



UNIVERSITI PUTRA MALAYSIA

***AN EVALUATION ON THE EFFECTIVENESS OF SARAWAK SHELL
BERHAD OFFSHORE INSTALLATION MANAGERS AND THEIR
DEPUTIES IN HANDLING EMERGENCIES***

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FK 2001 71

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INSTALLATION MANAGERS AND THEIR DEPUTIES
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BY

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**Project Paper Submitted In Fulfilment Of The Requirements For The Degree
Of Master Of Science (Emergency Response And Planning) In The Faculty Of
Engineering Universiti Putra Malaysia**

September 2001

8710720001

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DEDICATION

This project is dedicated to my wife, Jamila Bint Ali Mohammed and my children: Ghada Saeed, Reem Saeed, Fatma Saeed and Lamya Saeed. Your sacrifices have made this Master Of Science in Emergency Response and Planning Programme possible for me



ABSTRACT

An evaluation is effectively conducted and analyzed to determine the strengths, weaknesses, and provide quality improvements for Offshore Installation Managers who handle all crisis and emergencies response management on SSB offshore oil and gas platforms. The primary objective of this project was to test the evaluation on the effective roles of offshore installation managers and their deputies, all of whom are holding very critical positions and are respectively responsible for effectively maintaining a state of readiness for all oil and gas production and terminal locations within SSB / SSPC organization. At the same time, it is aimed to develop specific operating guides on the general response to oil and gas platform potential emergencies scenarios. The methodology for OIMs effective roles evaluation too, is using the Microsoft Excel Spreadsheets by statistically analyzing the data collected from survey questionnaire sent to all OIMs and their deputies who are fully responsible for the management of the emergency situations and real incidents. This is selected for the evaluation because it is a high priority and HSE critical roles and responsibilities for the OIMs and their deputies and also no such evaluation has formally been initiated. Data collected were based on the measurements of seven valuable dimensions / sections as stipulated in the research questionnaire sent to respondents.

The effective roles performance of the overall and each component were interpreted from the total and individual components 'scores'. A survey was conducted using questionnaires consisting of seven sections and, the questionnaires were sent to all the OIM, SA and WS who had undergone the training program of managing major emergency. From the responses, the

data were processed based on the statistically analyzing the data collected using Microsoft Excel. Statistically analyzing the data collected using Microsoft Excel as evaluation tool was indeed a simple and practical evaluating tool, as calculations of the measurements of the testing methodology and component 'scores' do not require complex mathematics or any software applications. As for monitoring the quality of OIMs and their deputies effective roles and response measures in managing major emergency or real incident, the strong and weak components were easily identified from the variation in theory of the scores, "flagging" potentially important issues so that further evaluation inquiry can be targeted to improve the overall quality of OIMs and their deputies. In conclusion, statistically analyzing the data collected using Microsoft Excel as a testing methodology and evaluation tool, is indeed recommended methodology for quality monitoring and improvement system, and as an objective measure to prioritize on the issues of effective roles of offshore installation managers and their deputies in appropriately managing various potential of emergency situations. In addition to this, analysing of sixty three observations remarks (Appendix D) made as result of conducting emergency drills for two years on one of SSB offshore platform, indeed indicated that there is real need for specific operating guides on the general response to oil and gas platform potential emergency scenarios must be developed for the OIMs and their deputies to refer to during emergencies situations and these specific operating guides should be left on site for offshore site management teams to use in the event of any emergency

ACKNOWLEDGEMENTS

First and foremost, I would like to thank God the Almighty who has showered upon me His abundant blessings, grace, guidance and strength to help me in my pursuit of knowledge and enhancement of academic advancements. I would like to express my sincere appreciation and gratitude to all the following individuals for their very kind and helpful co-operation, assistance and encouragement throughout my study and during the conduct of this project research:

Dr. Fakhru's-Razi Ahamadun, my lecturer and project supervisor, whose wisdom, knowledge, sensitivity and understanding with his wealth of experience, who has advised and guided me in overcoming the challenges and difficulties faced in my course works, especially this project.

Ir Fuad Abas, my evaluation and project advisor, for his invaluable guidance, contributions and encouragement which have helped and enlightened me throughout the whole process of this project.

All the faculty members and staff of the Faculty of Engineering of UPM for their unselfish sharing of knowledge and experience, concern and understanding, humor and warmth which have made my study an enjoyable, endurable and unforgettable experience. My fellow classmates in this course, who were so supportive, encouraging and great willingness to help. Their friendship will be cherished and not forgotten. My colleagues in the office and place of work, the operational staffs, namely, the OIMs, SAs, WSs who were very understanding, supportive and helpful to me in my studies and project surveys, without whom this project would never have materialized. I would like to particularly thank my Team Leader, Mr Raja Ahmad

Murad who has been very understanding and kind, and encouraged me in my studies when I wanted to take time off for my studies and examination My family members who have given me the love, guidance, support, motivation, encouragement and sense of pride in my pursue of the excellence, and all the other members of the family who have been very supportive and encouraging towards my pursuit of higher academic achievement as well. Finally, my most beloved wife Jamila Ali Mohammed, without whose strength, patience, understanding and love, I would not be able to pursue and complete my dream and ambition of achieving towards higher levels of academic attainments. Last but not least, thanks and praise be to God for my four wonderful daughters, Ghada Saeed, Reem Saeed, Fatma Saeed and Lamiya Saeed whose love, respect and youth give me great motivation and purpose to this life of consistently and continuously quest for the betterment of knowledge and life style

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LIST OF ABBREVIATION

OIM	- Operation Installation Manager
SA	- Site Analyst
WS	- Work Supervisor
MD	- Managing Director
CEO	- Chief Executive Officer
CMD	- Committee of Managing Directors
PETRONAS	- Petroleum National of Malaysia
PSC -	Production Sharing Contract
SU	- Service Units
SIEP	- Shell International Exploration & Production
SSPC	- Sabah Shell Petroleum Company
SSB	- Sarawak Shell Berhad
SCM	- Shell Companies in Malaysia
OT	- Operation Technician
OSHA	- Occupational Safety and Health Act
OR	- Organizational Review
OPCO	- Operating Companies
LND	- Learning and Development (training) Team
HSEC	- Health, Safety & Environment Committee
HSE	- Health, Safety & Environment
HRD	- Human Resource Development
HRD	- Human Resource Development
HRM	- Human Resource Management
HR	- Human Resource
DOSH	- Department of Occupational Safety and Health
DOE	- Department of Environment
MME	Managing Major Emergency
CMT	Crisis Management Team
ECC	Emergency Control Centre
SEC	Site Emergency Controller
SMC	Shell Malaysia Companies
E & P	Exploration & Production
DSEC	Deputy Site Emergency Controller
SOHO	Senior Occupational Health Officer
SERT	Site Emergency Response Team
ERT	Emergency Response Team
POB	People On Board
ASD	Alarm and Shut Down
ATC	Air Traffic Controller
BOP	Blow Out Preventor
CCR	Central Control Room
ECR	Emergency Control Room
ESD	Emergency Shut Down

GPA	General Platform Alarm
HLO	Helicopter Landing Officer
HSE	Health, Safety and Environment
PA	Public Address
PAPA	Prepare to Abandon Platform
POB	Personnel On Board
PSD	Process Shut Down
SIMOPS	Simultaneous Operation
USD	Unit Shut Down



CHAPTER 1

1.1 Introduction

Shell Sarawak Berhad (SSB) and Sabah Shell Petroleum Company (SSPC) operate nine (9) offshore oil and gas platforms within Sarawak and Sabah offshore waters. Each platform is managed by 2 OIM, 2 SA and 2 WS who work offshore on 2 weeks on / off roster bases. The Operation Installation Managers are respectively responsible for the management of operation and maintenance of the platforms to meet the production targets set for the platform within the HSE plans and policies. Each Offshore Installation Manager is assisted by Senior Site Analyst and Work Supervisor to manage the overall operations of respective offshore platform. Some of the key principal accountabilities Offshore Installation Manager include:

- 1- To deliver the yearly set objectives in the Business Unit Plan, relating to the operation of an existing facility, its production targets and operating budget
- 2- To manage functional asset integrity of the operation both with respect to equipment reliability and plant availability, HSE performance and personnel development.
- 3- Responsible to maintain all staff and facilities in a state of readiness to react and manage the operation in the event of an incident/accident or major emergency that may take place while managing the day to day operations of the offshore installation These emergency situation might escalate to a potentially hazardous situation and therefore, a proper response measures is required to be taken by those of site management members which include OIM, SA and WS.

