concrete, plaster, wood or a number of Typerevertment produced by factory. But what is often encountered in the field is reinforcement a cliff made of piles stone with the outer layer consists of stone with more size big.

Validity Test

Test validity done with method correlation *pearson product moment* that is with correlate item scores on questionnaire with the total score. If mark coefficient more than 0.3 then item question the could said to be valid. As for the formula *pearson product moment* namely:

$$r = \frac{N \sum XY - (\sum x)(\sum y)}{\sqrt{(N \sum X^2 - (\sum X)^2)(N \sum Y^2 - (\sum Y^2))}} \ldots\ldots\ldots\ldots(2.1)$$

where r is coefficient product moment correlation , Y is X's total score is score each question or item and N is total respondents . The value of r can be varies from -1 to with +1. So that can made equality mathematical as -1 r +1. Result of calculation willgive three alternative :
1.   If r= 0 or close to 0, then the relationship between the two variables is very weak or no there is correlation between the variable X to the variable Y.
2.   If r= +1 or approaches +1, then the relationship between the two variables becomes strong and unidirectional, called positive.
3.   If r= -1 or approaches -1, then the relationship between the two variables becomes strong and opposite direction, called negative.
As ingredients interpretation to coefficient relationship found big or small, so be guided on provision as on Table 1.

Table I. Guidelines for Give Interpretation Coefficient Correlation

Coefficient Interval	Relationship Level
0 r > 0.2	Very weak
0.2 r > 0.4	Weak
0.4 r > 0.6	Currently
0.6 r > 0.8	Strong
0.8 r > 1	Very strong

Reliability Test
Reliability test used for test to what extent is a questionnaire could trusted or reliable if questionnaire the used twice or _ more at different times _ if produce measurement obtained _ relatively same so said questionnaire the reliable (*reliable*), in other words reliability test show something trust from questionnaire . Formula used _ in test reliability:

$$\alpha = \left(\frac{n}{n-1}\right)\left(1 - \frac{\Sigma \sigma^2}{\sigma^2}\right) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \dots(2.2)$$

Where, N is total respondents, R is the average correlation intrim, sum item variance and total composite variance. Processing test reliability this research with use SPSS software assistance.

CSI (*CustomerSatisfaction Index*)
Customers satisfaction index is used for know level satisfaction user service by thorough with see level performance and rate interest or expectations of attributes service service is definition according to Deviani (2016). To use know CSI value, then the steps taken are: as following:
1.   Set*Mean Importance Score*(MIS) and *Mean Satisfaction Score*(MSS) *Mean Importance Score* (MIS) is the average of mark interest something attribute. Whereas *mean Satisfaction Score* (MSS) is the average value of for level satisfaction that comes from performance perceived service _ by customer.

$$MIS = \frac{[\sum_{i=1}^{n} Xi]}{n} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.........(2.3)$$

Description:
Xi   : Interest score attribute X to -i
n   : Total respondents

$$MSS = \frac{[\sum_{i=1}^{n} Yi]}{n} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.....(2.4)$$

Description:
Yi   : Interest score attribute Y to i
n   : Total respondents

2.   Determine*Weight Factor*(WF) or weighted factor. This weight is percentage of MIS score per indicator against total MIS of all indicators.

$$WF = \frac{MISi}{\Sigma_{i=1}^{p} MISi} \times 100 \% \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.\dots(2.5)$$

Description:
MISSION   : Average score of importance to -i
$\sum_{i=1}^{p} MISi$: The average number of interests from -i to -p

3.   Determine*Weight Score*(WS) or mark weighted. This weight is multiplication between WF and average level satisfaction.
WSi = WFi X MSS……….……………………………………….......(2.6)

Description:
$WiFi$: Weighted factor to -i
$\sum_{i=1}^{p} MISi$: factor average level satisfaction

4. Set*Customer Satisfaction Index*(CSI)

$$CSI = \frac{\sum_{i=1}^{p} MIS}{HS} \text{ x } 100\% \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2.7)$$

