

PETRONAS TECHNICAL STANDARDS
HEALTH, SAFETY AND ENVIRONMENT

**DOCUMENTING A HSE MANAGEMENT SYSTEM
AND HSE CASE**
(GUIDELINE)

PTS 60.0303

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PREFACE

Petronas Technical Standards (PTS) are based on the experience acquired during the involvement with the design, construction, operation and maintenance of processing units and facilities. Where appropriate they are based on, or reference is made to, national and international standards and codes of practice. The objective is to set the recommended standard for good technical practice applied by PETRONAS in oil and gas production facilities, oil refinery, gas processing, chemical plants, marketing facilities or any other such facility, and thereby to achieve maximum technical and economic benefit from standardisation.

The information set forth in these publications is provided to users for their consideration and decision to implement. This is of particular importance where PTS may not cover every requirement or diversity of condition at each locality. The system of PTS is expected to be sufficiently flexible to allow individual operating units to adapt the information set forth in PTS to their own environment and requirements.

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AMENDMENT RECORD SHEET

Chap. No.	Section No.	Description	Issue No.	Date	Revision No.	Date	Approve by: (initial)
All	All	PTS 60.0205 Documenting a HSE Management System and HSE Case	1	June05	0	0	IGA
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SUMMARY

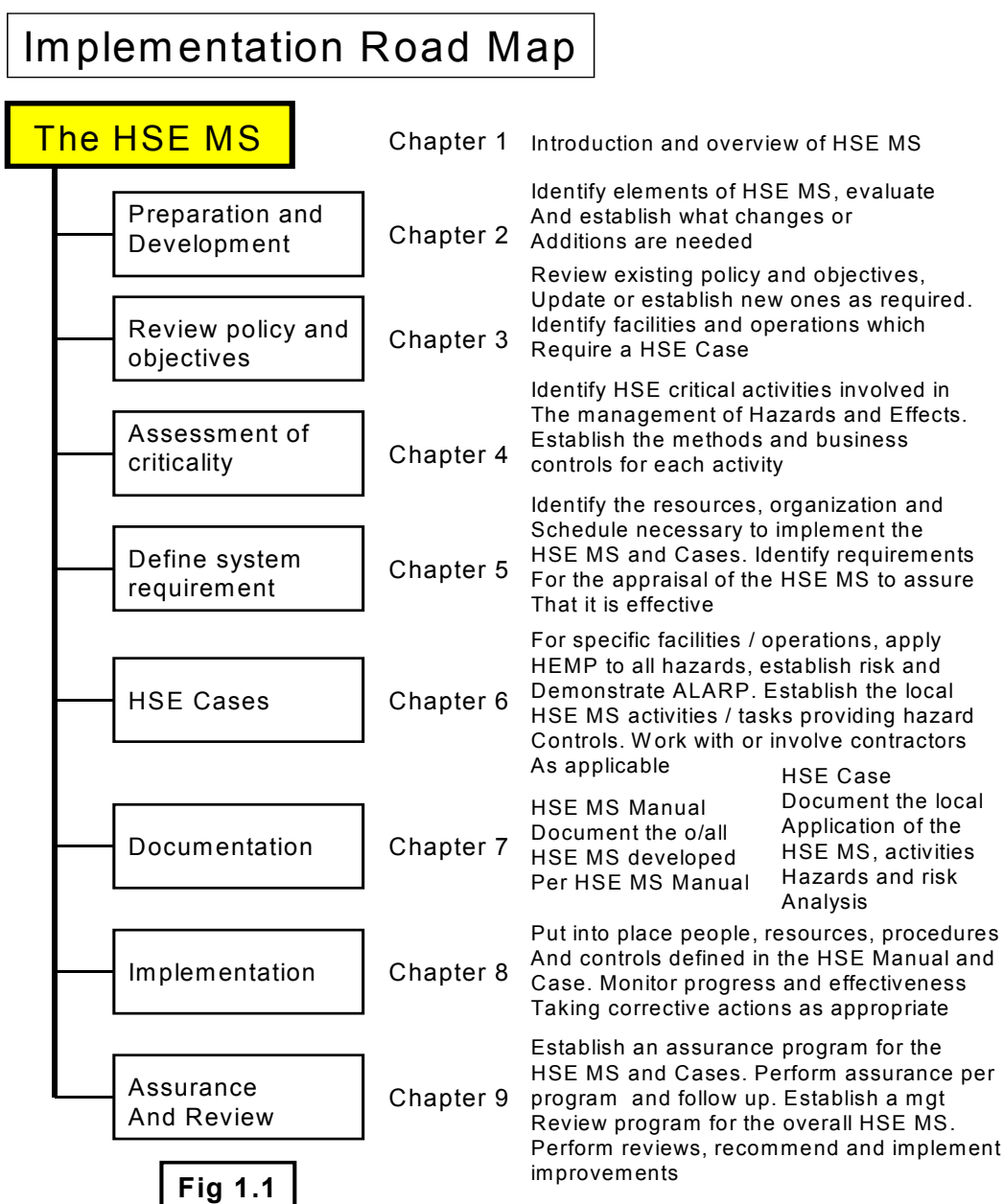
This PETRONAS Technical Standard is intended to provide guidance on the development, introduction into a company, and documentation of a HSE Management System and HSE Cases. Its target audience is those tasked with putting HSE MS and HSE Cases into practice as well as managers who are responsible for providing the resources and for monitoring the work. It is for use in preparing or subsequently improving a HSE Management System and HSE Cases.

The material has been structured using a road map that simply follows the main steps required of any OPU intending to implement the HSE MS and HSE Cases.

It should be read in conjunction with PTS 60.0101 HSE Management System Manual, which provides the requirements for the HSE Management System.

1 INTRODUCTION

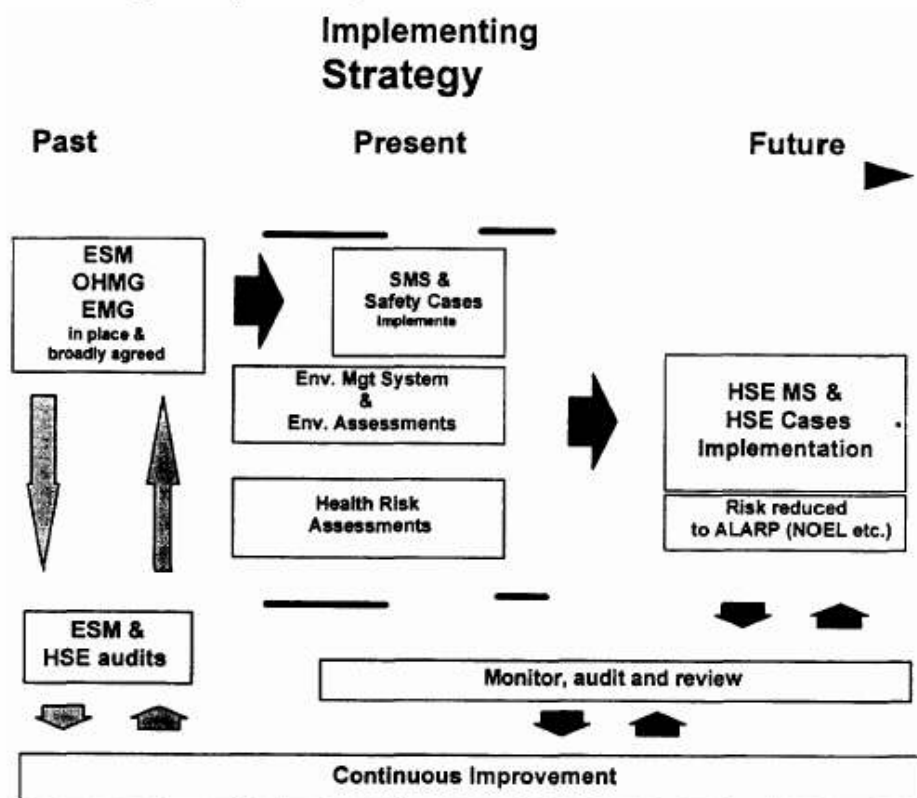
This section of the HSE Manual provides guidance on developing and implementing an HSE Management System in a PETRONAS Operating Unit / joint Venture (OPU/JV). It is also aimed at helping in reviewing, updating, maintaining and improving, the HSE Management System once implemented. The steps in the implementation 'road map' shown in Figure 1.1 have been followed throughout.