The site management members who happened to be managing any emergency situations that might arise on his offshore installation, should be effectively taking responsive measures inline with Shell Malaysia HSE commitment and policy as it is expected that, the emergency response measures to be in line with the HSE Policy Statement for Professional Management of an emergency, as the nature of an emergency may threatens life, assets integrity and causing harms to the environment. In this particular situation, an emergency situation is an unplanned event that could escalate unless dealt with promptly and professionally. The primary obligation in any situation is to preserve life, asset integrity and the environment, therefore emergency management may be executed prior to notifying the onshore Emergency Control Centre (ECC) based in Lutong, Sawawak. From the emergency drills conducted for the last two years at one of SSB offshore platform, it was observed that, the current management process for the Offshore Installation Managers and their deputies to effectively manage potential emergency situation, the response measures to be taken is not well structured, managed and documented to reflect proper and effective emergency response management framework of managing different potential emergency situations that could happen on offshore oil and gas platforms due to business scope and the nature of operations activities at offshore installations. Hence it is inevitable to evaluate the effective roles of Offshore OIMs and their deputies in effectively managing various potential of emergency / real incidents situations and the response measures to be taken on Oil and Gas platforms within Sarawak Shell Berhad / Sabah Shell Petroleum Company. At the same time it is necessary to develop specific operating guides on the general response to oil and gas platform potential emergencies or real incident scenarios for installation's key personnel reflecting a good management system / process for the OIMs and their deputies to

use for the management of a diversity of emergency situations or real incidents that are applicable to offshore oil and gas platform's operations. The guides to be developed with reference to adopting the Shell Malaysia HSE commitment and policy in line with Shell group's business objectives as laid down in the statement of general business principles and also to be transparent and easily accessible on site.

The new study will contribute in documenting a logical and operational processes / guidelines to reflect and address the mode of emergency response management for offshore manned and unmanned platforms for Shell Sarawak Berhad and Sabah Shell Petroleum Company operations. Moreover, the research will contain new evaluations of the general principles, covering:

- Company policy, commitment to health, safety and the environment
- Emergency response organisation for manned and unmanned offshore locations
- The roles and responsibilities of key personnel within that emergency response organisation.
- Description of the various potential emergency scenarios and the response measures to be taken for these kinds of situations

The OIM is expected to exercise full authority for emergency management measures, including decision to order search and rescue, calling for backup from other sources and full-scale evacuation and should physically be at the affected location and is expected to communicate to emergency center (EC) at Lutong direct and via any relaying station. This selective study has organised and demonstrated how present study will build upon other's contributions. Moreover, the literature selected is up to date, analysed, synthesised logically and most literature selected are developed with reference to adopting the Shell Malaysia HSE commitment and policy in line with Shell group's business objectives as laid down in the statement of general business

principles of the company. Eventually, the study hope to produce a precise and well structure guidelines reflecting good management system/process for the operation installation managers and their deputies to manage a diversity of emergency situations that are applicable to offshore oil and gas platforms. The new study will contribute in documenting a logical and operational processes/procedures to reflect and address the mode of an emergency response management for offshore manned and unmanned platforms within Shell Sarawak Berhad and Sabah Shell Petroleum Company operations

The response measures required from the OIMs is to understand and be aware of emergency and these include:

- Overview of the emergency and real incident situations that is being dealt with.
- The initial responses that are required to deal with emergency and real situations
- The general response that are required to deal with any nature of emergency and real situations
- The emergency response that are required from offshore installation manager, his deputy, process operations technicians, radio operator, muster checker safety occupational health officer, site emergency response team members, master of standby vessel, lifeboat coxswain/engine driver and helicopter landing officer

However, few various potential of emergency situations that could be expected to happen at offshore installations due to the nature of offshore operations are:

1. Fire or an explosion
2. Blowout or loss of well control
3. Oil and or gas leak posting potential risk for fire or explosion
4. Handling severe storm and bad weather condition
5. Failure of platform structure as a result of major incident

Therefore, there is growing need for every staff, especially the Operations related staff in the Shell organisations to have extensive Health, Safety and Environment (HSE) training in order to respond to all these various potential hazards. The offshore working environment is exposed to the natural hazards of weather and open seas. Machinery and equipment are more compact and complex as compared to those of land operations. To supply extra manpower for offshore operations is very costly, therefore there are less supports from shore, which means higher exposure of the regular crews to more types of work; higher risks due to traveling by boats and helicopters, and many others. Offshore water operations has a direct impact in the management of Health, Safety and Environment (HSE) in operations, which includes managing HSE at different levels, operationalisation of HSE at the work places, and safety training. Courses syllabi and contents are designed to meet the requirements of the offshore petroleum operations safety standards; training approaches and methodologies are adapted to train people to handle the requirements and needs of major offshore installations crisis and emergencies response management procedures. This study has four primary objectives:

- To statistically analysed the collected data using Microsoft Excel as an evaluation tool for tracking and reflecting on the effectiveness roles of OIM in managing various potential of emergency situations / real incidents and the response measures to be taken for oil and gas platforms within SSB / SSPC installations using the performance of several critical variables stated in the questionnaire sent to all OIM, SA and WS within SSB / SSPC offshore operations
- To easily Identify the strong and weak components from the variation in the analysed scores, “flagging” potentially important issues so that further evaluation inquiry can be targeted to improve the overall quality of offshore installation

managers and their deputies in effectively managing oils and gas emergency and real incident situations.

- To prove recommendation of the theory testing methodology as an evaluation tool is for quality monitoring and improvement system, and as an objective measure to prioritize on the issues of effective roles of offshore installation manager in managing various potential of emergency situations, real incident and the response measures to be taken for oil and gas platforms within Sarawak Shell Berhad / Sabah Shell Petroleum Company
- To develop specific operating guides on the general response to oil and gas platform potential emergencies or real incident scenarios for installation's key personnel reflecting a good management system / process for the OIMs and their deputies to use for the management of a diversity of emergency situations or real incidents that are applicable to offshore oil and gas platform's operations. The guides to be developed with reference to adopting the Shell Malaysia HSE commitment and policy in line with Shell group's business objectives as laid down in the statement of general business principles and also to be transparent and easily accessible on site. It is important to know if this testing methodology is indeed effective and that the OIMs and their Deputies who have undergone and certified as competent are able to carry out their expected roles and responsibilities with full confidence and abilities, which is handling all crisis and emergencies response management at his site to protect the well being of all his personnel and integrity of the plant. Hopefully this study would be able to answer some of the questions such as: Is the statistically analysis testing method using Microsoft Excel is complicated or easy to be used? Is the concept easy to understand and apply, with the results easy to analyze and interpret? Does the

testing method help the OIMs and their deputies to be more prepared and ready to face crisis and emergencies at their work sites? Are the course contents of managing major emergency relevant to their job roles and responsibilities? Are the scenarios created during the MME training sessions and assessments realistic and practical? Is this sort of training and assessment for MME is effective? Are the trainers effective in their deliveries? Are the trainers able to communicate effectively with his participants? Does the MME training course help the OIMs and their deputies to increase their knowledge, skills and attitudes in the element of emergency and crisis management at their work sites? Can they apply the knowledge and skill learnt during the MME training sessions into practice? Is the assessment methodology proper and fair? Is the assessment process effective? Can the MME assessment process be improved? Can the MME training course be improved? Do they consciously want to apply their knowledge and skills learnt during the course or still prefer their own ways and methods in handling and dealing with emergencies and crisis? This is important for those involving in managing major emergency training to comprehend and understand, so that the process of MME training will not result in the waste of time, resources and projecting false assurance. The feedback from the survey should reveal certain concerns and suggestions about the effective roles from the respondents that can be used as recommendations to improve OIMs and their deputies efficiency and effectiveness roles in managing emergency situations and real incidents at their respective offshore installations.