Description:
$\sum_{i=1}^{p} MIS$: The average number of values importance from -i to -p
HS : *(higestscale)* is the maximum scale used

Table II.*Customer Satisfaction Index* (CSI)

Attribute	Interest (i)	Satisfaction (P)	Mark (S)
	1-5 . scale	1-5 . scale	(S) = (I) x (P)
………………..			
………………..			
Mark Amount	Total (I) = (Y)		Total (S) = (T)

Determination overall CSI according to Bhote (1996) the average value in the column interests (I) are added up so that obtained Y and also the product of I with P in column scores (S) are summed and obtained T.

Table III.Satisfaction Level Criteria

No	CSI Value (%)	Description (CSI)
1	81% CSI > 100 %	Very Satisfied
2	66% CSI > 81 %	Satisfied
3	51% CSI > 66%	Enough Satisfied
4	35% CSI > 51 %	Not Satisfied
5	0 % CSI >35 %	No Satisfied

Based on Table II values the maximum CSI is 100%. More CSI value lower than 50% which indicates performance not enough satisfied. Currently CSI value 80% or more tall signify user very satisfied to performance service.

IPA (*Importance Performance analysis*)
This method measures level interest customer (*customer expectations*) in relation with what it should be done by company to produce product or quality service _ high (Rangkuti, 2006). Assessment and analysis done after questionnaire done, interpretation differential semantic scale value no could directdone, but should compared with mark group normative. To findoutthepositionofeachattributeusingthecalculationoftheaveragevalueofeachattributewiththefollowingformulation:

$$\bar{X} = \frac{\sum Xi}{n} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \ldots\ldots .(2.8)$$

$$\bar{Y} = \frac{\sum Yi}{n} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \ldots\ldots .(2.9)$$

Where :
$\bar{X}$= Averagescoreofsatisfaction/ *performance level*
$\bar{Y}$= Averagescoreofimportance/ *importance*
Xi = Satisfactionratingscore
n = Number of respondents
IPA analysisisdescribed in theformof a 2 - dimensionalquadrantwhichisgraphicandeasy tointerpret. Shape the graph used as Figure I. Based on expectations and performance graphs are shared into 4 quadrants.
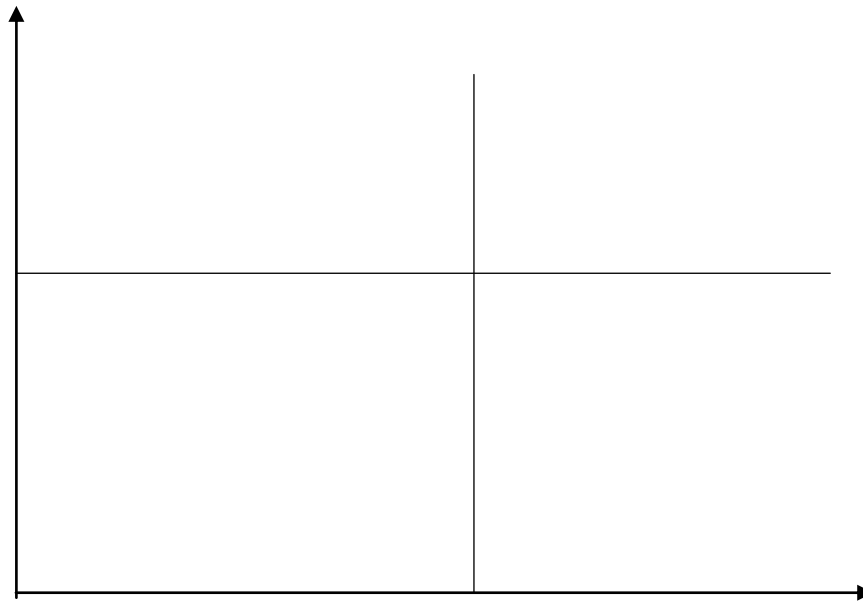
FigureI. Quadrant*Importance Performance Analysis*

The following quadrants are used :

I.   *Concentrate Here* (concentration here / Top Priority).

Existing factorsin thisquadrant are considered as factors that are currently unsatisfactory so that the management is obliged to allocate adequate resources to improve the performance of these various factors. Factors located in this quadrant are a priority to be improved.