1.1 BACKGROUND

Most OPU / JVs and contractors have put into place a type of policy framework for improving HSE performance ('the Past' as shown in the diagram below). Many have started to put into place quality- based Safety Management Systems and Safety Reports especially after the promulgation of the legislation on “Control of Industry Major Accident Hazards”- CIMAH, a daughter regulation under the Occupational Safety and Health Act – OSHA. At the same time, there has been a move toward Environmental Assessment and Environmental Management Systems EMS (again quality based) and formal consideration of Occupational Health Management via Health Risk Assessment. This implementation section is aimed at those tasked with bringing together the three strands of H, S and E into a single, common, integrated HSE Management System as recommended by the Petronas Group ('the Future') (see Figure 1.2).

Figure 1.2 - Strategy for implementing HSE MS and HSE Cases

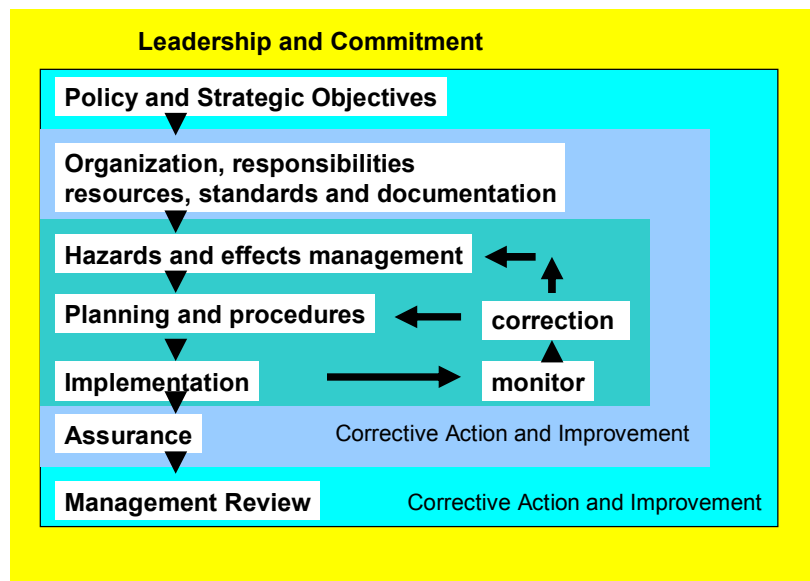


This PTS is intended to assist the implementation of the HSE MS and HSE Cases in PETRONAS OPU / JVs and it should be read in conjunction with PTS 60.0101 HSE Management System Manual.

1.2 DEFINITION OF A MANAGEMENT SYSTEM

A management system is defined as 'a structured set of controls for managing the business'. The purpose of any management system is to ensure that the activities of a company are planned, carried out, controlled and directed so that the business objectives of the company are met. It should be understandable at the appropriate levels in the company and documented so that it can be audited and verified as effective. A management system should have a 'self-healing' quality or 'improvement loop' within its construction. In simple terms it follows the basic Plan-Do-Check-Feedback steps of any quality system. The PETRONAS HSE Management System meets these requirements and consists of the main elements shown in Figure 1.3.

Figure 1.3 HSE Management System Model



1.3 DEVELOPING AND IMPLEMENTING THE HSE MANAGEMENT SYSTEM

Figure 1.1 shows the recommended steps in a 'road map' for developing and implementing an HSE Management System conforming to the HSE Management System model. Those OPU / JVs which have already built and implemented such a system will need to repeat some or all of the steps periodically as part of their regular review and update process to keep the system current and to introduce improvements. The chapters in this PTS follow the steps shown in Figure 1.1. The actions required at each step in the process are shown at the side of the 'road map' included at the start of each chapter.

1.4 KEY DEFINITIONS

Definitions of key terms, used in this Section, are shown below. A glossary of all terms used is attached.

The HSE Management System Manual: All essential elements of the HSE Management System should be 'documented' in a HSE Management System Manual.

The HSE Management System Manual is a company-wide-corporate-level document, owned by the company's management. It has a similar status to other corporate documents such as the financial *Limit of Authorities* Manual. The form of documentation may be a printed book or an electronic data file for easy reference and dissemination through Information Technology media. In the latter case a limited number of registered paper copies should be printed for control purposes.

The HSE Case: The HSE Case is a facility or operation-specific demonstration of the HSE Management System in action. It should show how the company's HSE Management System objectives are reflected in practice and how local risk management objectives are being achieved.

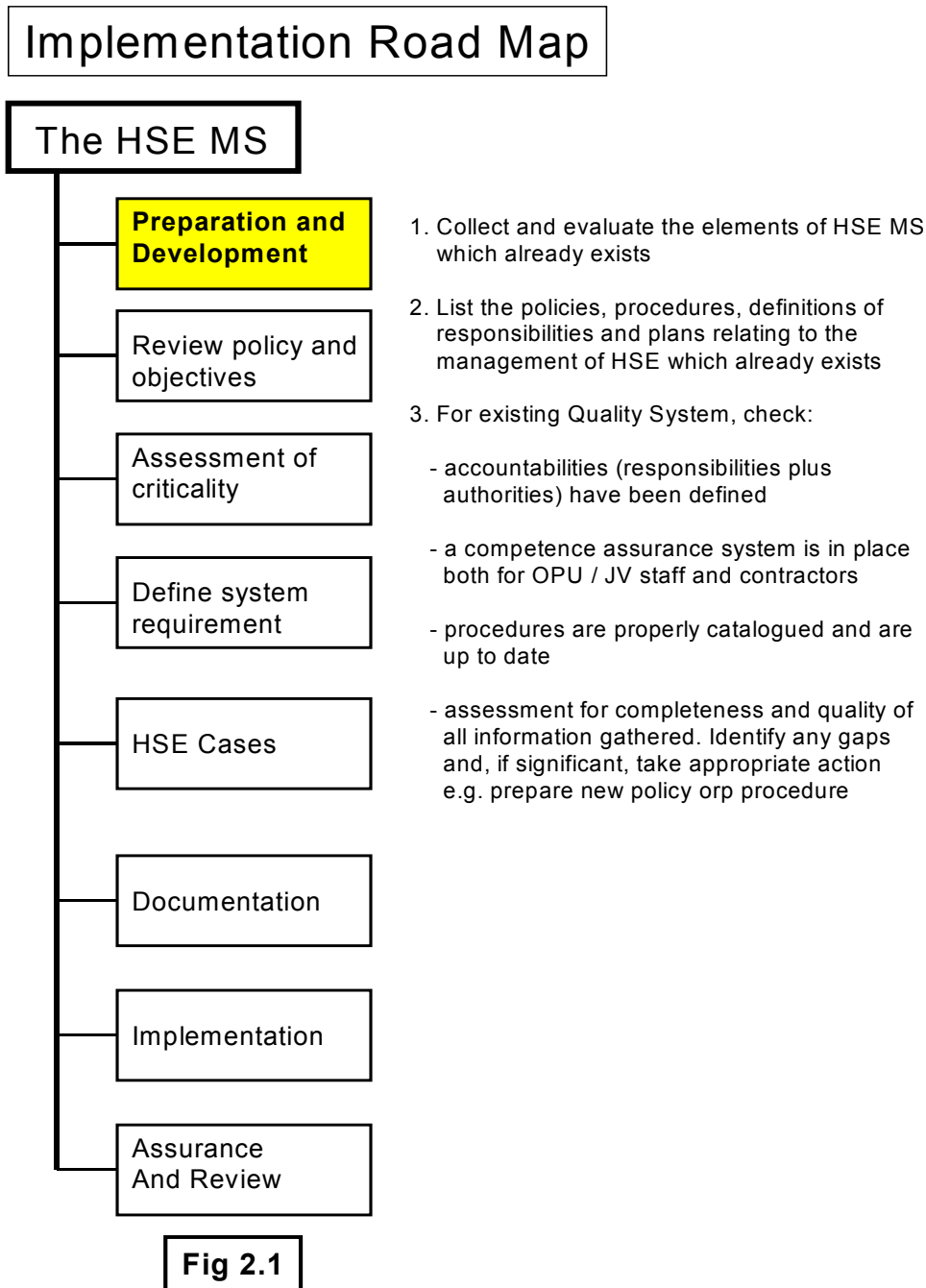
Both the HSE MS and the HSE Case are basically databases relating activities, hazards and controls to meet company objectives. To apply necessary controls in practice the Case and specific MS can be 'decomposed' to suit the various organisational levels, using relevant database information.

The HSE Case should stand alone, concisely and clearly documented. References to relevant supporting documentation are required and the HSE Case should provide a readable digest of the main findings of all formal HSE assessments. The HSE Case provides a 'route map' for anyone needing more information. It should record in a simple, methodical and auditable manner all information relevant to the safety and health of people, the conservation of the environment, and the protection of assets as related to the facility or operation.

