

# Evaluation of the Implementation of Occupational Health and Safety (OHS) to Improve the Safety Behaviour of Workers in the Cosmetic R&D Laboratory (Research and Development) X.Inc in Bogor Regency

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**Abstract:-** X.Inc is a company engaged in manufacturing, and this company has a product development laboratory. The laboratory is one of the places of development of science through various researches and experiments in research activities/experiments. This research aims to find out the OHS management system used in X.Inc. The method used in this study is the Countenance Stake evaluation method, including antecedents (input), transaction (process), and output (output/result). Data through questionnaires to employees of R&D X.Inc. After it is known, the validity and reliability results then made a graph of questionnaire results, obtained the management system results, and inserted OHS in the R&D Laboratory X.Inc for the stage of OHS policy determination, and OHS planning stage is following system management of OHS. For the monitoring and evaluation stage, the review and evaluation of OHS have not been following system management of OHS.

**Keywords:-** Evaluation, Occupational Health and Safety, System Management of OHS.

## I. INTRODUCTION

X.Inc is a company engaged in manufacturing, this company has a product development laboratory, laboratory is one of the places of development of science through various research and experiments, in research activities / experiments of course use various types of tools and chemicals to support its activities and some other supporting facilities such as water, gas, electricity and acid cupboards of course tools, chemicals and laboratory facilities and their activities are very potential in causing an accident.

Employee attitude in the application of OHS while working in the laboratory has not been optimal. It is seen that there are still some employees who ignore OHS, as well as ignore the potential dangers that exist, the use of personal protective equipment (PPE) is still not maximized, the lack of supervision by the OHS, as well as the lack of posters, slogans, instructions, prohibitions and discipline about OHS. The research question is how to management and implementation based on OHS management system. Hence,

this study aims to know the management and implementation of OHS management based on OHS management system.

Limitation and assumption during this research:

Based on these problems, it is necessary to hold restrictions on problems in research, this is intended so that the research clarifies the problem to be researched and focused. This research is limited to OHS management system which includes OHS policy setting stage, OHS planning, OHS implementation, OHS performance monitoring and evaluation, OHS performance review and improvement.

## II. LITERATURE STUDY

### 2.1 Definition of Implementation Evaluation

Evaluation of the application comes from two words, namely evaluation, and application. Based on the understanding mentioned above, an assessment of the application is an assessment of action of implementing a program that has a goal to be achieved.

### 2.2 Definition of Occupational Safety, Health, and Safety

According to Daryanto (2010:1), occupational safety includes prevention of accidents, preventing and or reducing the occurrence of occupational diseases, preventing and or reducing the occurrence of permanent disabilities, preventing and or reducing deaths, and securing materials, construction, maintenance, all of which lead to improved living standards and human welfare.

### 2.3 Definition of Countenance Stake Evaluation Model Method

This evaluation model developed by Robert Stake emphasizes the existence of two elements of evaluation activities, namely description, and judgment and then distinguishes into three stages of program evaluation, namely: antecedents (context), transaction (process), outcomes (results). In this model, the three data are context, process, and results not only compared to each other but also compared to an absolute criterion (one program with a

certain standard) to determine whether there is a difference in purpose with the actual circumstances so that the analysis of the evaluation process concluded is a solid and fundamental concept for the development of further evaluation.

**III. RESEARCH METHOD**

This study examines the implementation of OHS in R&D Laboratories to support employee safety. This study includes a type of evaluation research using the countenance stake model. Evaluation of the countenance stake model emphasizes two main things, namely doing description and

judgment. These two central points obtained by the evaluation stage include antecedents (inputs), transactions (processes), and outputs (outputs/ results). A common emphasis in this model is that when evaluators make assessments about the evaluated programs.

This study uses the evaluation method using quantitative data taken from the X.Inc R&D employee questionnaire. The data collection methodology used in this final task by questionnaire/questionnaire data collection method. The use of questionnaires in this study aims at all employees of the X.Inc Research and Development division.

