

**THE MILITARY BUDGETING PROCESS: AN OVERVIEW**  
(Defence Planning, Programming and Budgeting)

Len Le Roux  
Major General (retired)  
South Africa

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## **(Defence Planning, Programming and Budgeting)**

### INTRODUCTION

No meaningful programming and/or budgeting can be done without the existence of a long term or strategic defence plan, just as no meaningful plan can exist in the absence of guiding policy. Within the protective function of government, which includes intelligence, policing, justice and correctional services (or prisons) as well as defence, planning is contingent by nature. This means that requirements are driven by outside factors such as internal crime levels and external instability. In the case of defence, planning must be done for a very uncertain future environment. This is complicated by the long period required to build and prepare defence capabilities, which implies the maintenance of certain capacities purely for possible future eventualities (defence contingencies).

### THE DEFENCE PLAN

The defence plan is essentially the document that specifies the measurable outputs that defence will produce in pursuit of Government's objectives against the identified financial allocation within the Medium Term Expenditure Framework (MTEF) of three (to five) years. It incorporates the strategic plan, the defence programmes and the budget. The plan should also cover longer periods (up to 30 years) for matters such as capital acquisition, infrastructure and personnel planning. The defence plan provides the framework for the performance agreement between the Minister of Defence (the political head) and the Head of Department.

**The defence plan provides the framework for the performance agreement between the Minister of Defence and the Head of Department**

The performance agreement should be a written document that clearly specifies the outputs required from the department, the associated resource allocations and the performance measurements that will be employed. This serves as the contract between the Minister and the Head of Department. It must of necessity be a product of negotiation between these two individuals. The performance agreement is an important management tool and enhances transparency and accountability in defence management.

The primary outputs that must be specified in the defence plan are:

- Defence Administration. The top-level administrative outputs required for the management of the defence function. This includes the provision of defence policy, strategy, plans, programme and budgets.
- Defence Commitments. The identified short to medium term operational force employment tasks and objectives.

- Defence Capabilities. The Force Design with required readiness states as well as the supporting force structure. (Note: Defence Capabilities are the main cost-drivers of defence.)

The determination of the first two outputs are relatively simple and are based mostly on present and short- to medium-term future requirements. The determination of defence capabilities is however much more complex and long-term in nature.

Defence administration. Defence administration outputs are determined by an appreciation of the legislative, policy and management framework within which defence must function. It will be strongly influenced by the demands and requirements of government, specifically the Minister of Defence and other national departments such as the departments of finance and public service and administration. This programme function will identify specific objectives to be reached within a one to three year timescale. Some examples of such objectives are:

- Revise the defence act to be in line with the Constitution for presentation to Parliament by (date).
- Do a complete defence review for presentation to Parliament by (date).
- Develop an updated personnel policy for the Defence Force for presentation to the Minister of Defence by (date).
- Develop the defence plan for fiscal years (XXXX) to (YYYY) for presentation to the Minister of Defence by (date).
- Develop the defence budget for fiscal years (XXXX) to (YYYY) for presentation to the Department of Finance by (date).

These objectives are mostly determined, managed and co-ordinated by the policy-and-planning, finance and other staff divisions at the defence ministry/headquarters. The resources allocated to these activities are relatively small and are mostly associated with the personnel costs of the associated staff divisions, administrative costs and the costs for professional services.

Defence Commitments. Short- to medium-term defence commitments or operational outputs are determined through a military operational appreciation. It rests heavily on the intelligence forecasts of the internal and external security environment for the short- to medium-term. It will also be heavily influenced by the objectives of the departments of foreign affairs and internal safety and security. This programme function will identify specific objectives to be reached within a one to three year timescale. Some examples of such objectives are:

- Provide a force of battalion strength with tactical air transport and medical support to the peace mission in (X) from (date) to (date).
- Support the Police in crime prevention in (area) from (date) to (date).

- Do border control operations in (area) in support of the Police from (date) to (date).
- Do maritime patrols to monitor infringements of territorial waters in (area) from (date) to (date).

These activities are mostly determined, managed and co-ordinated by the (joint) operations division at defence headquarters. The resources allocated to these activities are dependant on their scale, duration and intensity. These should include all employment costs such as increased maintenance, fuel, ammunition, rations and operational allowances amongst others.

Defence Capabilities. The determination of defence capabilities is discussed in Appendix A and B. The establishment, development, preparation and maintenance of defence capabilities constitute the main cost-element of defence and the determination of the force design and structure is thus the prime area of debate between defence planners and political decision makers.