1.2 Problem Definition

Various potential of emergency situations that are expected to happen at offshore installations where effective response measures to be taken by offshore installation manager is required the response should be geared to the safety and welfare of personnel at the emergency site, the protection of the environment, the containment of damage, restoration of facilities and the return of offshore installation to normal operations. Therefore, managing major emergency at oil and gas platform must be relevant and effective because they are important and involve much efforts and resources. To achieve this, evaluations must be effectively conducted and analyzed to determine their strengths and weaknesses, and provide quality improvements. The primary objective of this project was to test the evaluation on the effective roles of offshore installation managers and their deputies, all of whom are holding very critical positions and are responsible for the effectively maintaining a state of readiness and of controlling real incidents or emergencies for all oil and gas productions and terminal locations, the highest level of management on site is the OIM who handles all crisis and emergencies response management at his site. The effective roles evaluation too, is statistically testing methodology using Microsoft Excel to analyze the data collected from survey questionnaire sent to all OIMs and their deputies. The major part of any response strategy depends very much on the decision and direction given by OIM.

The intention is to evaluate all the effective roles and primary responsibilities of OIMs and their deputies in effectively managing the operations of oil and gas installations of SSB/SSPC to compare their priorities and importance to business impact. This study is selected for the evaluation because it is a high priority and HSE critical roles and responsibilities for offshore installation managers and their

deputies. It is also selected because there was no such evaluation has formally been initiated since using this current mode of manning level which was implemented in 1995 for SSB / SSPC offshore oil and gas platforms. The statistically testing methodology using Microsoft Excel to analyze the data collected from survey questionnaire and observations made as a results of conducting emergency drills for the last 2 years, was based on the measurements of seven valuable dimensions of the effective roles and the response measures to be taken during emergency situation, managing major emergency training objectives, Instructional Merit of MME participation, Learning, Usage of Learning, and strategic value. the performance of the overall MME training program and each component could be interpreted from the total and individual components 'scores. A survey was conducted using questionnaires consisting of the seven sections: demography variables, training categories and it was sent to all the OIM, SA, and WS all of whom are holding very critical positions and are responsible for the effectively maintaining a state of readiness and of controlling real incidents or emergencies for all oil and gas production and terminal locations within SSB / SSPC operations. As it is also understood that, the highest level of management on site is the OIM and his deputies who handles all crisis and emergencies response management at his site and at the same time, who had undergone the training program of managing major emergency. From the responses, the data were processed based on the statistically testing methodology using Microsoft Excel as testing tool to analyse the data collected strengths and weaknesses, align training plans, strategies, search for newer, more effective and appropriate ways of enhancing OIMs emergency response initiatives, Learning principles, theories, research, findings, knowledge, innovations and methodologies need to be regularly revisited and tested for their relevance in the

designs and implementations of effectively managing oil and gas emergency situations and real incident. This is especially real in offshore oil and gas operations because managing safety and emergency situations is quite a difficult task to manage as it involves changing attitude and behaviors of those managing the operations, which is difficult at times in SSB/SSPC, because it involves dealing with adult workers, especially on safety related topics which is so often seen to be 'mere common sense', yet in real working environment is so dynamic, unpredictable and real. Almost all these managing offshore oil and gas operations are senior personnel, in terms of age and experience, holding managerial positions in the company hierarchy such senior site management personnel are offshore installation manager, senior site analyst and work supervisor

1.3 Objectives

This primary objectives of the study is mainly concluded under these following four areas:

- 1- To statistically analyse the collected data using Microsoft Excel as an evaluation tool for tracking and reflecting on the effectiveness roles of offshore platforms OIMs and their deputies in handling various potential of emergency situations.
- 2- To easily Identify the strong and weak components from the variation in the analysed scores, “flagging” potentially important issues so that further evaluation inquiry can be targeted to improve the overall quality of offshore installation managers and their deputies in effectively managing emergency
- To prove recommendation of the theory testing methodology as an evaluation tool is for quality monitoring and improvement system, and as an objective

measure to prioritize on the issues of effective roles of offshore installation manager in managing various emergencies

- To develop few specific operating guides on the general response to oil and gas platform potential emergencies or real incident cases and these guides to be developed with reference to adopting the Shell Malaysia HSE commitment and policy in line with Shell group's business objectives as laid down in the statement of general business principle. It is important to know if this testing methodology is indeed effective and that the OIMs and their deputies who have undergone and certified as competent are able to carry out their expected roles and responsibilities with full confidence and abilities, which is handling all crisis and emergencies response management at his site to protect the well being of all his personnel and integrity of the plant.

1.4 Significance Of Study

This study would reinforce the cognition of the effectiveness and value addends of the statistically analysed collected data using Microsoft Excel as an evaluation tool for tracking and reflecting on the effectiveness roles of offshore platforms OIMs and their deputies in managing various potential of emergency situations, real incidents and the response measures to be taken for oil and gas platforms within SSB / SSPC installations using the performance of several critical variables stated in the questionnaire sent to all OIM, SA and WS within SSB / SSPC offshore operations

The candidates who have undergone the training and assessment, with those certified as competent are able to carry out their expected roles and responsibilities with full

confidence and abilities, which is handling all crisis and emergencies response management at his site to protect the well being of all his personnel and integrity of the plant. Therefore it is not just an individual issue, but the organisational's concern as well. It would help the individual on to be aware of the effectiveness, criticality and relevancy of their key roles in relationship to his HSE roles and responsibilities at his work place. The findings would be able to demonstrate if the managing major emergency training and assessment he had undergone is indeed transferred and is used on the job. Statistically analysed collected data using Microsoft Excel spreadsheets as an evaluation tool for tracking and reflecting on the effectiveness roles of offshore platforms OIMs and their deputies in managing various potential of emergency situations, real incidents was chosen for this project because the concept was easy to understand and seemingly simple to apply. The project will test and confirm it was complicated or easy to use, with the concept easy to apply and implement, results easy to analyze and interpret. It should be simple to apply and implement, results easy to analyze and interpret in the evaluation of specific effective roles, MME training programs, and whether it can be recommended to be used for comparing numerous continuous OIMs effective roles and MME training programs to determine each program's importance and priority. The findings would be able to illustrate the strategic importance of the method used in the form of "score". This score can be used to compare the importance and strategic position in relation with other key roles and HSE training programs using the same statistically analysed collected data testing method utilising Microsoft Excel spreadsheets. The feedbacks and results from the findings from the survey responses would offer suggestions to the effective roles and MME training fraternity for improving the on-going OIMs roles and responsibilities in the management of ,managing major emergency

situations and real incidents on oil and gas platforms. At the same developing specific operating guides on the general response to oil and gas platform potential emergencies or real incident for installation's key personnel reflecting a good management system / process for the OIMs and their deputies to use for the management of a diversity of emergency situations or real incidents that are applicable to offshore oil and gas platform's operations. The guides to be developed with reference to adopting the Shell Malaysia HSE commitment and policy in line with Shell group's business objectives as laid down in the statement of general business principles and also to be transparent and easily accessible on site by key platform personnel