**Table 1** of questionnaire materials

Evaluation	Indicators	Sub-Indicators	Souces of Data	Instruments
<i>Antecedents</i>	policy setting and planning OF OHS	Applicable of Laws, Regulations and policies of OHS	Respondents	questionnaire
		Leadership and Commitment	Respondents	questionnaire
	Implementation of OHS	Documentation	Respondents	questionnaire
		First Aid	Respondents	questionnaire
		Work Environment	Respondents	questionnaire
		Objectives and Programs	Respondents	questionnaire
Planning of OHS	Hazard Identification	Respondents	questionnaire	
Transaction	Implementation of OHS	Communication and Participation with Students	Respondents	questionnaire
		Resources and Responsibilities	Respondents	questionnaire
		Supervision	Respondents	questionnaire
		Emergency or Disaster Preparedness	Respondents	questionnaire
		Work Accident Reporting and Recording	Respondents	questionnaire
Output	Monitoring and evaluation of OHS Review and improvement of perfomance	Maintenance and Repair of Facilities	Respondents	questionnaire
		Health Monitoring	Respondents	questionnaire
		Policy Evaluation of OHS	Respondents	questionnaire

**IV. RESULT AND DISCUSSION**

**4.1 Instrument Validity Test Results**

- 1. Data Antecedents
  - a. Planning and Policy of OHS

**Table 2** Validity Test Of Planning and Policy

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
QUESTION 1	58.30	198.456	.017	.	.768
QUESTION 2	58.20	183.289	.670	.	.743
QUESTION 3	58.00	177.556	.853	.	.733
QUESTION 4	58.40	186.933	.856	.	.747
QUESTION 5	58.30	185.789	.920	.	.745
QUESTION 6	58.40	186.933	.856	.	.747
QUESTION 7	57.90	187.878	.443	.	.752
QUESTION 8	58.10	195.433	.138	.	.764
QUESTION 9	59.10	178.544	.912	.	.734
QUESTION 10	59.00	177.556	.853	.	.733
QUESTION 11	58.90	174.100	.826	.	.728
QUESTION 12	58.30	186.233	.532	.	.749
QUESTION 13	59.10	181.211	.785	.	.739
TOTAL	30.40	49.822	1.000	.	.900

b. Implementation of OHS

**Table 3** Validity Test Of Implementation

<b>Item-Total Statistics</b>					
	<b>Scale Mean if Item Deleted</b>	<b>Scale Variance if Item Deleted</b>	<b>Corrected Item-Total Correlation</b>	<b>Squared Multiple Correlation</b>	<b>Cronbach's Alpha if Item Deleted</b>
QUESTION 14	81.7000	70.011	-.035	.	.752
QUESTION 15	81.2000	62.622	.903	.	.705
QUESTION 16	81.3000	65.122	.630	.	.718
QUESTION 17	81.4000	66.711	.490	.	.726
QUESTION 18	82.0000	62.889	.498	.	.714
QUESTION 19	81.8000	64.622	.516	.	.718
QUESTION 20	81.9000	66.989	.385	.	.728
QUESTION 21	82.2000	62.622	.903	.	.705
QUESTION 22	81.9000	67.433	.328	.	.731
QUESTION 23	81.4000	66.711	.490	.	.726
QUESTION 24	81.3000	65.122	.630	.	.718
QUESTION 25	81.3000	65.122	.630	.	.718
QUESTION 26	81.3000	65.122	.630	.	.718
QUESTION 27	81.4000	66.711	.490	.	.726
TOTAL	42.3000	17.567	1.000	.	.811

2. Data Transaction

a. Planning of OHS

**Table 4** Validity Test Of Planning

<b>Item-Total Statistics</b>					
	<b>Scale Mean if Item Deleted</b>	<b>Scale Variance if Item Deleted</b>	<b>Corrected Item-Total Correlation</b>	<b>Squared Multiple Correlation</b>	<b>Cronbach's Alpha if Item Deleted</b>
QUESTION 28	20.70	5.344	.198	.	.748
QUESTION 29	20.70	4.233	.504	.	.665
QUESTION 30	21.20	3.733	.559	.	.635
QUESTION 31	20.70	4.900	.524	.	.695
TOTAL	11.90	1.433	1.000	.	.393