II.   *Keep up with theachievements*(good work achievement).

Factors located in this quadrant are considered Important and Expected as a supporting factor for customer satisfaction so that the management is obliged to ensure that the performance of the institution it manages can continue to maintain the achievements that have been achieved.

III.   *Low Priority* (priority low)

Factors located in this quadrant are considered not too important and or too expected by consumers so that management does not need to prioritize or pay too much attentiontothesefactors.

IV.   *Possibly Overkill* (too excess).

Factors located in this quadrant are considered Not Too Important and or Not Too Expected so that management needs to allocate resources related to these factors to other factors that have a higher priority for handling which still need improvement, such as in the quadrant. I .

III. RESEARCH METHODS

Studies Introduction

On research this done a number of stage , where Step first started from studies preliminary see direct condition field carried out on site profession reinforcement cliff river regarding with problem research . Focus studies preliminary identify and formulate the problem used ingredients study from studies preliminary thegot level accident work , factor reason accident work , procedure safety work what just already _ executed and implementation strategy safety right work on job _ reinforcement cliff river . On These activities are the things that are carried out is observe by visual to situation which will researched. While to do observation field, researcher To do studies References for support this research.

Overview References

Overview References for dig related information with research. Data and information used for support This research was obtained from the study literature through books, journals, articles, internet and from experiences and news so that obtained examples accident work already occur on profession reinforcement cliff river. From review References expected got method data processing for reference research.

Research variables

On In this study, the variables consist of the expectation variable and the satisfaction variable. This variable is determined and compiled with method to do study References to literature that has been there is as well as to do studies introduction. Studies the introduction itself in the form of observation of related documents with OHS

document, observation about method implementation in the field, as well as to do Interview direct with related parties and feel impact direct with implementation system safety work in the field.

Satisfaction Variable
Variables used in This research is an assessment variable satisfaction to performance consultant supervisor. The variables that become evaluation on that variable i, e. Identification IndicatorSystem Safety Work, Preparation Indicator Safety Work, Implementation Indicatorsystem safety work Construction and Improvement Indicators system safety work construction.
Identification Variable System Safety work;
1.   K3 policy in each profession
2.   OHS policy in the company you communicated
3.   analysis OHS hazards and their control
4.   identification need K3 training
Variable Preparation Safety work ;
1.   socialization the dangers of K3 in the company you
2.   determination activity based on identification danger each profession
Application Variables system safety work construction;
1.   application procedure for reduce risk in the company you
2.   there is procedure state emergency
3.   there is procedure identification the dangers of K3 in the company
4.   K3 policies include commitment to use obey regulation applicable laws _
Repair Variable system safety work construction:
1.   know consequence risk if you no obey established procedure _
2.   documenting / taking notes results K3 repair and prevention
3.   investigate problem, determine cause and take action so as not repeated danger
4.   evaluate every action taken for prevent OHS hazards and apply proper action _

Design Questionnaire
For To do analysis, used analytical techniques useful index for describe knowledge and equipment as well as facilities, feedback respondent on the questions asked. Value category index used there are two on Table III. and Table IV.