In addition to referring to a combined assessment of HSE aspects, extracts of the HSE Case may be made to address the various aspects of HSE separately, according to local OPU requirements, regulator demands or the like, e.g.:

- a Health Risk Assessment Report
- a Safety Case.
- an Environmental Assessment.

2 PREPARATION AND DEVELOPMENT

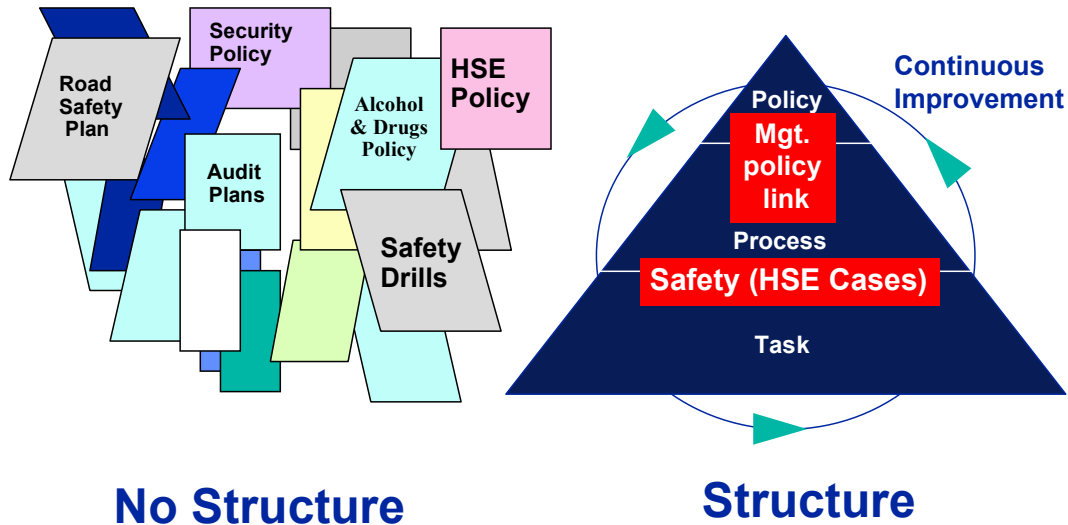


2.1 GENERAL

All OPU / JVs have a considerable amount of existing information relating to how they manage HSE within their operations. None of this should be wasted. One aim of the HSE Management System is to put all this information into a logical structure, eliminating unnecessary overlap and filling any gaps, as shown in Figure 2.2. Thus the starting point in preparing to implement any HSE MS or indeed any Management

System is to take stock of what is available, evaluate its quality and review its usability.

Figure 2.2 Putting the elements into a structure



The full suite of documents included in HSE Manual provides established OPU / JVs with a suitable starting point for developing its specific HSE MS.

Guidance and examples relating to the various and necessary management system elements can also be found in many existing Group and industry documents e.g.

- PETRONAS Guidelines for Health, Safety and Environmental Planning in a New Venture (under preparation). In addition to specific guidance this report will also list a number of Group HSE publications relevant to new ventures.
- PTS 60.0101 Health Safety and Environment Management System Manual
- OGP Health Management Guidelines for Remote Land Based Geophysical Operations (Ref. 5)
- ISO 14690 (draft) HSE Management System Guidelines for Offshore Industry (Ref. 6).

2.2 EXISTING QUALITY MANAGEMENT (QM) SYSTEMS

OPU / JV s with a quality system already in place, in accordance with an approved quality standard, should have already developed many of the business controls and basic feedback loops needed by the HSE MS. They should furthermore be clear as to the importance of the role of procedures and of controlled documents in a quality system. Most importantly the OPU / JV, will have few illusions as to the efforts needed to implement the HSE MS and will be clear as to the benefits that can accrue from such a quality based system.

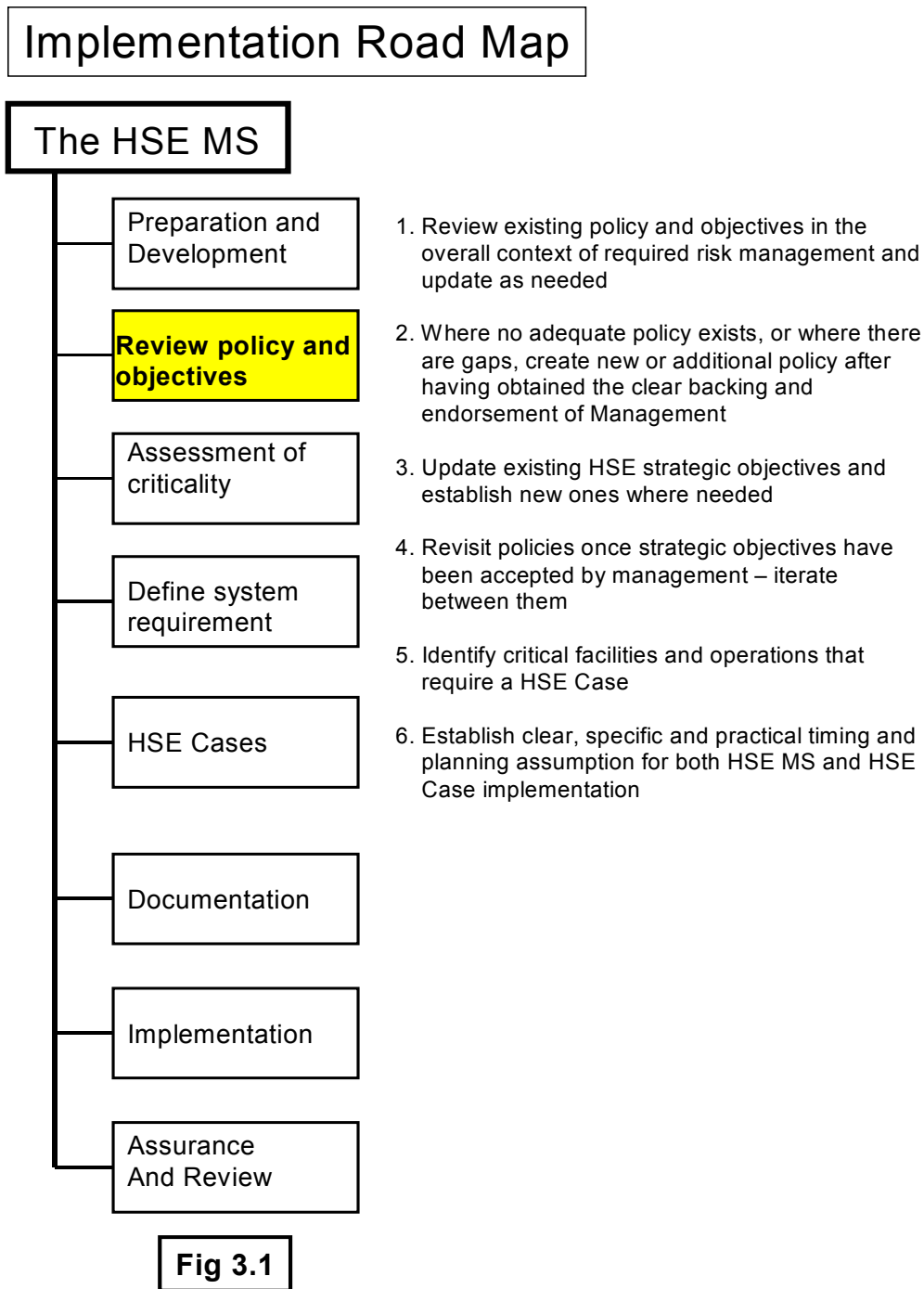
Experience has shown however that whilst quality management systems do have many attributes needed for the HSE MS, they often lack the focus needed to safeguard the operation adequately. They do not address hazards and effects nor in all cases do they properly assess whether procedures are really required. There can be a tendency toward a bureaucratic and over-proceduralized system.

The real test for procedures in the HSE MS and the hazards and effects analyses will come during the activity since it is then that the worth or otherwise of a procedure in regard to its usefulness in managing hazards and their effects will be assessed. Real care should be taken, not just to assess whether existing procedures are up to date and where they fit in the HSE MS but also to challenge whether they are really needed and are contributing to the management of a HSE critical element of the business.

All relevant information and documents once gathered should be reviewed, evaluated, applicable parts noted for use and any necessary revisions to existing OPU documents carried out.

Having established the up to date list of policies, information regarding objective setting, procedures (the controlled document library), agreements with government agencies (covenants, etc) assess any gaps. If these gaps are significant then a new policy or procedure may be required.

3 REVIEW POLICY AND OBJECTIVES



The HSE Management System is a risk based objective setting system. The OPU / JV management set its own specific goals against which the effectiveness of the HSE Management System will be measured.