b. Implementation of OHS

**Table 5** Validity Test Of Implementation

<b>Item-Total Statistics</b>					
	<b>Scale Mean if Item Deleted</b>	<b>Scale Variance if Item Deleted</b>	<b>Corrected Item-Total Correlation</b>	<b>Squared Multiple Correlation</b>	<b>Cronbach's Alpha if Item Deleted</b>
QUESTION 14	81.7000	70.011	-.035	.	.752
QUESTION 15	81.2000	62.622	.903	.	.705
QUESTION 16	81.3000	65.122	.630	.	.718
QUESTION 17	81.4000	66.711	.490	.	.726
QUESTION 18	82.0000	62.889	.498	.	.714
QUESTION 19	81.8000	64.622	.516	.	.718
QUESTION 20	81.9000	66.989	.385	.	.728
QUESTION 21	82.2000	62.622	.903	.	.705
QUESTION 22	81.9000	67.433	.328	.	.731
QUESTION 23	81.4000	66.711	.490	.	.726
QUESTION 24	81.3000	65.122	.630	.	.718
QUESTION 25	81.3000	65.122	.630	.	.718
QUESTION 26	81.3000	65.122	.630	.	.718
QUESTION 27	81.4000	66.711	.490	.	.726
TOTAL	42.3000	17.567	1.000	.	.811

3. Data Output

a. Monitoring and Evaluation of OHS

**Table 6** Validity Test Of Monitoring and Evaluation

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
QUESTION 49	67.00	159.778	.876	.	.714
QUESTION 50	67.50	170.278	.802	.	.731
QUESTION 51	66.00	200.000	-.562	.	.782
QUESTION 52	66.40	182.933	.488	.	.752
QUESTION 53	66.40	182.933	.488	.	.752
QUESTION 54	66.40	182.933	.488	.	.752
QUESTION 55	66.20	181.289	.697	.	.749
QUESTION 56	66.30	186.233	.353	.	.757
QUESTION 57	66.30	186.233	.353	.	.757
QUESTION 58	67.00	155.111	.965	.	.704
QUESTION 59	67.40	165.822	.933	.	.722
QUESTION 60	67.40	165.822	.933	.	.722
QUESTION 61	67.20	161.956	.904	.	.716
TOTAL	34.70	47.344	1.000	.	.882

Decision making based on the calculation of Corrected item-total Correlation value results from Reliability Scale analysis. According to Nisfiannor Muhammad (2009, p. 229), that to declare an item valid or invalid used the benchmark was 0.200. As seen in the table above, some questions have a value of Corrected item-total Correlation above 0.200. It said that the question of the questionnaire is valid, or vice versa.

**4.2 Instrument Reliability Test Results**

1. Data Antecedents

a. Planning and Policy of OHS

**Tabel 7** Reliability Statistics of Planning and Policy

Cronbach's Alpha	N of Items
.762	13

b. Implementation

**Tabel 8** Reliability Statistics of Implementation

Cronbach's Alpha	N of Items
.737	14

2. Data Transaction

a. Planning

**Tabel 9** Reliability Statistics of Planning

Cronbach's Alpha	N of Items
.717	4

b. Implementation

**Tabel 10** Reliability Statistics of Implementation

Cronbach's Alpha	N of Items
.762	17

3. Data Output

a. Monitoring and Evaluation

**Tabel 11** Reliability Statistics of Monitoring and Evaluation

Cronbach's Alpha	N of Items
.758	13

The results of the calculation of reliability tests using SPSS software in Cronbach's Alpha. The data is declared reliables if the value of Cronbach's Alpha > 0.6. After the analysis using SPSS known value Cronbach's Alpha more > 0.6, the item of interest question is declared reliable.