Table IV. Evaluation AgainstResponseSatisfaction

Evaluation knowledge to indicator	Value/Score
1. No Ever (TP)	1
2. Rarely (J)	2
3. Sometimes (KK)	3
4. Enough Often (CS)	4
5. Always (S)	5

Table V. Rating AgainstResponseHope

Evaluation equipment and facilities against indicators	Value/Score
1. No Important (TP)	1
2. Less Important (KP)	2
3. Enough Important (CP)	3
4. Important (P)	4
5. Very Important (SP)	5

Table VI.*Performance* perceptionquestion

OCCUPATIONAL SAFETY PERCEPTIONS

No.	QuestionItems	Respondent Rating				
		AgainstResponseSatisfaction				
		TP	**J**	**kk**	**CS**	**S**
A.						
1	Is there always a K3 policy in every job	1	2	3	4	5
2	is OHS policy in the company you communicated	1	2	3	4	5
3	is analysis OHS hazards and their control already run	1	2	3	4	5
4	is there is identification need K3 training	1	2	3	4	5

5	is there is socialization the dangers of K3 in the company you	1	2	3	4	5
6	is company you determine activity based on identification danger each profession	1	2	3	4	5
7	is there is application procedure for reduce risk in the company you	1	2	3	4	5
8	is there is procedure state company emergency _ you	1	2	3	4	5
9	is there is procedure identification the dangers of K3 in the company you so that there is prevention and evaluation for reduce accident work	1	2	3	4	5
10	is K3 policies include commitment to use obey regulation legislation that _ apply	1	2	3	4	5
11	is you always know consequence risk if you no obey established procedure _	1	2	3	4	5
12	is company you documenting / taking notes results K3 repair and prevention	1	2	3	4	5
13	is company you investigate problem, determine cause and take action so as not repeated danger of K3	1	2	3	4	5
14	is company you evaluate every action taken for prevent OHS hazards and apply proper action _	1	2	3	4	5

Table VII. Perception question of *importance*
HOPE QUESTIONNAIRE WORK SAFETY RESPONDENTS

No.	Question Items	Perception Respondent				
		AgainstResponseHope				
		TP	KP	CP	P	SP
A.						
1	how much does it matter K3 policy in each profession	1	2	3	4	5
2	how much does it matter OHS policy in the company you communicated	1	2	3	4	5
3	how much does it matter analysis OHS hazards and their control run	1	2	3	4	5
4	how much does it matter there is identification need K3 training	1	2	3	4	5
5	how much does it matter socialization the dangers of K3 in the company you	1	2	3	4	5
6	how much does it matter company you determine activity based on identification danger each profession	1	2	3	4	5
7	how much does it matter there is application procedure for reduce risk in the company you	1	2	3	4	5
8	how much does it matter there is procedure state company emergency _ you	1	2	3	4	5
9	how much does it matter procedure identification the dangers of K3 in the company you so that there is prevention and evaluation for reduce accident work	1	2	3	4	5
10	how much does it matter K3 policies include commitment to use obey regulation legislation that _ apply	1	2	3	4	5
11	how much does it matter know consequence risk if you no obey established procedure _	1	2	3	4	5
12	how much does it matter company documenting / taking notes results K3 repair and prevention	1	2	3	4	5
13	how much does it matter company investigate problem, determine cause and take action so as not repeated danger of K3	1	2	3	4	5
14	how much does it matter company evaluate every action taken for prevent OHS hazards and apply proper action _	1	2	3	4	5

Data Collection

      Questionnaire will be distributed on 30 respondents consisting of 15 workers contractor people, 6 people consultant, 4 PPK/PPTK, 5 people directors field. This is because the target researcher of course for got respondent from contractors, consultants and agencies government (*owner*). From the results obtained seen number of contractors, consultants and agency government (*owner*).

Research Data

Data collection techniques in this research was conducted with using two survey methods:

1.   Primary data. Data obtained through research surveyto use looking for existing data that supports research. As for method data collection carried out in this primary survey include:

a.   Questionnaire. Questionnaire is wrong one method that is fishing public for think with use type questionnaire closed, that is answer question already provided by researcher.