1.5 Primary Assumptions Of Study

The primary assumption in this study was that, managing safety and emergency situations is quite a difficult task to manage as it involves changing attitude and behaviors of those managing the operations, which is difficult at times in SSB/SSPC, because it involves dealing with adult workers, especially on safety related topics which is so often seen to be 'mere common sense', yet in real working environment is so dynamic, unpredictable and real. Almost all those managing offshore oil and gas operations are senior personnel, in terms of age and experience, holding managerial positions in the company hierarchy such senior site management personnel are offshore installation manager, senior site analyst and work supervisor. All these personnel underwent the same mode and standard of training, regardless of whether they are OIMs or their deputies, and are all referred to as OIMs. It is assumed that all

of them are able to remember and recall the training events of managing major emergency and are able to respond accordingly in the survey questionnaires. It is also assumed that, it is key requirement for the OIMs to be effective in managing and operating the oil and gas installations/plants. Therefore this requirement consider important and critical to the well being of personnel, integrity of the plant and productivity of the organization, for the OIMs to be effective, the Value Weight of the evaluation as determined by the candidates is assumed to be able to achieve a minimum of 0.85

1.6 Scope And Limitations Of The Study

Organizationally, reference is made to both the companies of SSB/SSPC Sarawak Shell Berhad/Sabah Shell Petroleum Company, which is under the Shell Malaysia Group of Companies (SMC). Geographically, the reference made will be referring to operational complexes and plants at onshore and offshore locations under all the four geographical locations that is, Lutong, Miri, Bintulu, the Federal Territory of Labuan and Sabah, (Figure 1). The scope of this study will be limited to the OIMs and their deputies of SSB/SSPC organization who have undergone the training and assessment of managing Major Emergency within the business environment of effectively managing the operations of offshore oil and gas installations of SSB/SSPC organization One of the greatest limitations faced in this study is the sensitivity of HSE issues, which are linked to the performance of management and individuals in the organization. Safety performance is considered top priority in the organization, because it is one of the measures of business performance of the organization.

Therefore, it is imperative that HSE performance must be good and keep improving, to keep up with the very high and demanding organizational goals and targets. Results from the survey may not be able to reflect a true picture of the effectiveness management roles of the OIMs and usefulness of Managing major emergency training that is provided for the OIMs and their deputies because the respondents may not wish to give their exact and frank opinion via the survey questionnaires, which may 'tell' on their attitude and commitment in the area of HSE in SSB/SSPC organisation. Another limitation is the on-going movements of OIMs and their deputies to facilitate for their career development plans within the company. Therefore, there are problems in terms of identifying, locating, communicating and convincing some individuals to take part in this survey. This is because they would be busy with their new jobs and roles, and most probably see no benefits of having to 'waste' their time on any input that would be of no value to them in their new jobs's principles accountabilities .

1.7 Background Of SSB/SSPC Organisation

It is important for the reader to know and understand the organizational set-up of SSB/SSPC because this study is directly related to this organization. This project paper will relate to the Health, Safety & Environment (HSE) Unit, Learning and Development Team (LND), and the Operation Units of the Company. Certain areas will be highlighted, such as, the role of training, its direction, and some of the key challenges for safety training in the organization, not forgetting the commitment of the management in the area of HSE in terms of seriousness and priorities. SSB/SSPC

are wholly owned subsidiaries of the Royal Dutch/Shell Group of Companies, operating largely in the Exploration and Production (E&P) sectors of the Petroleum business in the East Malaysian states of Sarawak and Sabah. The head office of SSB/SSPC's E & P operations in Malaysia is situated in Lutong, 11 kilometers North of the coastal town of Miri in the northern region of Sarawak

Figure. 1 below indicates SSB / SSPC Situation map The management of the two Companies is headed by a Managing Director (MD) based in Lutong, who directs both companies' business activities in both states of Sarawak and Sabah. The MD of SSB/SSPC reports to the Chairman of the Shell Companies in Malaysia (SCM), based in the SCM's Head Quarter, Kuala Lumpur, Malaysia, who in turn reports to the Committee of Managing Directors (CMD) in the Shell International Head Office in the Hague, Holland.

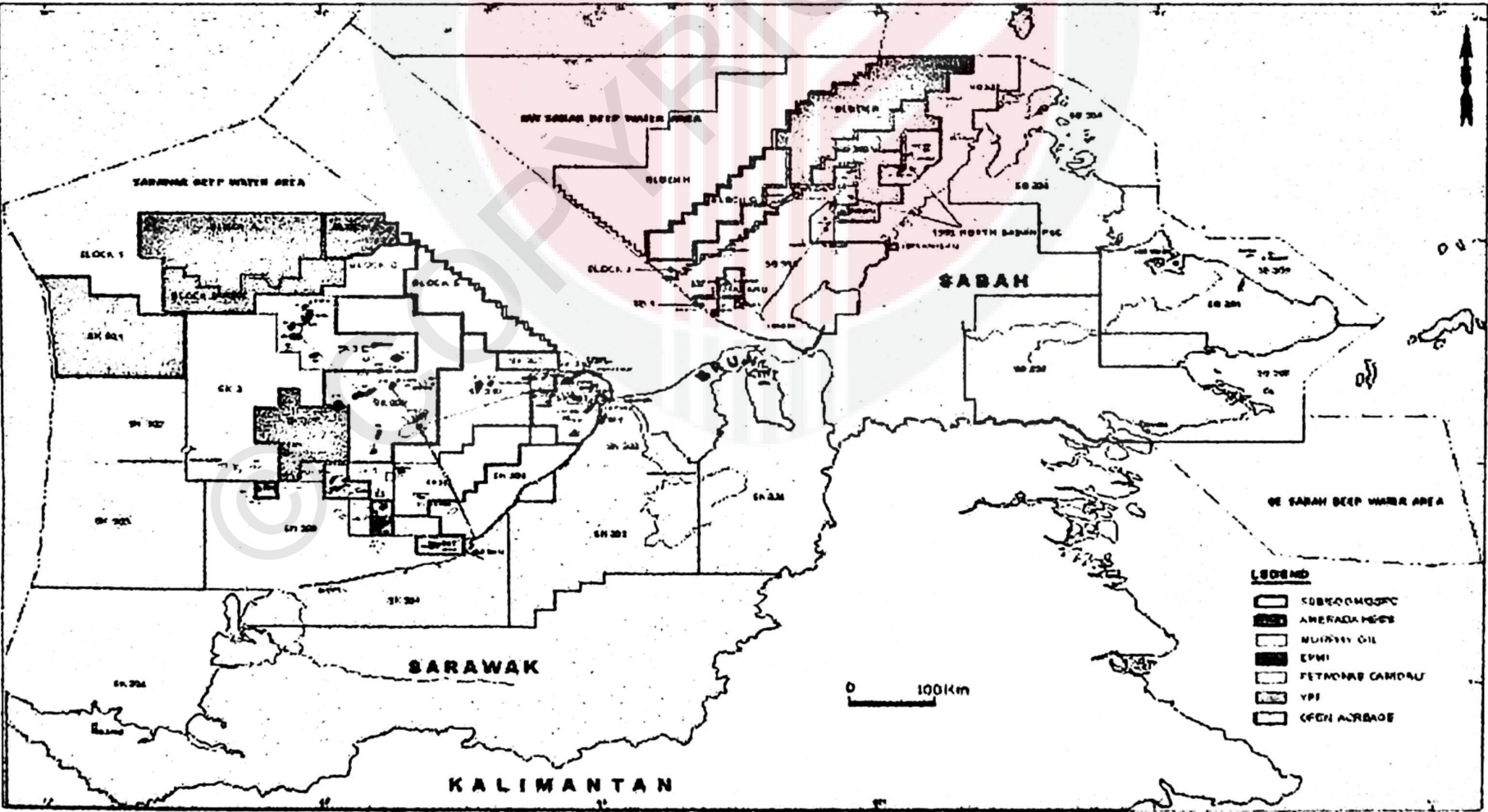


Figure 1 SSB / SSPC Situation Map

1.8 SSB / SSPC's Current Organization And Crisis Management Team

Set-Up

In January 1996 the Organizational Review (OR) was initiated. The decrease in oil price and increase of explorations and productions costs due to the move into deep seas forced the company to review the organizational structure and operations of the company, with the objective of increasing efficiencies and reducing operating and capital costs. The key challenges imposed on the Company are to be able to ensure business continuity and in handling potential security, all without compromising HSE risks. This OR exercise has given rise to a new organizational structure based on multidisciplinary Business Units with other supporting units Figure. 2 Below indicates SSB / SSPC Current Organization Structure