**4.3 Data Of Quantitative**

1. Data Antecedents

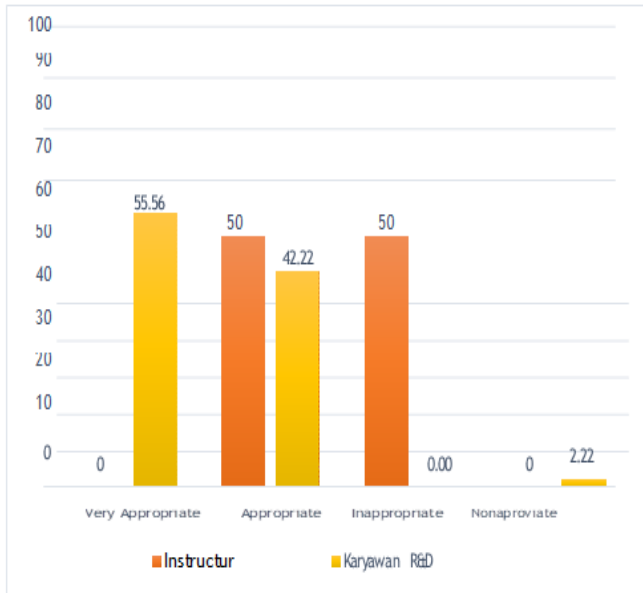
The antecedents or input stages on the application of occupational health and safety in R&D laboratories have two indicators based on the OHS management system are :

a. Policy Setting and Planning Stage

This stage has two sub-indicators they are the prevailing laws and regulations as well as leadership and commitment. Here are the results of OHS policy setting and planning.

**Table 12** Results Of OHS Policy Setting And Planning

Categories	Instructions		Staff R&D	
	Frequency	Persentation	Frequency	Persentation
Very Appropriate	0	0	25	55.56
Appropriate	5	50	19	42.22
Inappropriate	5	50	0	0.00
Not Appropriate	0	0	1	2.22



**Picture 1** Results Of OHS Policy Setting And Planning

Policy setting and planning of OHS from questionnaires filled out instructors five people categorize this stage accordingly, and five others categorize this stage as inappropriate. The questionnaire filled out by participants

R&D employees twenty five people organizing this stage is very appropriate, nineteen people manage accordingly, and one person categorizes nonappropriate

**Table 13** Policy Setting and Planning Indicator Score Analyze

Respondents	ST	SR	Mean	Mo	Me	Sdi
Instructor	52.00	13.00	31.30	39.00	30.50	6.50
Staff R&D	36.00	9.00	29.49	30.00	30.00	4.50

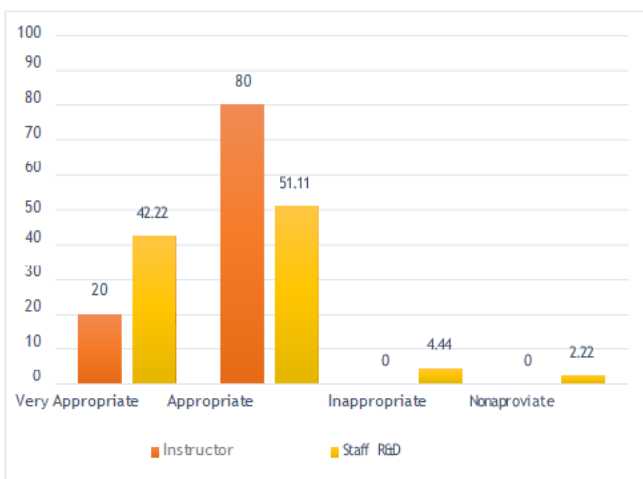
Based on the results of the analysis, it can know that the stages of policy determination and planning get the appropriate category according to the instructor shown with an average value of 31.3, the step of policy determination and planning get a type is very appropriate according to the R&D employees shown with an average value of 29.49.

**b. Implementation Of OHS**

This stage has four sub-indicators: documentation, first aid, work environment, and objectives and programs. Here are the results of the implementation:

**Table 14** Results Of The Implementation

Categories	Instructions		Staff R&D	
	Frequency	Persentation	Frequency	Persentation
Very Suitable	2	20	19	42.22
Appropriate	8	80	23	51.11
Inappropriate	0	0	2	4.44
Not Appropriate	0	0	1	2.22



**Picture 2** Results Of The Implementation

OHS implementation stage of the questionnaire filled by instructors eight people categorizing accordingly and two people categorizing very appropriate, while on the questionnaire filled by R&D employees nineteen people organized very appropriately, twenty-three people ordered. Thus, It classified two people inappropriately and one person categorized inappropriately.