2. Secondary Data. Data obtained through survey that review by direct condition field study To use looking for existing data that supports research. As for method data collection carried out in this primary survey include:
a. Oh observation. This technique is used for see condition field by direct or observe profession docking cliff river. Researcher play a role as observer with see object and sensibility, express as well as read problems that occur.
b. Interviews. Interview is wrong one method data collection with stage Interview by direct to power expert. Then from the results the interview was developed so that got answer for formulate strategies and programs.

IV. IS ANALYSIS AND DISCUSSION

Data CollectionandProcessing

From the questionnaires that have been back, researcher succeed get 30 respondents consisting of 15 workers contractor people, 6 people consultant, 1 PPK, 3 PPTK, 5 peopledirectors field. This is because the target researcher of course for got respondent from contractors, consultants and agencies government (*owner*). From the results obtained seen number of contractors, consultants and agency government (*owner*). and do accident data collection work on profession docking cliff siring river at the Department of Work Public and Residential Regency Balangan on year 2020 with mark contract under Rp. 200,000,000.00 is no there is accident work same once.

ValidityandReliabilityTest

1. Validity test

Validity test is used tomeasuretheaccuracyofthequestionnaireinstrumentagainsttheconceptbeinganalyzed. The basis for decision making in the validity test is as follows:

Hypothesis:

$H_0 = 0$: (There is no correlationbetweenresearchinstrumentsorthequestionnaireis not valid)

$H_1 \neq 0$: (There is a correlationbetweenresearchinstrumentsor valid questionnaires)

The decision used is if the value is $r_{hitung} > r_{tabel}$ or $(Sig.) < 0,05$, then reject H_0 which means that there is a correlation between the research instruments or the questionnaire used is valid. As for results test validation could seen on Table VII

Table VIII. Validity28items

Variable Items	Y_1	Y_2		r_{tabel}	Information
1	0.764	0.940	>	0.361	Valid
2	0.753	0.924	>	0.361	Valid
3	0.594	0.911	>	0.361	Valid
4	0.793	0.818	>	0.361	Valid
5	0.734	0.445	>	0.361	Valid
6	0.678	0.954	>	0.361	Valid
7	0.652	0.786	>	0.361	Valid
8	0.366	0.841	>	0.361	Valid
9	0.706	0.764	>	0.361	Valid
10	0.556	0.729	>	0.361	Valid
11	0.744	0.886	>	0.361	Valid
12	0.736	0.810	>	0.361	Valid
13	0.407	0.848	>	0.361	Valid
14	0.684	0.893	>	0.361	Valid

It is known that the number of respondents (N) used is 30 respondents, so that by using a significance level of 5%, a value r_{tabel} of 0.361 is obtained. The results of the validity test in the table above show that of the 14 items the value is known $r_{hitung} > r_{tabel}$ so that the item is declared valid. Therefore, the 14 items which constitute the total of the entire questionnaire are valid and can be used as research benchmarks.

2.   Reliability test

Reliability test is an index that shows the extent to which a measuring instrument can be trusted accurately so that the instrument used will give the same results even though the research is repeated. The basis for decision making in thereliabilitytestis as follows:

Hypothesis:

$H_0 = 0$:   (Instrumentunreliablequestionnaire)

$H_1 \neq 0$:   (Instrumentreliablequestionnaire)

If theinstrumentused has a *CornbachvalueAlpha* > 0.6 then reject H_0whichmeansinstrumentreliablequestionnaire. The reliabilitycoefficientcategoryis:

0.80-1.00   = very high reliability
0.60-0.80   = high reliability
0.40-0.80   = moderate reliability
0.20-0.40   = low reliability

Table IX. Reliability 28items

Variable	Cronchbach's Alpha	N of items
Y_1	0.793	14
Y_2	0.954	14

Basedontheanalysisusingthe SPSS version 26 program as shown in Table VIII. Itisknownthatthe*CornbachvalueAlpha ( )* for the variable Y_1*questionnaire*is 0.793 and for the variable questionnaire $Y_2$of 0.954, thisresearchcanbeconsideredreliable .