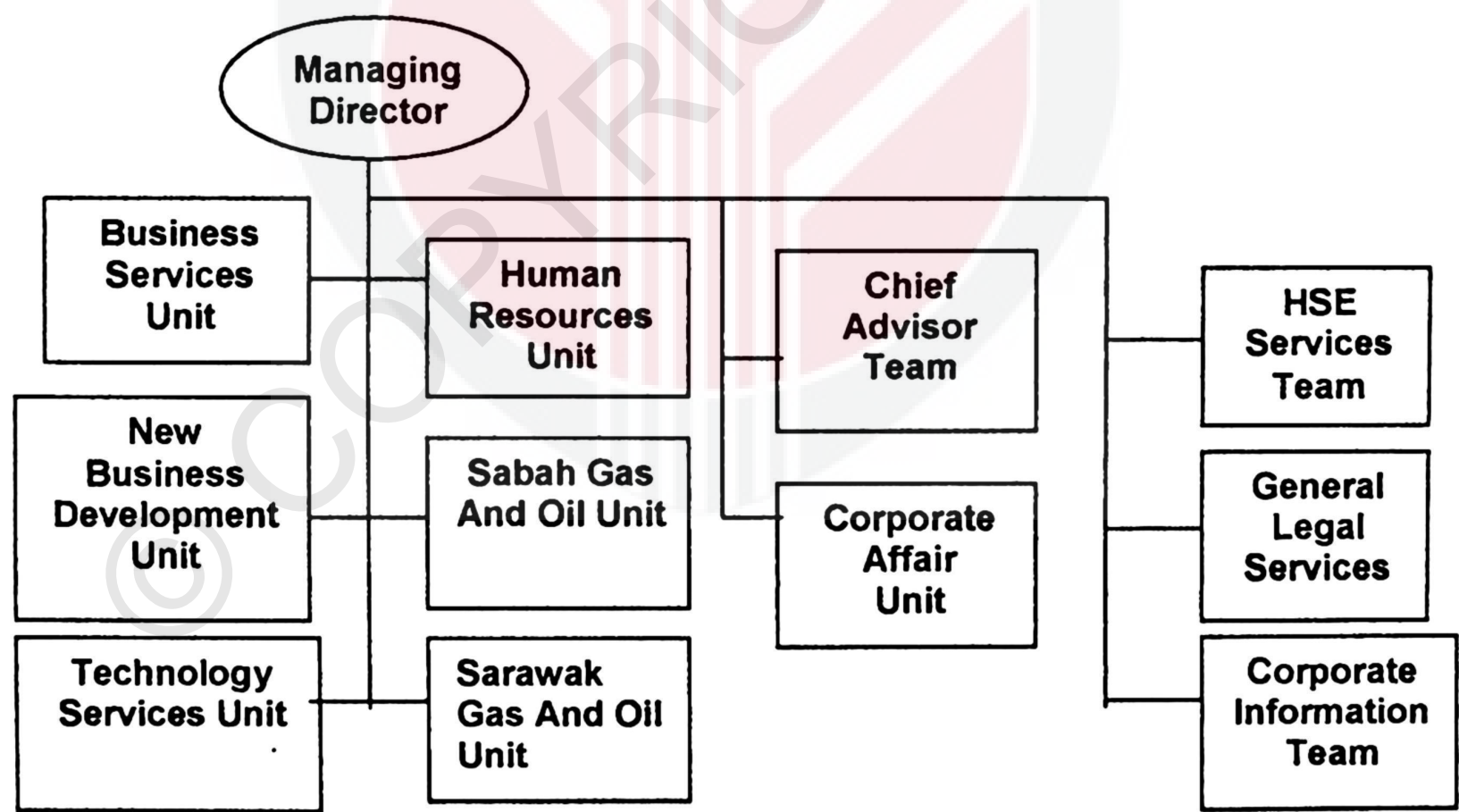


Figure 2 SSB / SSPC current organization structure

The two business units are Sarawak Gas and oil and Sabah gas and oil Business Units (BU), supported by the other Service Units (SU). The business units are primarily the most important units in the company because they are the core units that produce and export oil & gas, generating income for the company. The OIMs are the key personnel managing the plants and resources at the frontline, whose competency in their job is most important and crucial in terms of productions and minimizing of down time of their complexes or plants. If they are not able to manage crisis or emergencies in their plants, they may costs the whole Company to lose not only the complex or plant, but the economical loss in production and sale of the valuable oil and gas, clean-up, any eventual re-building costs, injuries or loss of lives of his personnel. Their yearly tasks and targets are set and measured against their performance revolving around such business continuity and handling of potential security risks. The HSE Team and crisis management teams help the MD to control and maintain the HSE-MS (HSE-Management System) as the Management Representative. The Team is responsible for providing advice, monitoring, auditing and guidance to line departments on HSE aspects of their work, helping them to identify risks and reduce hazard & effects at the worksites for existing facilities and new projects. It also provides guidance in investigating accidents/incidents to identify core causes for evaluation and prevention of recurrence. Depending on the issues presented by the crisis, MD may expand the CMT composition to include other senior management staff in the event of any business crisis. Figure 3 below indicates the composition of SSB / SSPC crisis management team