**Table 15** Implementation Indicator Score Analyze

Respondents	ST	SR	Mean	Mo	Me	Sdi
Instructor	56.00	14.00	42.40	41.00	41.00	7.00
Staff R&D	56.00	14.00	44.80	41.00	44.00	7.00

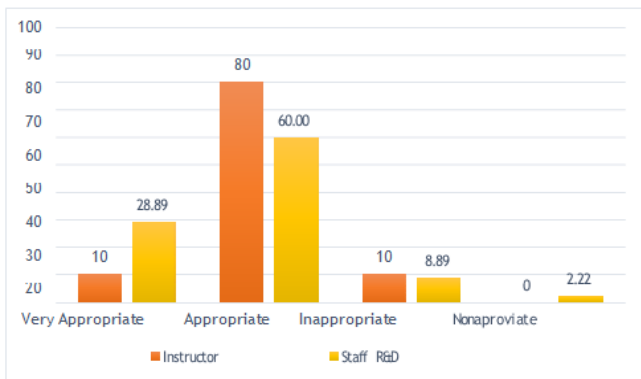
Based on the results of the analysis, it can know that the stages of implementation of OHS get the appropriate category according to the instructor shown with an average value of 42.40, the step of implementation of OHS gets the appropriate category according to the R&D employee shown with an average value of 44.8.

- 2. Data Transaction
  - a. OHS planning stages

This stage has one sub-indicator that is hazard identification. Here are the results of OHS planning steps.

**Table 16** Results Of OHS Planning Steps

Categories	Instructions		Staff R&D	
	Frequency	Persentation	Frequency	Persentation
Very Appropriate	1	10	13	28.89
Appropriate	8	80	27	60.00
Inappropriate	1	10	4	8.89
Not Appropriate	0	0	1	2.22



**Picture 3** Results Of OHS Planning

OHS planning stage of the questionnaire filled out by the instructor one person categorizes very appropriately, and eight people type accordingly, one person categorizes less appropriately. Questionnaires filled out by 13 R&D employees classified very appropriately, 27 people classified according to 4 people organizing inappropriately, and one person categorizing inappropriately.

**Table 17** Planning Stage Indicator Score Calculation

Respondents	ST	SR	Mean	Mo	Me	Sdi
Instructor	16.0 0	4.0 0	11.90	12. 00	12.0 0	2.0 0
Staff R&D	16.0 0	4.0 0	12.51	12. 00	12.0 0	2.0 0

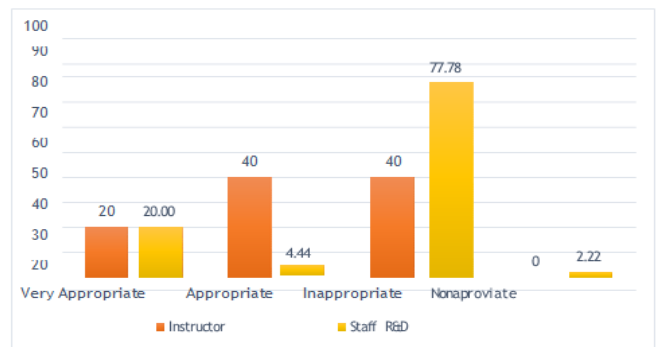
Based on the analysis results, It can know that the plan of OHS stages gets categories according to instructors shown with an average value of 11.9, ohs planning steps get classes according to R&D employees shown with an average value of 12.51.

- b. Stages of OHS implementation

This stage has four sub-indicators: communication and participation with R&D employees, resources and responsibilities, supervision, and emergency and disaster preparedness. Here are the results of the ohs implementation stage :

**Table 18** Results Of The Ohs Implementation Stage

Rentang Skor						Category
Instructor		Staff R&D				
55.25	<x≤	68	52	<x≤	64	Sangat Sesuai
29.75	<x≤	42.5	28	<x≤	40	Sesuai
42.5	<x≤	55.25	40	<x≤	52	Kurang Sesuai
17	<x≤	29.75	16	<x≤	28	Tidak Sesuai



**Picture 4** Results Of The OHS Implementation

OHS implementation stage of the questionnaire filled by instructors 2 people categorizing very appropriate, 4 people categorizing accordingly, 4 people categorizing less appropriate, while on the questionnaire filled by employees R&D 9 people categorize very appropriate, 35 people categorize inappropriately, 2 people categorize accordingly, and 1 person categorizes inappropriately.