In the defence plan the determined force design and structure of the Defence Force must be clearly stated in terms of quantity (number of units) and quality (readiness states and preparedness). The development and maintenance of this force design and structure constitute a specific objective for the department.

The staff work for the determination of this objective is primarily done and co-ordinated by the policy-and-planning and (joint) operations divisions at the defence ministry/headquarters.

Summary of the Elements of the Defence Plan. The defence plan, which should be a stable but flexible document over time, should include the following elements:

- The strategic profile of the Defence Force consisting of its mission, vision, critical success factors and value system.
- The analysis and critical assumptions underlying the strategic plan.
- A clear statement of the required defence capabilities (force design and readiness state) of the Armed Forces.
- A clear statement of the required supporting force structure.
- The supportive capital acquisition plan, the facilities plan and the personnel plan.
- The administrative outputs required for the management of the defence function including the provision of defence policy, strategy, plans, programme and budgets.
- The identified short to medium term operational force employment tasks of the Armed Forces.

## THE DEFENCE PROGRAMMES

As defence departments and forces are large organisations, the management of the top-level objectives is largely delegated to subordinates at the second level of management. These are typically service chiefs and chiefs of staff divisions at the ministry or defence headquarters. Each one of these delegated managers will be responsible for a specific defence programme. These defence programmes essentially convert the strategic defence plan (departmental outputs as required and funded by Government) into a format where clear responsibility and accountability is established against the programme managers who are also referred to as the principal budget holders. Typical defence programmes are shown in table 1.

Programme	Programme Manager (Budget Holder)
Defence administration programme	Chief of Staff for Policy, Planning and Finance
Force employment programme	Chief of Staff for (Joint) Operations
Force provision programme (Army)	Chief of Staff for the Army
Force provision programme (Air Force)	Chief of Staff for the Air Force
Force provision programme (Navy)	Chief of Staff for the Navy
Joint force support programme	Chief of Staff for Joint Support

Table 1

The Defence Administration Programme. The defence administration programme will identify those activities that are essential for the professional, efficient, transparent and accountable management of the defence function and will be co-ordinated at defence headquarters by the Chief of Staff responsible for the integrated functioning of all headquarter staff divisions. This programme should include sub-programmes for political direction (office of the Minister of Defence), departmental direction (office of the Head of Department), policy development, corporate departmental planning, strategic intelligence, defence foreign relations, financial management, corporate communication (public relations and internal communication) and internal auditing and inspection amongst others.

Objectives for this programme are derived from the top-level administration objectives in one of three ways.

- Firstly, a top-level objective can be directly delegated to a programme manager at the second level. For example the objective to “develop the defence budget for fiscal years (XXXX) to (YYYY) for presentation to the Department of Finance by (date)” can be delegated to the Chief of Staff for Finance.

- Secondly, a top-level objective may lead to sub-objectives that can be divided amongst two or more programme managers at the second level whilst overall responsibility is maintained by the Head of Department. For example the objective to “do a complete defence review for presentation to Parliament by (date)” can be sub-divided and delegated to the Chief of Staff for Intelligence (“do a strategic intelligence appreciation”), the Chief of Staff for Policy-and-Planning (“do a strategic defence appreciation”) and the Chief of Staff for Joint Operations (“do an operational appreciation of short- to medium-term defence commitments”).
- Thirdly, the Head of Department may (and should) determine his or her own developmental objectives to ensure the continued improvement of the performance of the department. These could include objectives to improve the management processes of the department (delegated to Chief of Staff for Policy-and-Planning), to improve information technology systems (delegated to Chief of Staff for Joint Support) and to improve the command and leadership practises of the department (delegated to Chief of Staff for Joint Support).

The Force Employment Programme. The force employment programme will derive its objectives directly from the top-level defence commitments in the plan and will be co-ordinated at defence headquarters by the Chief of Staff for (Joint) Operations. This programme should also include sub-programmes for operational intelligence and counter intelligence, joint force preparation and command-and-control. Objectives for these sub-programmes are developed by the Chief of Staff for (Joint) Operations.

Other than those objectives derived directly from defence commitments in the top-level plan, typical force employment objectives may include objectives to develop command-and-control skills through war-gaming and exercises, objectives to prepare and exercise joint formations through military exercises and objectives to ensure the intelligence for and security of operations.