Work Safety Application Variable Data

The highest score for each answer is 5 which is an always and very good answer, this is used to measure knowledge about work safety as well as work safety equipment and facilities on the level of work accidents. As for theassessmentoftheperceptionof*performance*and*importance*canbe seen in Table IX and Table X.

Table X. Assessmentofperceived*performance*

Knowledge assessment of indicators	Value/Score
1. No Ever (TP)	1
2. Rarely (J)	2
3. Sometimes (KK)	3
4. Enough Often (CS)	4
5. Always (S)	5

TableXI.Assessment ofperceived*importance*

Assessment of equipment and facilities against indicators	Value/Score
1. No Important (TP)	1
2. Less Important (KP)	2
3. Enough Important (CP)	3
4. Important (P)	4
5. Very Important (SP)	5

        Table VI and Table VII use a Likert scale tomeasuretheapplicationofworksafety. The score will be multiplied by the number of answer scoresfromrespondentswhoansweredthequestionnaire , sothatlaterit will be added up to get the value of the application of work safety. In the survey on the application of worksafety, theteamaskedtherespondents a questionnaireconsistingof 28 questions representing the application of work safety to the rate of work accidents. The followingquestions are listed in thequestionnaire

***Customer Satisfaction Index* (CSI)**

Customer Analysis *Satisfaction Index* betweenknowledgeaboutworksafetyandsafetyequipmentandfacilitiestothe level ofworksafetyusing data from a questionnaire.*Mean Satisfaction Score* (MSS) is obtained from Table IV.5. Whereas *Mean Importance Score* (MIS) is obtained from Table IV.6. So that can calculated mark *Weight Factor* (WF) and Weight Score (WS) such as seen in Table XI.

Table XII. CSI calculation results

$MSS = \frac{[\sum_{i=1}^{n} Xi]}{n}$	$MIS = \frac{[\sum_{i=1}^{n} Yi]}{n}$	$WF = \frac{MISi}{\sum_{i=1}^{p} MISi}$ x 100 %	WSi =WF X WSS
4.13	3.80	7.20	29.73
3.93	3.73	7.07	27.77
3.90	3.73	7.07	27.56
3.47	3.50	6.63	23.01
3.63	4.47	8.47	30.74
3.47	3.73	7.07	24.52
3.47	3.57	6.76	23.47
3.30	3.90	7.39	24.38
3.47	3.27	6.19	21.49
3.67	4.43	8.39	30,80
4.37	3.43	6.50	28.39
3.33	3.73	7.07	23.53
3.20	3.90	7.39	23.64
3.57	3.60	6.82	24.35
		$\sum_{i=1}^{p} MIS$	363.36

Based on Table XI can is known CSI value can be calculated with method following:

$$CSI = \frac{\sum_{i=1}^{p} MIS}{HS} \text{ x } 100\% = \frac{363,36}{5} \text{ x } 100\%$$

CSI = 7 2 ,6 7 %

Based on Criteria Level Satisfaction CHAPTER II page 32, with results CSI value of 7 2 ,6 7 %then, could concluded that workersalreadyhaveknowledgeand are satisfiedwithworkfacilities.

***Importance Performance Analysis* (IPA)**

Importance Performance Analysis_ usingmeanscorebetween perceptions and expectations of workers on the level ofworksafetyusingquestionnaire data . As for the results *Importance Performance Analysis* (IPA) can be seen in Table XII.

TableXIII.Total score of respondents between workers' perceptions and expectations ofthe level ofworksafety

VariableItems	PerceptionMeanScore (x)	ExpectedMeanScore (y)
1	4.13	3.80
2	3.93	3.73
3	3.90	3.73
4	3.47	3.50
5	3.63	4.47
6	3.47	3.73
7	3.47	3.57
8	3.30	3.90
9	3.47	3.27

10	3.67	4.43
11	4.37	3.43
12	3.33	3.73
13	3.20	3.90
14	3.57	3.60
Total	50.91	52.79
mean	3.64	3.77