The HSE Policy states intentions and principles, and provides a guide to managerial action which documents the course to be adopted by the OPU / JV regarding its health, safety and environmental management. Strategic Objectives set goals which the OPU / JV wishes to achieve and provide a basis for judging progress and achievements.

In the past, policies have often been developed in isolation from the risk of the operation (perceived or real) resulting in a mismatch between management wishes and line implementation. It has been unclear how management policy on HSE is to be implemented.

In establishing and/or revising the HSE Policy, reference should be made where appropriate to the following:

- Petronas Group HSE Policy Statements
- Regulatory and Legal Requirements
- Linkage of HSE policies and objectives to the needs of the business, e.g.
 - asset integrity
 - loss prevention
- Specific HSE aspects which are known problem areas, e.g.:
 - Drugs and Alcohol
 - Waste management
 - Security
 - Road Safety, etc
- HSE risk concentrating on those aspects which could impact the performance or viability of the company, eg:
 - continuous discharges (venting, flaring)
 - pollution control
 - asset damage and loss
 - societal or reputation risk.

The OPU / JV HSE Policy should strongly underline management commitment to the reduction of HSE risk to a level that is as low as reasonably practicable (ALARP) and emphasise the company's pledge to continuous improvement of HSE performance. It

is important that there is a consistency between the HSE Policy and identified business risks.

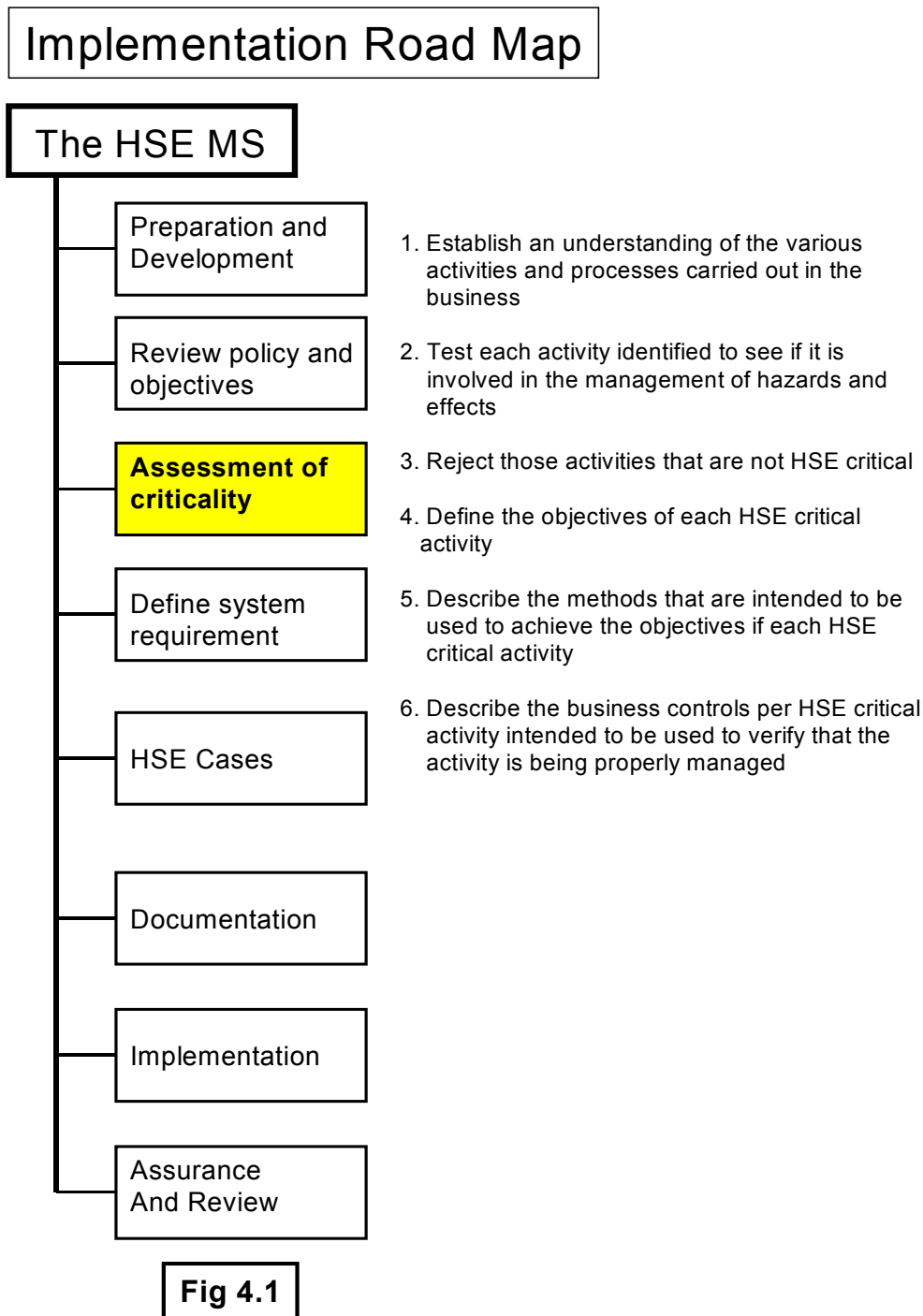
(Guidance on the content of an HSE Policy and the setting of Strategic Objectives is given in PTS 60.0101, Health Safety and Environment (HSE) Management System Manual). It has been found particularly helpful to use the 'Risk Matrix', PTS 60.0401 Hazards and Effects Management Process, when considering the level of HSE risk. A suggested matrix is given in Figure 3.2.

Figure 3.2 The risk assessment matrix

Consequence				Increasing Probability				
People	Assets	Environment	Reputation	A	B	C	D	E
				Never heard of in industry	Heard of incident in industry	Incident has occurred in our company	Happens several times per year in co.	Happens several times per year in location.
No injury	No damage	No effect	No impact					
Slight injury	Slight damage	Slight effect	Slight impact					
Minor injury	Minor damage	Minor effect	Limited impact					
Major injury	Localised damage	Localised effect	Considerable impact					
Single fatality	Major damage	Major effect	Major national					
Multiple fatalities	Extensive damage	Massive effect	Major international					

In reviewing corporate policies and objectives, management will need to consider overall risk levels and identify those operations and installations, required by the OPU / JV, to have a HSE Case. It is best to concentrate on the highest risk areas first and to establish a priority ranking of those facilities and operations that represent the highest risk exposure to the OPU / JV; in terms of risk not only to people and their safety but to the environment, to health generally and to the long term reputation of the OPU / JV. At this stage what is required is a ranked short list of facilities and operations that will have a HSE Case prepared together with an estimated completion date and an agreed intent to allocate necessary resources.

4 ASSESSMENT OF CRITICALITY



Managing hazards and effects (risk) is already a routine part of day to day business but may not be recognised as such. The HSE MS is concerned with providing assurance that HSE risk is being managed to a level consistent with the intentions of the HSE policy within the business. This is best achieved by quality managing those normal business activities which when performed correctly, contribute to success

both in terms of the business and of HSE management. Such activities are termed HSE-critical within the HSE MS. When performed less than satisfactorily they contribute to a loss of local control and to a potential accident (near miss) or in extreme cases to a complete breakdown of control with much higher consequences (or effects); generally recognisable as a serious accident. A very large amount of OPU / JV time and effort and hence cost is consumed annually in clearing up after such events which are always a result of some hazard or effect being either mismanaged or overlooked. The HSE MS recognises this and is built on the premise that effective Health, Safety and Environmental management is best achieved by proactively managing the operation's hazards and effects.

In general, for the HSE MS any activities which:

1. Identify hazards and effects
2. Assess their significance
3. Provide Control for hazards and effects or
4. Provide Recovery Preparedness in the case that control is lost are HSE-critical.

These four steps represent the Hazards and Effects Management Process (HEMP). This is described in PTS 60.0401 Hazards and Effects Management Process.

Reasonable assurance that HSE-critical activities are being performed to requirements should be provided by applying appropriate business controls as described in the respective company business model.

4.1 IDENTIFYING HSE-CRITICAL ACTIVITIES

All activities should be described in terms of 'what is done' rather than 'how it is done'. In the HSE MS the emphasis is on establishing and understanding the correct way of carrying out the activities that are critical to the management of hazards and effects. This understanding may be achieved by a business process analysis, by reference to a business model or a combination of these. Criticality assessment in the HSE MS is achieved by use of the Hazards and Effects Management Process (HEMP) in the form of a number of questions:

- i. Does this activity identify one or more “hazards” during the process of its performance / execution? In other words, do you need to consider what can go wrong i.e. is there any unacceptable outcome potentially associated with a deviation / unexpected occurrence?
- ii. Does this activity assess a hazard(s) for its effect(s)? In other words, do you ask:
 - a. Whether the consequence is acceptable should a deviation from plan happen or something goes wrong?