**Table 19** Implementation Indicator Score Analyze

Respondents	ST	SR	Mean	Mo	Me	Sdi
Instructor	68.00	17.00	45.50	35.00	48.50	8.50
Staff R&D	64.00	16.00	48.04	47.00	48.00	8.00

OHS implementation stage of the questionnaire filled by instructors two people categorizing very appropriate, four people organizing accordingly, four people categorizing inappropriately, while on the questionnaire filled by employees R&D 9 people categorize very appropriate, 35 people categorize inappropriately, two people categorize accordingly, and one person categorizes inappropriately.

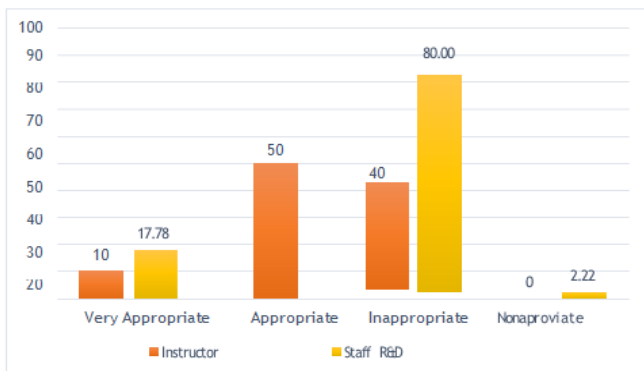
3. Data Output

a. Stages of monitoring and evaluating OHS performance

This stage has four sub-indicators reporting and recording work, maintenance and improvement of facilities, health monitoring, and evaluation of OHS policies. Here are the results of ohs monitoring and evaluation performance .

**Tabel 20** Results of OHS Monitoring and Evaluation Performance

Categories	Instructions		Staff R&D	
	Frequency	Persentation	Frequency	Persentation
Very Appropriate	1	10	8	17.78
Appropriate	5	50	0	0.00
Inappropriate	4	40	36	80.00
Not Appropriate	0	0	1	2.22



**Picture 5** Result of Performance Monitoring And Evaluation

OHS performance monitoring and evaluation stage of the questionnaire filled by instructor one person categorizes very appropriately, five people categorize accordingly, and four people categorize less appropriately. In comparison, on the questionnaire filled by R&D employees, eight people organize very appropriately, 36 people order inappropriately, and one person types inappropriately.

**Table 21** Analyze of OHS Performance Monitoring and Evaluation Indicators

Respondents	ST	SR	Mean	Mo	Me	Sdi
Instructor	52.00	13.00	34.70	28.00	34.00	6.50
Staff R&D	20.00	5.00	15.33	15.00	15.00	2.50

Based on the results of the analysis, it can know that the stages of monitoring and evaluation of OHS performance get a less appropriate category according to the instructor shown with an average score of 34.7, the monitoring and evaluation stages of OHS implementation get a less appropriate variety according to R&D employees indicated by an average score of 15.33.

**V. CONCLUSION AND SUGGESTION**

**5.1 Conclusion**

Based on the results of research and discussion that has presented, it can conclude:

1. OHS management system in R&D Laboratory X.Inc at the OHS policy determination stage, the OHS planning stage gets a category following system management of

OHS. The implementation stage of OHS in facilities and infrastructure gets a class following system management of OHS, and human resources get classless following system management of OHS. The monitoring and evaluation stage of OHS gets a category less following system management of OHS.

2. Implementation of OHS in R&D Laboratory X.Inc uses the Countenance Stake evaluation model on antecedent data for the OHS policy determination stage. The OHS planning stage follows system management of OHS, while the transaction data for the implementation stage is not yet in harmony with system management of OHS on the OHS monitoring, and performance evaluation output data has not been following system management of OHS.

**5.2 Suggestion**

Based on the research obtained, researchers have suggestions that can be applied by various parties, among others, as follows:

1. The company has special supervision, especially the OHS section, to create a safe work environment. The OHS socializes the identification of every hazard to employees in posters and OHS training every month.
2. It is expected for future researchers to use multi-methods so that the data obtained varies so that it is more accurate.

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