After obtaining the averagevalue (*mean*), thenthevalue data isdescribed in theformofquadrantssothatindicatorsorvariablescanbesortedout in thefourquadrants .As for the results *Importance Performance Analysis* (IPA) can be seen in Figure II.
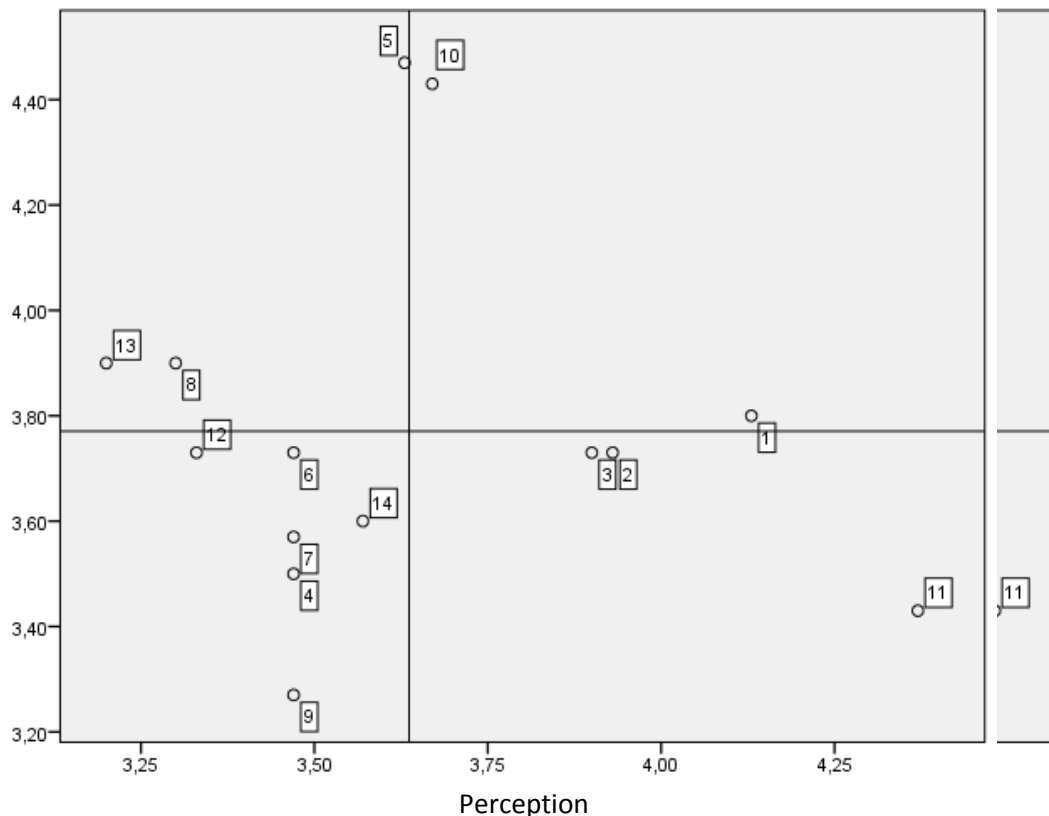

FigureII .IPA quadrant diagram

BasedonFigure II thevariablescanbedividedinto:
1.   Quadrant I
Quadrant I showsthefactorsorattributesthat are considered to need attention:
a.   Variable Preparation Safety Work:
(5)   Implementingsocializationof OHS hazards in thecompany;
b.   Application Variables system safety work:
(8)   The existenceofemergencyprocedures in the company;
c.   Repair Variable system safety work:
(13)   Investigating the problem by determining the cause and taking action so that OHS hazards do not recur;

2.   Quadrant II
Quadrant II showsthefactorsorattributesthat are considered important and are expected to be supporting factors for employee satisfaction so that the management must ensure that they are able to maintain their performance:
a.   Identification Variable System Safety Work:
(1)   The existenceofan OHS policy in each job;

b.   Application Variables system safety work:

(10)   Commitmentregarding OSH policies to comply with laws and regulations.