- b. Calculate what is the probability / chance that something will go wrong?
- c. Assess how severe the effects or consequences might be?
- iii. Does this activity control a hazard(s) and or its effects? In other words, is this activity one meant to prevent something from going wrong the outcome of which might either be harmful to people, environment, assets or reputation of the company?
- iv. Is this an activity that recovers from a (initial) “loss of control / deviation from plan” or mitigates / reduces its effects i.e. provide recovery or emergency response in any form?

It is important to note that the so called 'white collar' planning activities that provide essential controls needed during later phases of the operation are definitely HSE-critical. They set the scene for an operation. They make provisions for measures, by sound planning and design, that can manage the hazards identified with an increased likelihood of an accident - free operation. For example a seismic programme in a rain forest environment must make preparations well ahead of time to bring both environmental and societal impacts to the lowest practicable level. This is a planning activity and if not adequately addressed can have serious repercussions not just on the local Petronas company and contractors but internationally.

It is worth noting also that control activities like (HSE) audit and checking are invariably not HSE-critical. They are important to the corporate management system's integrity and represent vital controls within it. Some HSE Management System owners do however require such activities to be included and quality managed within the HSE MS. This means that management have intentionally extended the scope of the HSE MS beyond the core 'critical few' activities. This has in the past led to debate that it is possible therefore to define all activities as HSE-critical.

Take care, the more activities included, the more bureaucratic it will become.

The HSE MS uses the strict definition of criticality to limit bureaucracy and paper. Individual OPU/JV management must decide how extensive the system needs to be. The advice is to start SMALL.

4.2 SPECIFY OBJECTIVES OF HSE-CRITICAL ACTIVITIES AND MEANS OF ACHIEVING OBJECTIVES

The objective of a HSE-critical activity is to state its role as part of the management of a hazard(s) and effect(s). It is in effect a justification of its criticality of why the activity has been selected for inclusion in the HSE Management System.

In concluding that an activity is HSE-critical, it will have been agreed which of the step(s) of the Hazards and Effects Management Process (HEMP) it covers. The

hazard management objective should explicitly state which HEMP step(s) are relevant.

Examples of objectives could be:

- to identify new hazards and their effects
- to identify the threat(s) that could release a known hazard(s)
- to assess an identified hazard(s) for its effect(s)
- to assess whether an identified hazard(s) can be eliminated using the basic principles of hazard management
- to establish a mechanism(s) / method(s) for Control (ling) residual hazards
- to establish Recovery preparedness measures to recover from the release of hazards or mitigate against its effects

Having defined what part an activity plays and why, it is then possible to describe how the goals or objectives of the activity are to be achieved. These are the means or methods by which the hazard management objectives of the identified HSE-critical activities are achieved.

Examples of methods used to achieve objectives could be:

- development and use of procedures to identify and assess hazards and effects, e.g. execution of health risk assessments, HAZIDs and HAZOPs, environmental assessments
- development and use of plans and procedures to provide controls on hazards and effects
- development and use of plans and procedures to provide recovery measures in the event of loss of control of a hazard or of a known effect
- use of competent staff and contractors.

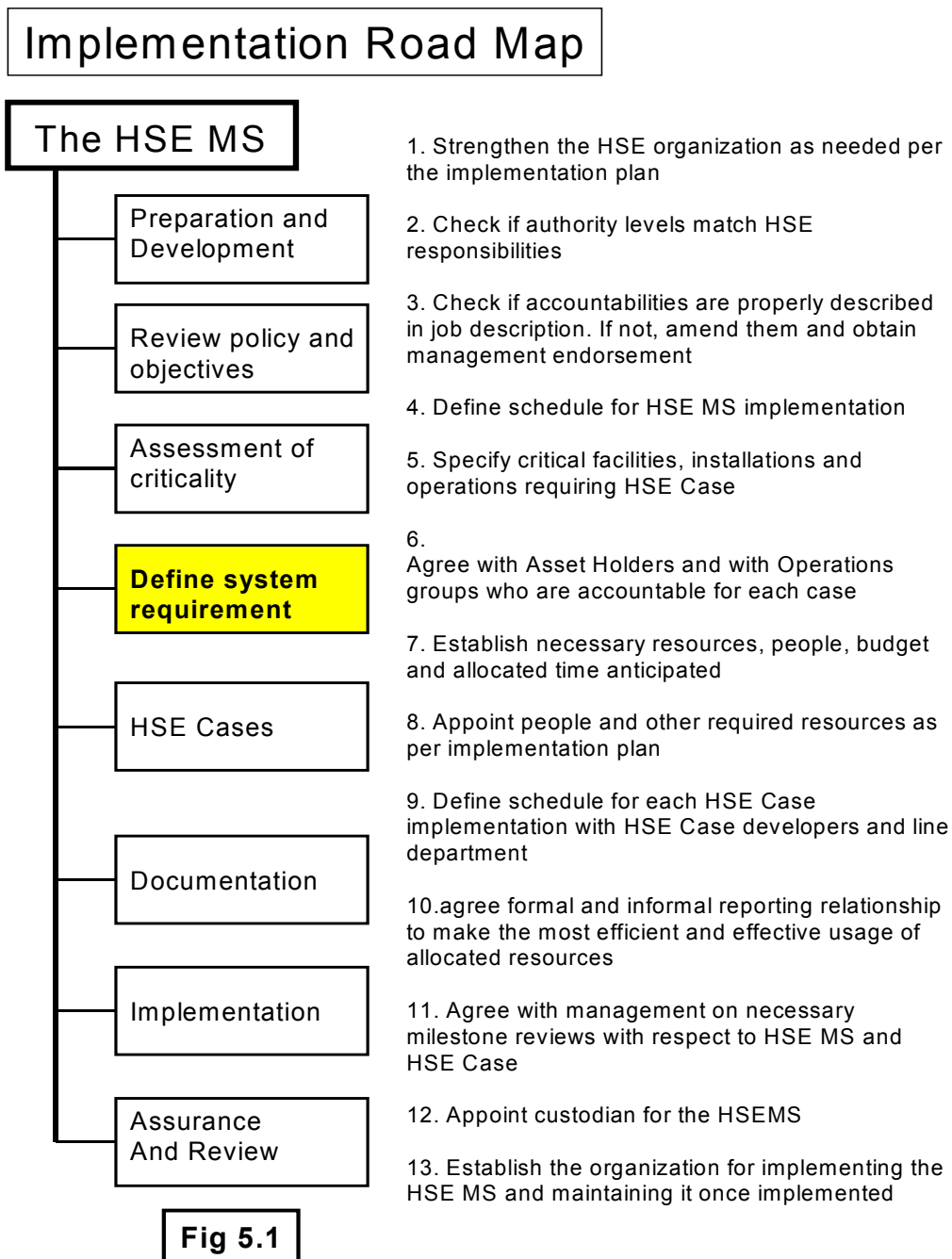
4.3 DEFINE THE BUSINESS CONTROLS NEEDED TO ASSURE THAT HSE OBJECTIVES ARE ACHIEVED

Business controls for individual activities are established by those responsible for the HSE-critical activity. These controls must be effective to meet the specified (hazards and effects management) objectives.

The level of control will vary according to the criticality of the activity, the competence requirements for the tasks involved and the degree to which the circumstances can be predicted. Accountabilities for activities or tasks, and their verification and authorisation (where considered necessary) should also be recorded.

Examples include: - use of standards and codes, audits, review by department heads, line supervision, site inspections and certification by third parties, etc.

5 DEFINE SYSTEM REQUIREMENTS



5.1 ORGANISATION AND RESOURCES

To make the system work requires:

- adequate people and other resources to be allocated to it with an appropriate organisation structure and responsibilities defined

- a plan and schedule for initial implementation and for ongoing maintenance of the system to be made and then followed
- appraisal of the system to ensure effectiveness and to generate improvements to keep the system current with changing circumstances and business needs.

HSE Cases are important to the full implementation of the HSE MS. They fulfil a dual role:

- Firstly, they are a means of demonstrating the effectiveness of the overall HSE MS by assessing the hazard controls in place and the resultant risks associated with HSE incidents in specific facilities or operations and are part of the appraisal process.
- Secondly, they clarify the links between hazard controls and the activities and tasks which are necessary to provide and maintain those controls. They are a means of deepening or extending the definition of the HSE MS locally and providing the basis for local implementation of the HSE MS.