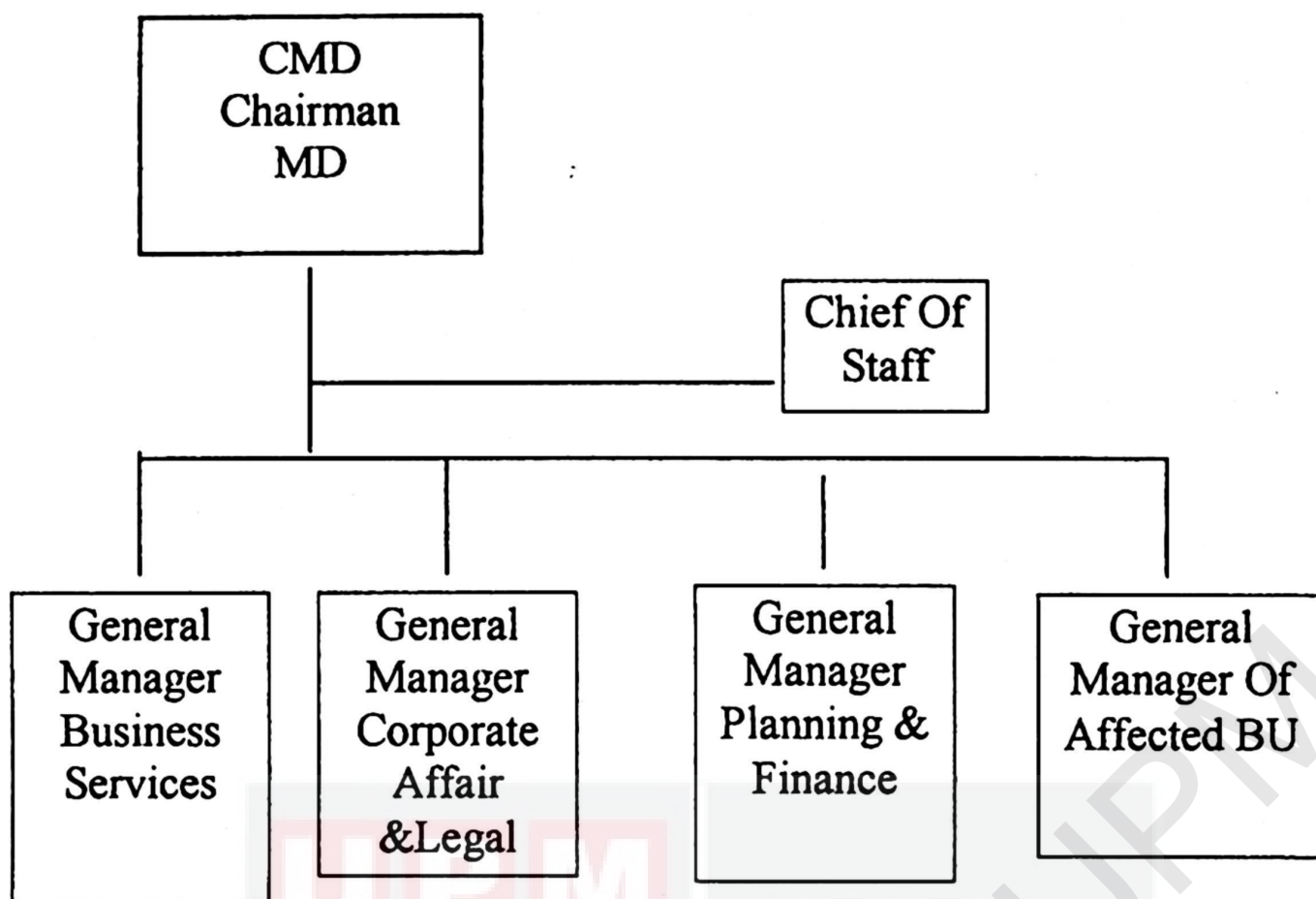


Figure 3 Composition of SSB / SSPC crisis management team

The Learning and Development (LND) team, which is part of the human resources business, is delegated to assist in the HSE training and any HSE related training activities. This strategy capitalizes on the expertise of SSB/SSPC's professional trainers to assist the HSE team in implementing the training sessions effectively. This would enable the HSE advisors to concentrate and focus on its core activities, which are advisory and consultancy of HSE in the organization Figure 4 below indicates SSB / SSPC 's HSE team set-up

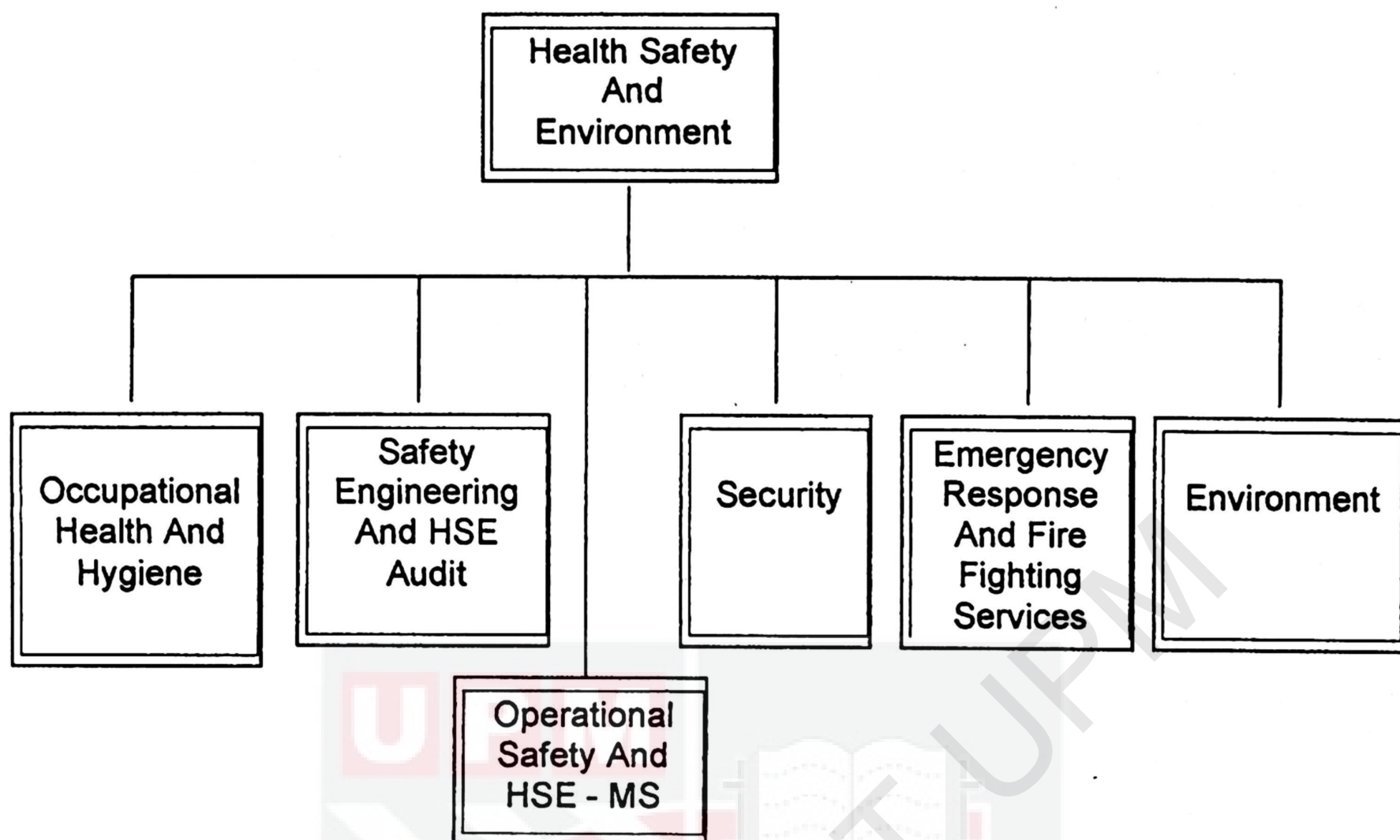


Figure 4 SSB / SSPC 's HSE team set-up

Sarawak and Sabah Operations are 2 departments within the Sarawak and Sabah Business Unit SSB / SSPC. In July 1999, an organisation review was carried out within the Sarawak Operations (figure 5) to enhance its operational effectiveness. This resulted in a revised organisation with the Operations Manager based in Bintulu as part of the business