3.   Quadrant III

Quadrant III showsfactorsthathave a low level of perception or actual performance at the same time are considered not tooimportantbyemployeessothatthey are not a priorityformanagement :

a.   Work Safety System IdentificationVariables

(4) The existence of identification of K3 trainingneeds;

b.   Preparation Variable Safety Work :

(6) Determination of activities based on the hazard identification of each job in the company;

c.   Application Variables system safety work:

(7) Implementationofproceduresto reduce risk in the company;

(9) OSH hazard identification procedures as prevention and evaluation to reduce work accidents;

d.   Repair Variable system safety work:

(12) Documentationoftheresults of the improvement and prevention of K3;

(14) Evaluate every action taken to prevent OSH hazards and apply appropriate action.

4.   Quadrant IV

Quadrant IV showsfactorsthat are considered not too expected by consumers but already have a good perception, so that the management can prioritize other things. need:

a.   Identification Variable System Safety Work:

(2) Communicationregarding OSH policies in the company;

(3) Application of K3 hazard analysis and its control;

b.   Identification Variable System Safety Work:

(11) Knowledgeofriskconsequences;

Interview

In the final stage of the research the author conducted direct interviews with Mrs. Rosma Hilda, ST as the Head of Water Resources Division of the Public Works and Spatial Planning Office of Balangan Regency in 2020 tovalidatethelevel ofworkaccidentsand strategies. From the results of the interview, it was found that in the riverbank reinforcement work in the Activities at the Balangan Regency Public Works and Spatial Planning Service for the 2020 FiscalYearwith a valuebelow Rp. 200,000,000, 00. With system Appointment Direct no found danya report nor notes existence occur accident work. And the right strategy To use Upgrade K3 systems are :

1.   On moment process procurement more formerly emphasized on company that prioritizes system safety work. and on moment before profession started should more emphasized about system safety work as well as equipment safety good job.

2.   KDP, PPTK and Consultants Supervisor To do checking System Safety Work on beginning processing

3.   Make rule internal that includes penalty if no apply System Safety Work

4.   PPK commissioned wrong one the employee for monitor System Safety Work

5.   Make Guidelines System Safety suitable job with each profession

V. CLOSING

Conclusion

based on analysis carried out in study this could concluded that problem knowledge worker to safety work on work , there are variety perceptions and expectations from the participantsreinforcement cliff river . Following conclusion from study this :

1.   participant satisfaction level profession reinforcement cliff river on Activities at the Department of Work General and Regency Spatial PlanningBalangan Year 2020 budget with mark under Rp. 200,000,000, with system Appointment Direct is equalto7 2 2,6 7%.Which means the participants satisfied to system safety work on profession reinforcement cliff river.

2.   PerceptionsandorActualPerformancesthatexist in : (5) Implementingsocializationof OHS hazards in thecompany;(8)   The existenceofemergencyprocedures in thecompany; and (13)   investigatingthe problem bydeterminingthecauseandtakingactionsothatthe OSH hazardsdo not recur;on currently not satisfactorysothatthemanagementisobligedtoallocateadequateresourcestoimprovetheperformanceofthesevariousf actors.

3.   K3 implementation strategies that can applied on profession reinforcement cliffriver as following:

a.   On moment process procurement more formerly emphasized on company that prioritizes system safety work. and on moment before profession started should more emphasized about system safety work as well as equipment safety good job.

b.   KDP, PPTK and Consultants Supervisor To do checking System Safety Work on beginning processing

c.   Make rule internal that includes penalty if no apply System Safety Work
d.   PPK commissioned wrong one the employee for monitor System Safety Work
e.   Make Guidelines System Safety suitable job with each profession

Suggestion

survey is only done to 30 people respondent, so that there is possibility level big error. For zoom out error then better survey done with total more respondents a lot for analysis level appropriateness more valid.

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