Whilst the HSE MS provides a quality structure within which all the existing HSE management techniques and tools will fit, a concerted effort is usually required to implement this into any OPU / JV as it will be perceived as yet another “add-on” to an already very challenging working environment.

It is usual for the HSE Manager or Adviser to act as custodian of the HSE MS on behalf of the Chief Executive and for him or her, to be tasked with establishing the HSE MS.

There is generally no distinction in the management of either Health, Safety or the Environment. The same principles apply, although some differences may arise in required techniques. It is vitally important that high quality advice is available to assist the line in understanding the HSE issues they are accountable for at the operational level. This requires HSE department / personnel to proactively work with the line such that both the HSE as well as production goals are achieved.

Defining the organisation within an OPU / JV does not generally represent a problem. There is almost always more than sufficient information. It is essential that the responsibilities for HSE-critical activities, as described, are truly reflected in the authority levels given and described in the relevant job descriptions.

Finally the required resources to implement the HSE MS and necessary HSE Cases on the ground requires management commitment in the allocation of the already “scarce” resources.

5.2 IMPLEMENTATION PLAN AND SCHEDULE

Using relational database techniques, it is now possible to make efficiencies and to reduce some of the routine and time consuming activities involved in preparing the HSE MS and HSE Case.

A schedule is given below that shows realistic timings for the HSE MS and first HSE Case using relational database techniques based on actual experience.

Figure 5.2 Schedule for HSE MS based on SMS experience

HSE Management System and HSE Case Programme													
		Months											
HSE MS		1	2	3	4	5	6	7	8	9	10	11	12
Part 1	Policy, System Requirements												
Part 2	Activity Catalogue												
Part 3	Reference Docs												
Part 4	Remedial Action Plan												
Sub-total													
HSE Case													
Part 1	Management Summary												
Part 2	Operations HSE MS												
Part 3	Activities Catalogue												
Part 4	Operations Description												
Part 5	Hazard Analysis												
Part 6	Remedial Work Plan												
Part 7	Statement of Fitness												
Sub-total													
Ongoing support/Corporate Guidance													

This schedule is typical for a major OPU/JV and a unique, large and complex facility. It is also assumed that there is little learning available from previous Cases. This is obviously not the situation with operational OPU/JVs and a much reduced effort can be expected where generic data is used though the involvement of the users in the preparation remains critical to the success of its implementation i.e. ownership to the document and thus their applications and use

In areas where the operations are similar or facilities are of a standard design much of the information should be reusable from Case to Case with the information taken through with the potential users in the “new” facility for ownership to the documents. If this is done the exercise will not be meaningful and the Case will fail to meet audit criteria.

5.3 SYSTEM APPRAISAL

To ensure that the HSE MS functions effectively, it needs to be regularly and routinely appraised at various levels. The most routine means of appraisal is to monitor- the system’s performance indicators by the system custodian and activities by those accountable for those activities.

This is described more fully in Chapter 8 Implementation. More formal means of appraisal are by means of the audit and management review processes. These are described more fully in Chapter 9-Assurance and Review.

6 HSE CASES

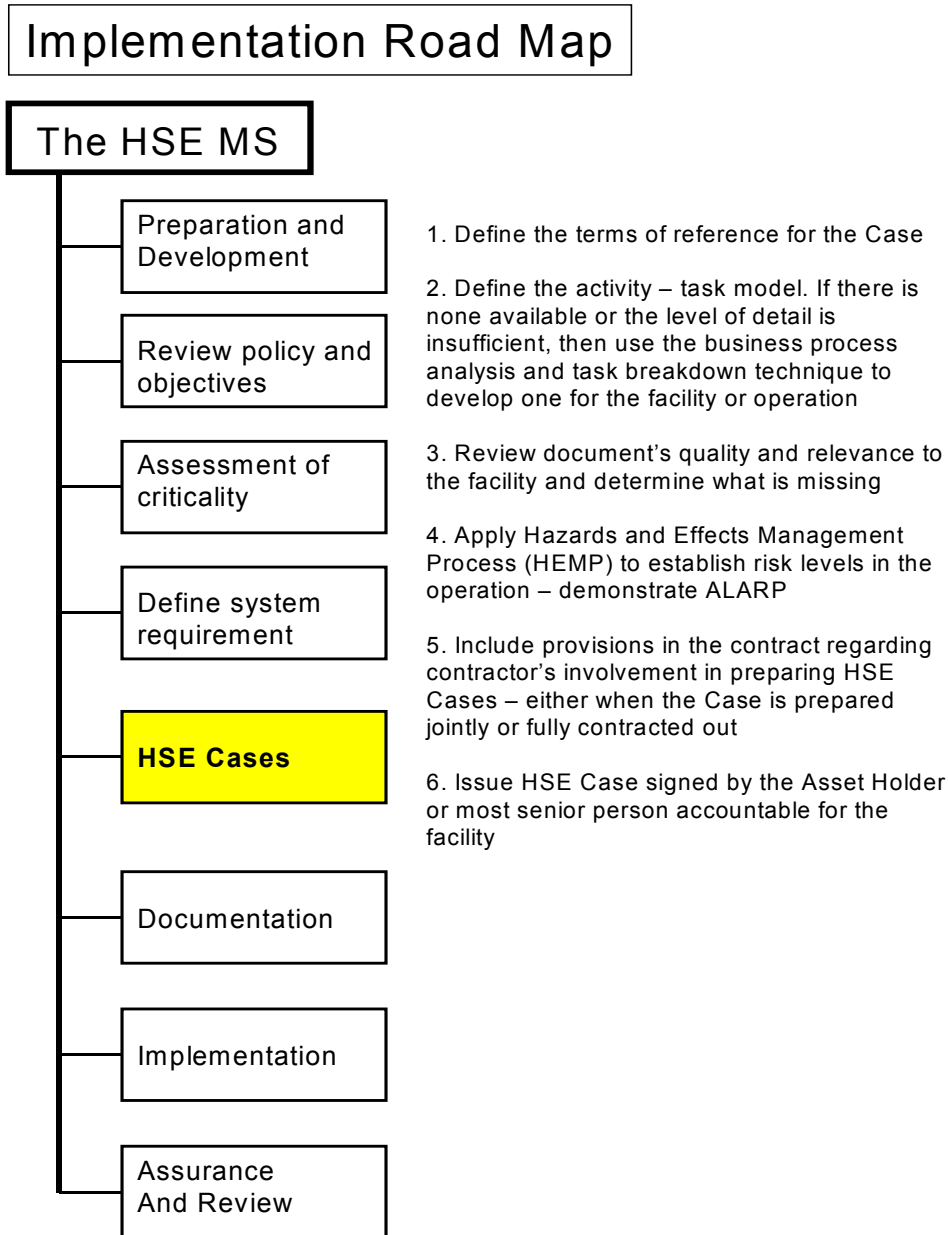
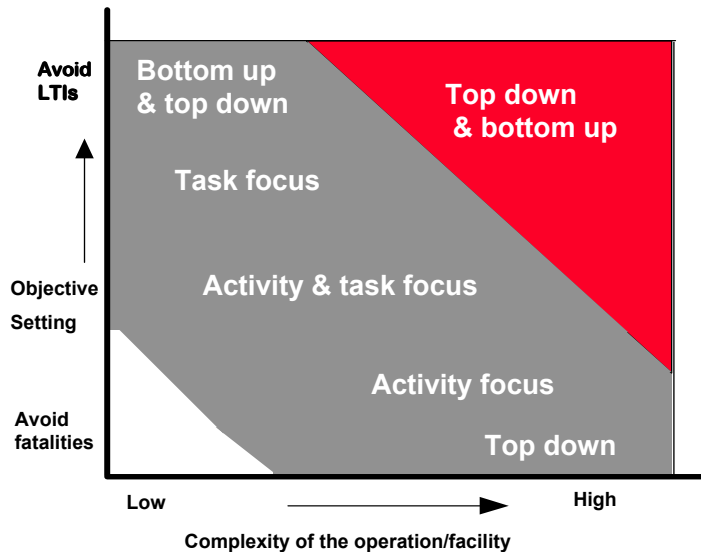


Fig 6.1

Figure 6.2 Diagram showing top down versus bottom up Case development



The question sometimes arises as to whether to develop the Case top down using highly analytical techniques or bottom up with workforce involvement from the outset. There is no fixed rule for this but one representation that provides a broad indication is given in Figure 6.2 Generally speaking the objective setting (shown as the vertical axis) determines the level of detail required and the complexity of the operation or facility requiring the Case (the horizontal axis) the emphasis required by 'top' as against other supervisory levels of management. This in no way is meant to infer that senior and middle management commitment can be lacking from either approach; it cannot.