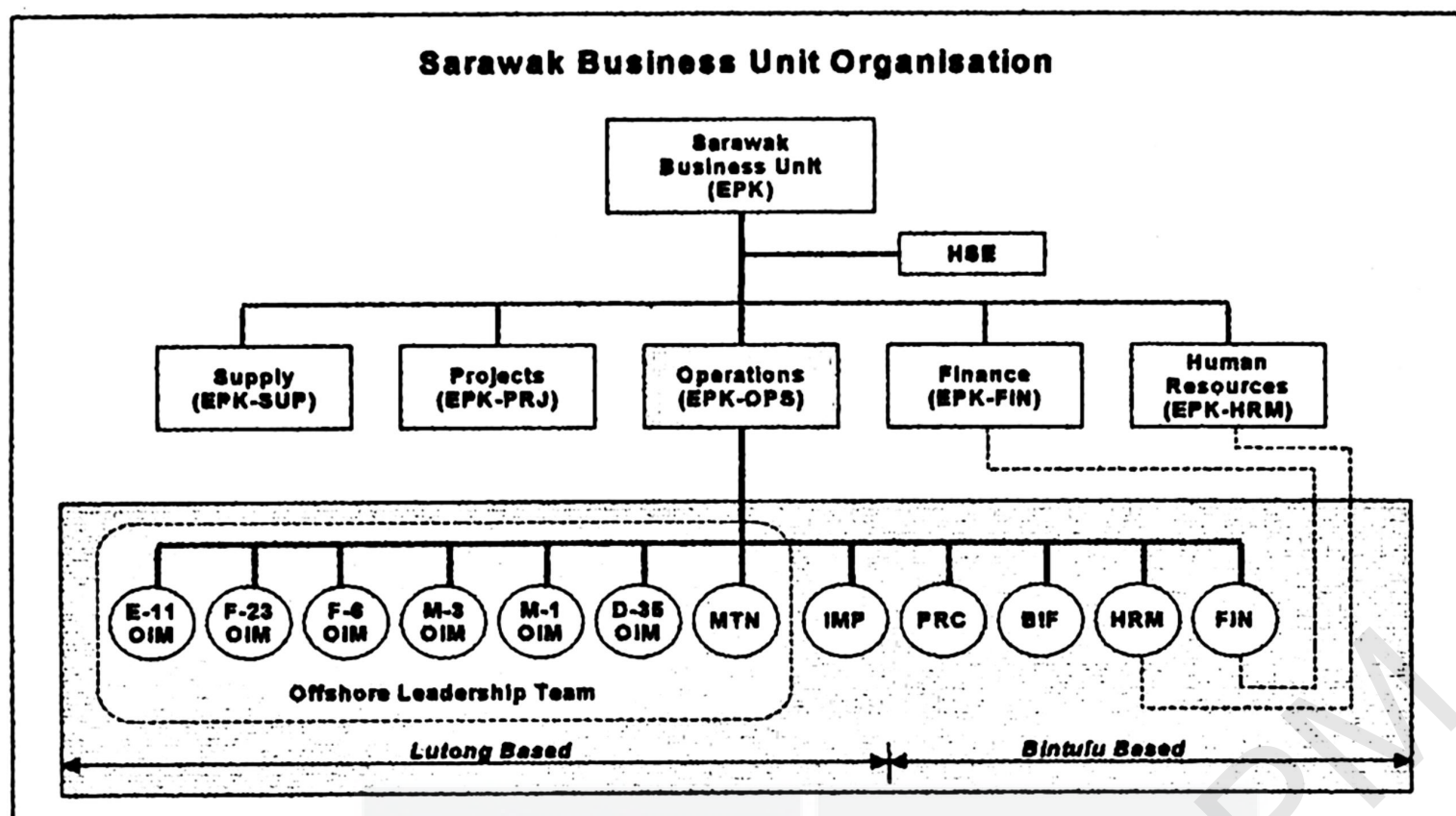


Figure 5 SSB Sarawak unit Operations teams set-up

commitment to be more customers focussed. The re-organisation also provided a stronger emphasis on managing hydrocarbon sales, supply agreements and opportunities by having a more integrated team to manage its geographically distributed operation. The purpose of Sarawak Operations which is similar to Sabah business unit is to, deliver the yearly set business objectives and targets as reflected in the Business Unit Plan. At the same time, Operations are to manage the relations and agreements with joint venture partners and customers such that the long term commercial value of the business is maximised. The Operations Manager (EPK-OPS) reports to the Sarawak Business Unit General Manager (EPK). Reporting to the Operations Manager are :

- 1- Maintenance Team (EPK-MTN). this team is based in Lutong and is headed by the Maintenance Manager. The team is responsible for the provision of specialised maintenance services to support the Offshore Installation Managers (OIM) on surface and subsurface facilities with focus on technical integrity

assurance of these facilities. The Maintenance Manager also leads the “Offshore Leadership Team”.

- 2- Offshore Installation Operations Teams (EPK-E11, F23, F6, M3, M1 and D35)
Operations management of the offshore installations are headed by the respective Offshore Installation Managers (OIM). These frontline teams are responsible for the safe and effective operation of their respective offshore production facilities
- 3- Bintulu Plant Team (EPK-BIF), this operational team is located in Bintulu and is headed by the Bintulu Plant Manager. The team is responsible to manage and deliver the hydrocarbons received from the various offshore producing fields up to the points of sales whilst ensuring its plant’s integrity, HSE and budgets.
- 4- Production Chain Team (EPK-PRC), some 80% of this team is based in Bintulu headed by the Production Chain team leader, with the remaining team members based in Lutong. The team is responsible for the short-term optimisation of the Sarawak hydrocarbons (i.e. gas, NGL and crude) supply chain operation to meet the onshore customers and PETRONAS requirements.
- 5- Improvement Team (EPK-IMP), this team is based in Lutong and is headed by the Improvement manager. The team is responsible for operations studies, execution of engineering, maintenance and operational improvement projects, and the provision of technical expertise to support both offshore and onshore plant operations.
- 6- Finance Support (EPK-FIN) & Human Resource Support (EPK-HRM), these small teams provide the necessary finance and resource management support to Operations teams.

1.9 Offshore Installation Team Organisation Structure

Offshore organization structure is based on a multi discipline team Concept (figure 6) with two dedicated work supervisor managing the field operations and the OIM is being the overall in charge and is assisted by the site analyst for planning and as a Technologist. The crew works on a two week on/off roster. These frontline teams are responsible for the safe and effective operation of their respective offshore production facilities whom are all trained in dealing with the management of major emergency