6.1 GUIDELINES FOR PREPARATION OF THE HSE CASE

The purposes of the HSE Case are:

- to provide assurance of the effective working of the HSE MS at a site specific level.
- to provide a simple, methodical and auditable reference document containing all information relevant to the protection of people, the environment, assets including resources and the reputation of the company
- to serve as a vehicle for the assessment of risk to the operation and to the business as a whole, both at a local and also at an international level giving added assurance that the reputation of the company is being (properly) protected.

The Case should be a 'living' document (effectively an OPU / JV or plant HSE Management System) that is added to and amended throughout the life of the operation. The Case can be used to demonstrate that:

- the company has, for the operation, an effective HSE Management System
- all major hazards in and the effects on the operation (People, Assets, the Environment and the company's reputation) have been identified, assessed, controlled and recovery preparedness measures in place; and that
- the risks have been evaluated and measures taken to reduce risk to a level that is 'As Low As Reasonably Practicable' (ALARP).

It also documents the programme of formal HSE assessments conducted by the OPU/JV to assure itself that the operation meets its HSE risk objectives.

The HSE Case should demonstrate how the objectives of the OPU/JV HSE Management System are being achieved. To accomplish this demonstration, the HSE Case should clearly establish the intention of the operator with respect to:

- compliance with all relevant statutory requirements
- compliance with all relevant company requirements
- identification and management of all hazards and effects with the potential to cause a major accident, major* health impact or environmental damage
- The word 'major' used here is not meant to infer that other more minor risks are to be neglected merely that the minimum requirement is to consider major events. The onus must be to set the objectives of the HSE Case and then to show clearly that they have been met.
- evaluation and reduction of risk to those affected by the operation to a level that is as low as reasonably practicable (ALARP)
- audit and review its operation with the intention for continuous improvement of its HSE MS and HSE performance.

This should be presented in the form of specific objectives and related performance and acceptance criteria (can be codes and standards) in use.

The HSE Case should describe the level of risk that is actually being achieved in comparison with corporate risk objectives and how this is being measured and monitored.

It should describe how the gap between intention and achievement is to be eliminated, including the timeframe for this.

The HSE assessments undertaken as well as the results obtained should be described. Findings should be measured against the HSE Management System objectives using the performance and acceptance criteria established. Any shortfalls should be recorded.

The HSE Case should demonstrate that the operator is making efforts to continuously improve on the management of HSE. The HSE Case should contain a plan to address all shortfalls (gaps between intention and achievement) found in the HSE MS or during the course of its preparation weaknesses in hazard control and or recovery preparedness and their impact increasing the level of operating risk. This plan should identify and prioritise all action items, establish accountable parties and target completion dates.

The HSE Case needs to demonstrate that a risk management programme is in place. It should establish the limits of safe operation permitted, if defences are reduced or removed. It should also define safe limits during periods of escalated risk affecting either the likelihood or consequence of an incident taking place. Preparation of a HSE Case should be viewed as an opportunity to take stock as to the adequacy of the operation and its management controls. The intent should be for people close to the operation to have a hard look at things, where necessary recording any shortfalls or deficiencies. It also presents an opportunity to clarify relationships with, and responsibilities of, outside parties and record them for the benefit of all.

6.1.1 Management Commitment and Ownership of the HSE Case

Senior management commitment to HSE management should be the main driving force behind preparation of a HSE Case but an effective HSE Case can only be prepared by those directly involved with the specific facility or operation and owned accordingly by those responsible for it. Thus line commitment reinforced and encouraged by senior management is vital. The Case should be fully endorsed by, and issued under, the signature of the asset holder or most senior person who is directly accountable for the facility or operation.

6.2 PREPARATION OF THE HSE CASE

The first step in the preparation of the HSE Case is to define the terms of reference that will apply drawing heavily on the planning previously created with management support. Thereafter the basic activity model (activities and tasks) and hazard hierarchy selection for the specific operation or facility should be defined.

The HSE Case should make use of existing documents used to manage HSE in the facility or operation. This reference material should be listed, assembled and reviewed for content and currency. Areas of obvious overlap or gaps should be noted for remedial action.

The quality and content of all existing documentation should be reviewed (for example reference documents, drawings, 'as-built', P&ID(s), vendor information, information on chemicals and possible toxic agents, waste stream information, quality information, files for action such as transport request files, permits to work, governmental dispensation certificates, bills of lading, contracts).

Many operations are carried out by contractors on behalf of the OPU/JV. In such cases the HSE Case will be prepared by both OPU/JV and contractor, dependent upon the nature of the contract and the operation. It must be recognised that the OPU/JV and PETRONAS Group remain exposed when conducting operations through the services of a contractor and that it is incumbent upon the company to satisfy itself as to the competence and fitness for purpose of the contracted operation.

A joint and co-operative approach in no way releases the OPU/JV from the obligation to protect itself contractually and to require by contract a Contractor to either assist in preparing a HSE Case or to provide the entire HSE Case (when the operation is wholly contracted out).

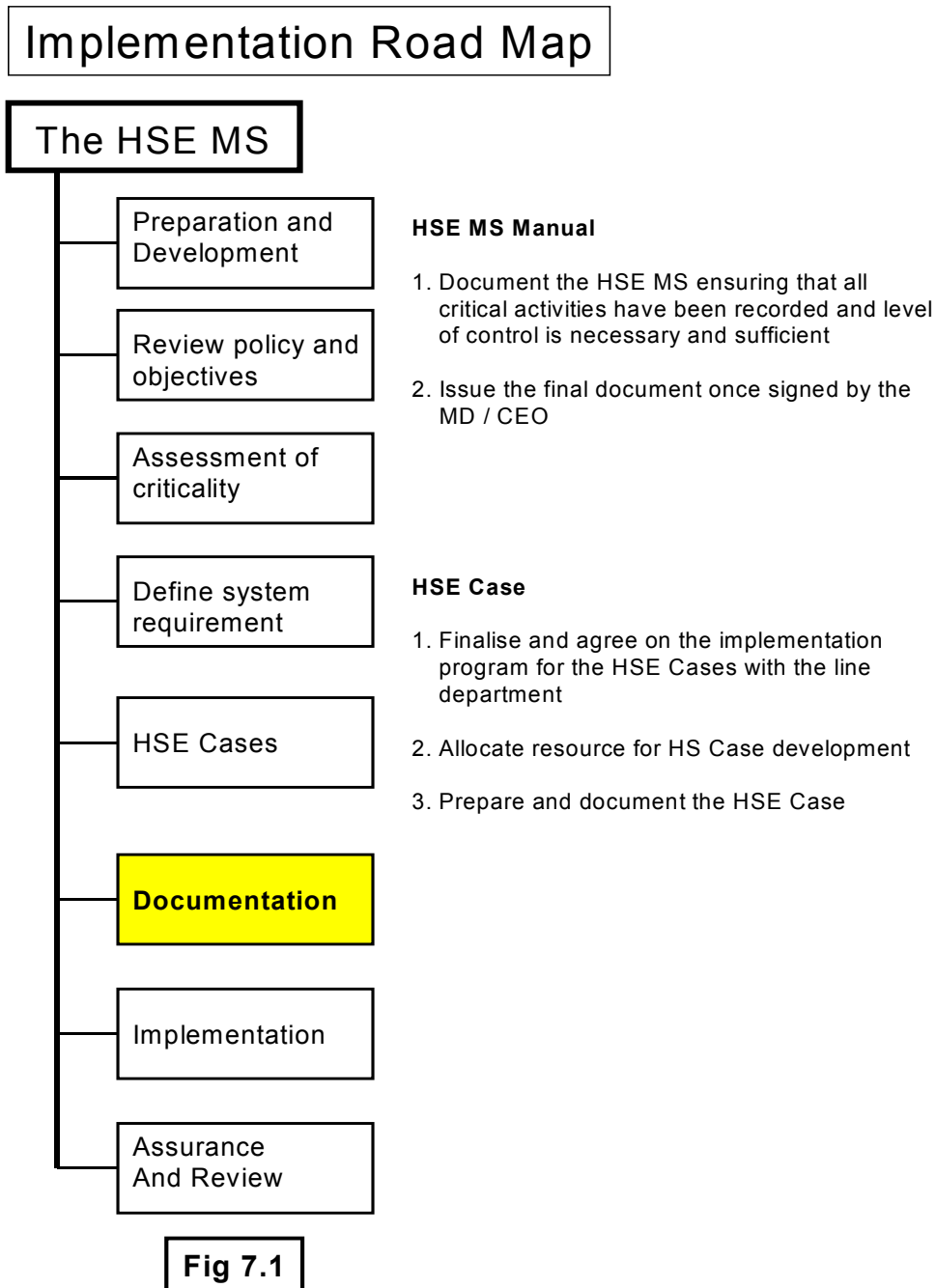
To assist OPU/JV in preparing HSE Cases for such contracted operations an indication is given in this guidance material as to the contractor involvement anticipated in the various parts of the HSE Case.