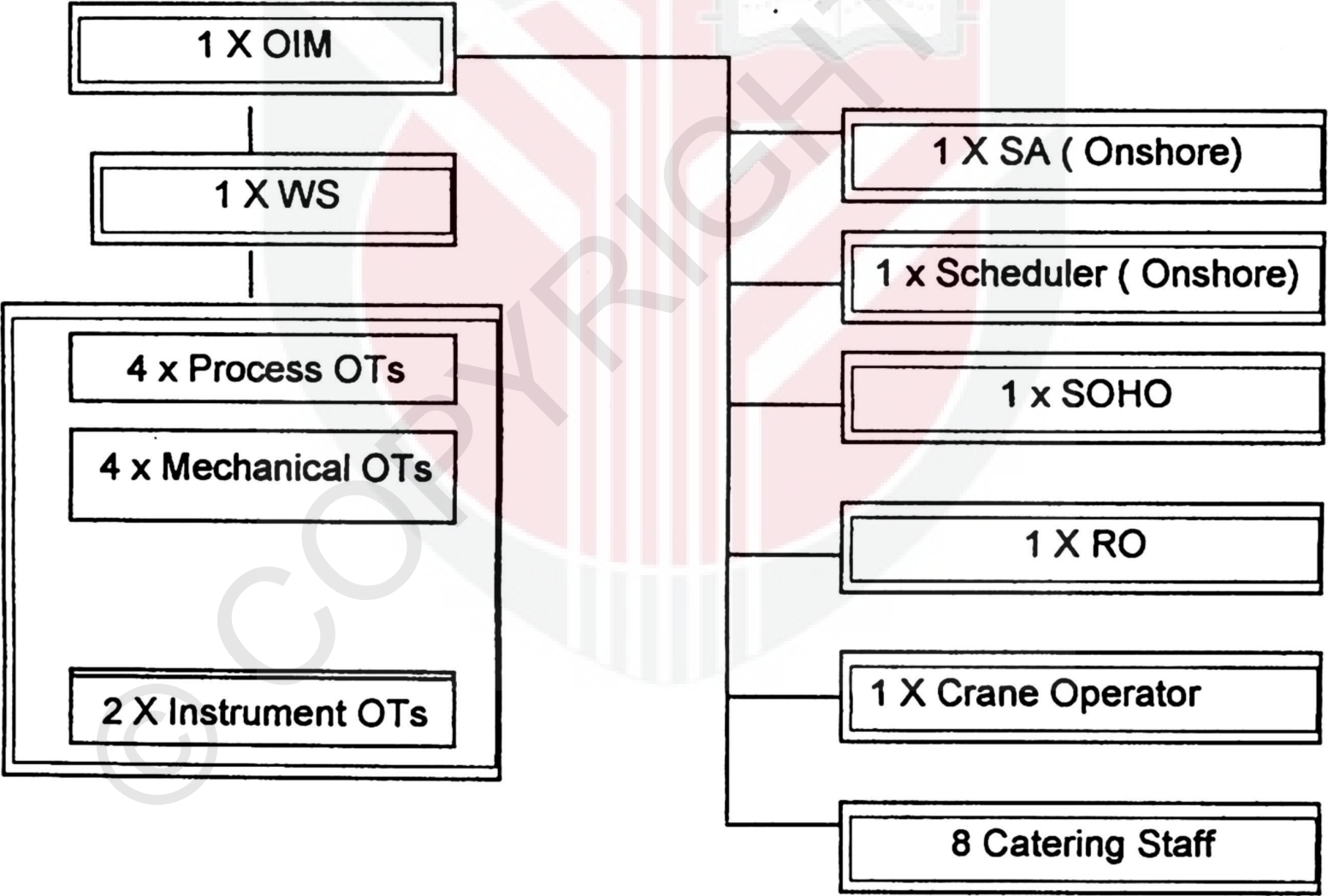


Figure 6 SSB offshore organization structure

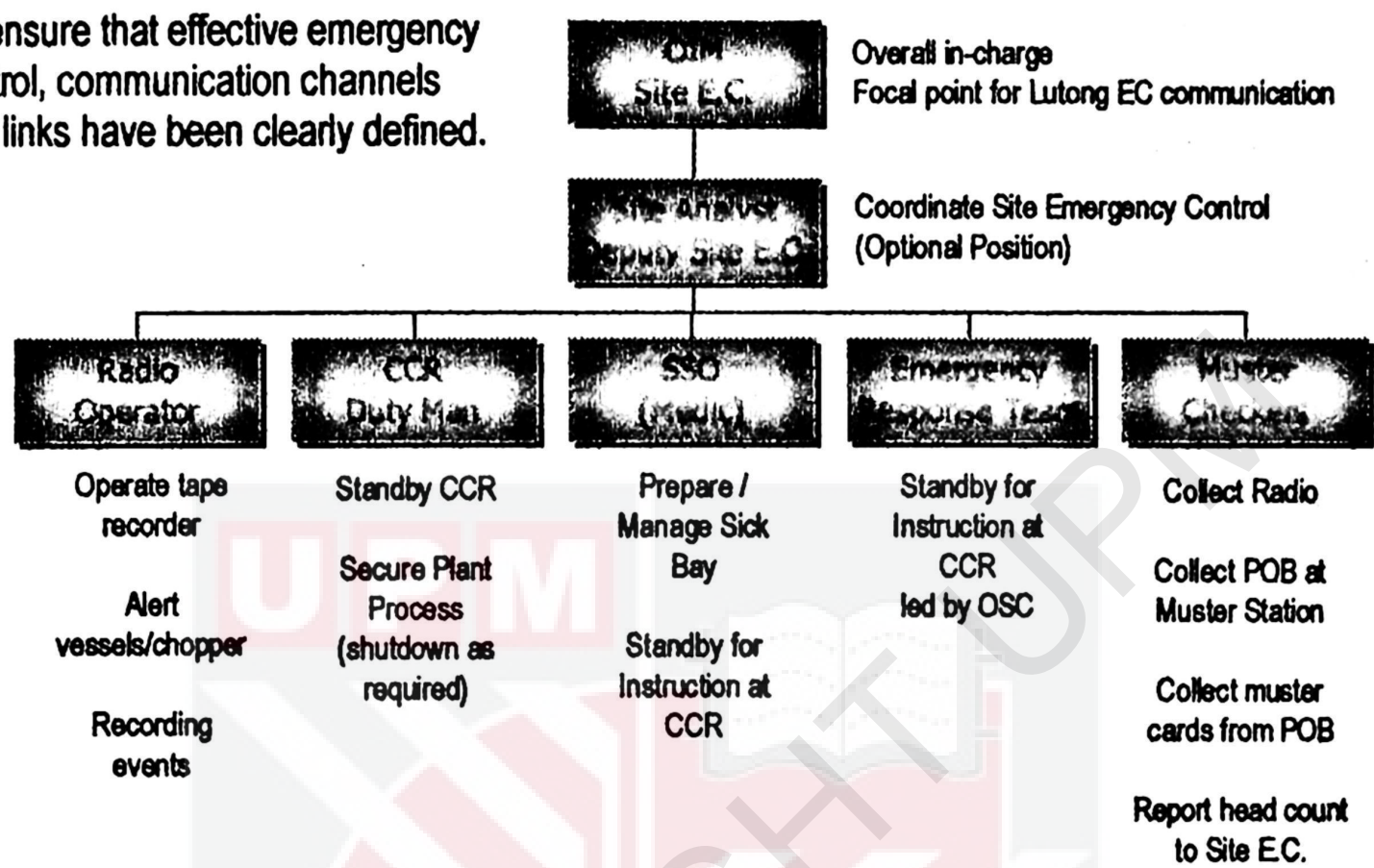
1.10 OIM Key Roles In Managing Emergency Response

Each manned offshore installation should have an established Emergency Response Organisation Figure 7 below shows a typical Emergency Response Organisation for a manned platform, with the OIM as the SEC during the normal mode of production operations. This is on the assumption that the OIM is residing on site. In his absence, the OIM shall nominate a chain of command for the management of an emergency. Should an emergency occur at any of the production platform, the Operations Installation Manager (OIM) will be the Site Emergency Controller (SEC), responsible for the efficient management of the emergency. The SEC is expected to exercise full authority for emergency management measure, including decision to order search and rescue, calling for backup from other sources and full-scale evacuation. The Site Emergency Controller (SEC) is fully responsible for the management of the Emergency. The major part of any response strategy depends very much on the decision and direction given by SEC. During an emergency, the SEC should proceed to the Site Emergency Control Room (the Radio Room on all manned platforms which has been designated as the primary Site Emergency Control Room to co-ordinate and manage the emergency. His primary responsibilities would include the following:

- 1- Maintain direct communication contact on radio/telephone with the relevant parties to gather the latest information regarding the emergency situation.
- 2- Assess the magnitude and severity of the emergency and decide on the appropriate action to be taken
- 3- Order and instruct on the appropriate response strategy e.g. mobilise the SER Team for rescue operations

4- Communicate with the Emergency Co-ordinator in Lutong to notify and request assistance.

To ensure that effective emergency control, communication channels and links have been clearly defined.



NOTE : A senior instrument OT to assist in CCR in addition to duty men.

5- Initiate final and full evacuation as deemed necessary

Figure 7 Typical emergency response organization structure for SSB manned offshore platform

1.11 Definitions Of Terms Used In The Report

OIM:

Operation Installation Manager, is the overall person in charge of an offshore or onshore terminal operational complex or plant. Effectiveness of the OIM's roles and responsibilities in managing major emergencies or real incidents on oil and gas offshore installation is deemed as effective if the quality Index "score" exceed 260,

which is 85% of the maximum range of 300 of the calculated quality Index and mean Value Weight of not less than 0.9 as determined by the respondents of the survey.

Competence:

The ability in terms of skill, knowledge and awareness to perform activities within an occupation or function to specified standards.

Competency Assessment:

A process of collecting and judging evidence of a candidate's performance against standard of competence, which describe what is expected of a person performing a particular critical HSE work role.

Crisis:

Is an event or issue which is not yet under control, presenting an immediate and extreme threats to human life, business or reputation.

Emergency:

Is an unplanned event, which present a threat to life, property or the environment.

Evaluation:

The determination of the worth of a thing (effective roles / responsibilities and effectiveness of MME training for OIMs and their deputies). It includes obtaining information for use and judging the worth of a program, product, procedure, or objective or the potential of the utility of alternative approach designed to attain specified objectives

Program Quality Index (PQI):

Is an effectiveness index measuring tool developed to assist in the evaluation of different purposes such as effectiveness roles of key personnel in charge of HSE critical roles and training programs as well.

Value Weight:

Is an important quality index component which represents the worth of the effectiveness of the key and training program in light of the organization's business goals

The Value Weight ranges from 0.00 to 1.0 in this particular situation. Effectiveness of the key roles merit refers to the process of how effectively do the OIMs and their deputies well manage emergency and real incident situations on oil and gas platforms.

Instructional Merit:

Refers to the training process of how the participants of MME training like the training, the preparation and implementation of the training program.

Utility:

Usage of learning during the training event and ability to transfer the learning to be used on the job

Productivity Index:

a ratio of PQI and total training costs, or training time to measure the Company's "outputs" to reflect productivity comparisons in terms of staff efficiency optimizing operating costs, minimizing on downtime and effectively responding to any emergencies or real incidents situations.

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