GENERIC CASES

A relational database technique (THESIS) could be sourced to provide the capability to reduce the cost and time of producing a HSE case. It is also a possibility that 'standard' generic Cases could be developed per area of activity so that these could be utilised wherever there are similar activities. "Core" HSE Cases can also be produced for subsequent development into full HSE Cases.

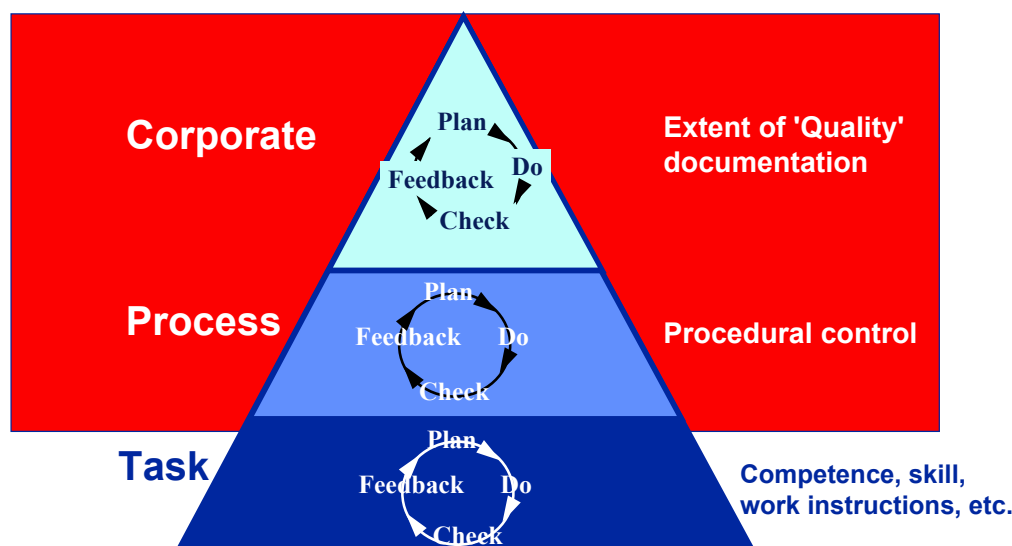
The contents of the HSE Case are described in Appendix III. Also refer to Contractor's Note at the end of each guidance section and to the Self Check listing (Appendix IV).

7 DOCUMENTATION



As with any other quality system, there is no alternative to keeping a minimum set of formal records in the HSE MS. It is important however to maintain a balance, between a quality audit trail that provides transparent and clear assurance to all stakeholders that the operations of the OPU/JV are being managed safely and excessive bureaucracy. Broadly speaking the quality audit documents relate to policy and process whilst the level of task definition required by the line will dictate how much more documentation is needed for the workplace (see Figure 7.2).

Figure 7.2 Quality documentation



Two types of documentation are required by the HSE MS. The HSE MS Manual documents the overall HSE MS as applied corporately. HSE Cases (see Chapter 6) document the application of HSE MS at a local facility or operation level. It is to help in this process that information technology and relational database techniques have been applied to the HSE MS and Case preparation and maintenance. The software THESIS is aimed at providing both these deliverables. It is basically a local decision as to how far decomposition of the quality system should be taken through supplementary documentation, which expands an aspect on the HSE MS and HSE Cases.

The functional requirements of the HSE MS are described in PTS 60.0101 HSE Management System

7.1 MANAGEMENT ENDORSEMENT - LEADERSHIP AND COMMITMENT

To demonstrate visible senior management commitment and endorsement, the HSE Management System (HSE MS) Manual should be issued under the signature of the Chief Executive Officer (CEO) of the company, preferably by a foreword in the Manual. The foreword should contain statements to the effect that the HSE Management System describes the ways in which the CEO expects HSE to be managed in the company. The CEO should be designated as the Owner of the HSE Management System under whose direction the appointed Custodian (usually the HSE Manager) is responsible for implementation, periodic review, and revision of both the HSE MS and the HSE MS Manual.

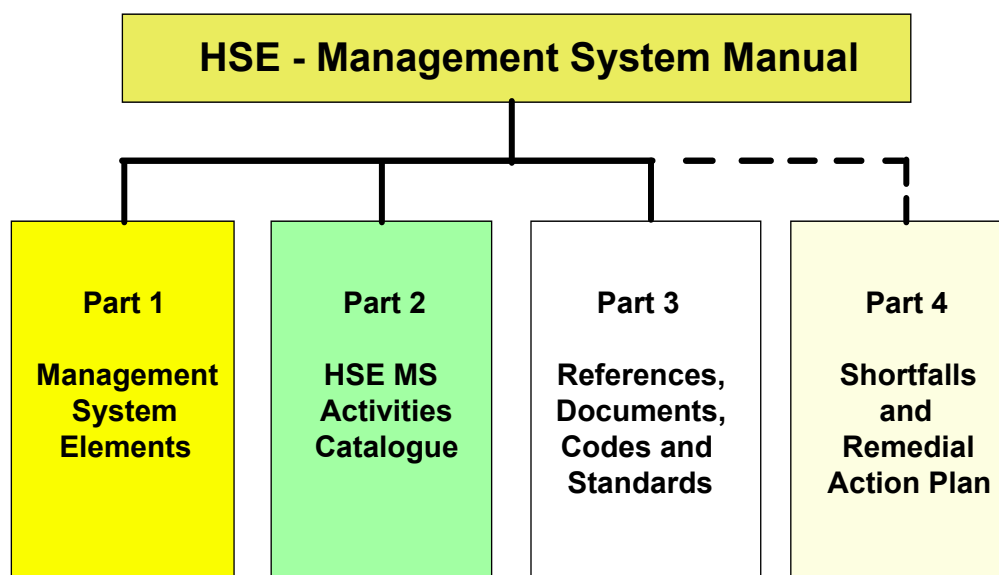
7.2 PREPARATION OF THE HSE MS MANUAL

The HSE MS Manual should, where possible, make use of existing documents for managing HSE. As a first step to document the system, these references should be listed, assembled and reviewed for content and currency. Areas of obvious overlap or gaps should be noted for remedial action.

The contents of the HSE MS Manual are described in Appendix I.

The HSE MS Manual is documented in four-parts as shown in Figure 7.3. It is not necessary that this structure be followed rigidly as long as all the elements are covered in a logical structure. The structure may be selected to be compatible with other OPU / JV management systems, e.g. a Quality Management System.

Figure 7.3 THE HSE MANAGEMENT SYSTEM MANUAL



Part 1 is the description of the HSE MS Elements and presents the OPU / JV policy, strategic objectives, organisation, and the principal management controls and programmes as they apply to HSE risk management. It sets the scene for the various HSE Cases that will be prepared as demonstrations of effective HSE management at the local or site-specific level. The various sub-sections within Part 1 are discussed in detail in Appendix I.1.

Part 2 is the HSE MS Activities Catalogue and contains the detailed analysis of all activities, which contribute to the management of hazards and effects. The Activities Catalogue should be developed by the key persons involved in each of the business processes. The techniques used to define HSE-critical activities and to document them are described in detail in Appendix I.2.

Part 3 lists the documents referred to in Part 1 and Part 2 of the HSE MS Manual. Guidance on content is given in Appendix I.3.

Part 4 contains information on how any shortfalls and remedial action plans identified are recorded and followed up. The list of shortfalls identified and the remedial action plan may be included in the HSE Management System Manual, but are more commonly parts of separate documents such as the HSE Plan or company business plan. Guidance on content is given in Appendix 1.4.

The objective of the HSE Management System Manual is to document the quality system used for managing HSE risk in the OPU / JV. It should refer to, rather than repeat, existing procedures and systems. It provides a principal source of reference for the HSE-critical aspects of:

- routine or corporate level activities, such as planning, design, contracting, data analysis, programme development, etc
- familiarisation (new staff)
- increasing awareness (existing staff)
- hazards and effects management
- audits
- training
- competence definition
- job description preparation
- incident investigation
- HSE Management System review and improvement.

The Manual should enable all staff and any interested outside parties to understand how HSE is managed throughout the OPU / JV business and should set out the accountabilities of the various levels of senior and line management.

7.3 DOCUMENTING THE CASE

The HSE Case is constructed in seven linked parts as shown in Figure 7.4. It is not necessary that this structure is followed rigidly as long as all the elements are covered in a logical structure.