The Force Provision Programmes. The three force provision programmes are the domain of the Chiefs of the Combat Services (Army, Air Force and Navy) who are responsible for the establishment, development, preparation and maintenance of combat ready forces as agreed upon in the approved force design. These programmes derive their objectives directly from the approved force design and structure and will include sub-programmes for each of the capability areas as defined in the approved force design as well as for service specific training and force preparation. Examples of these capability areas are; infantry, armour, artillery, anti-aircraft, engineering, special forces, fighter aircraft, air reconnaissance, helicopters, air transport, submarines, surface combat ships and sea mine warfare vessels.

The Joint Force Support Programme. The joint force support programme will identify those joint activities that are essential for the support of the defence administration, joint force employment and most importantly the force provision programmes of the services. This programme will be co-ordinated at defence headquarters by the Chief of Staff responsible for the co-ordination of the supporting functions. Most of the objectives for this programme will be derived through service agreements between the

Chief of Staff for Joint Support and the other programme managers. This implies that, as certain functions can be executed more efficiently in a centralised manner, such functions should be identified and contracted to Joint Support by the Service Chiefs and other Divisional Chiefs by means of service agreements specifying the level of service required and the cost thereof. This programme should include sub-programmes for personnel management, logistic services including acquisition and procurement and military health services.

Typical joint force support objectives may be:

- Manage and execute the capital acquisition plan in support of the combat services.
- Manage and execute the departmental facilities plan.
- Provide and manage a personnel administration system for the department.
- Provide military health services in support of the combat services and defence commitments.

Resource Allocation to the Defence Programmes. The defence programmes provide the basis for performance agreements between the Head of Department and the Chiefs of Staff of the Combat Services and Headquarters Staff Divisions.

**The defence programmes provide the framework for the performance agreements between the Head of Department and subordinate Chiefs of Staff**

Performance agreements basically consist of the objectives to be achieved with timeframe and standards, the associated level of resource allocation and the required delegations of powers. Furthermore these programmes include the service agreements negotiated directly between programme managers. Service agreements similarly consist of the objectives to be achieved with timeframe and standards, the associated level of resource allocation and the required delegations of powers where applicable. As such, these programmes are the product of negotiations between the Head of Department and subordinate Chiefs as well as directly between programme managers. This process of negotiation is iterative in that each objective must be evaluated for cost and then be either agreed upon or changed as is required. Changes could be the increase of resources or the downscaling of the objective. To ensure efficiency the Head of Department (and other clients) must demand that programme managers accurately determine the cost for the achievement of set objectives and provide proof that all efficiency improvements had been considered. Benchmarking the cost of all activities should be done regularly. Only when the Head of Department is convinced that the objective is being pursued in the most efficient way possible should he/she consider increasing resources or downscaling the requirement.

The defence programmes, in the final instance, provide the starting point for the detailed development of the defence budget down to unit level.

## THE BUDGET

The strategic defence plan specifies the required outputs of defence at the highest level as well as the macro envisaged resource allocation to defence over an extended period. The defence programmes, in turn, specify outputs in the form of objectives at the next lower level as well as planned allocations to the programme managers for producing these outputs. This must now be converted into business plans where specific activities for reaching these objectives are specified and accurately costed from zero in terms of the required inputs. These business plans are done at unit level (including directorates or sections at headquarters) and are in turn the basis for the performance agreements between the programme managers and unit commanders/section chiefs as well as for service agreements directly negotiated. The same considerations as discussed in the previous paragraph on performance and service agreements at the next higher level are valid for these agreements.

**The business plans provide the framework for the performance agreements  
between Programme Managers and Unit Commanders**

These business plans are done annually for the next financial year as well the subsequent years covered by the Medium Term Expenditure Framework (MTEF). The defence budget is the sum-total of the business plans expressed in monetary (financial) terms. It is the department's income and spending plan for a set period of time. It is a quantitative expression of the proposed plan of action for the reaching of defence objectives for that time period.

Budgeting is done at unit level where all inputs that are required to execute the delegated activities must be accurately determined and costed from zero. These input costs (budget items) will include:

- Personnel expenditure such as salaries, allowances, bonuses and gratuities.
- Administrative expenses such as subsistence and travel, transport, membership fees and registration, study expenses and communications.
- Stores including ammunition and explosives, spares and components for normal maintenance, construction and building material, office supplies, fuel and clothing amongst many others.
- Equipment such as vehicles, weapons, machinery and furniture.
- Rental of land and buildings.
- Professional and specialist services such as consultation, outsourced services and research and development.

## SUMMARY OF THE DEFENCE PLANNING, PROGRAMMING AND BUDGETING PROCESS

It should be clear that the defence planning, programming and budgeting process is an iterative process involving negotiation between all levels of defence management. Planning is largely top-down based on an analysis of requirements and environmental factors as well as an estimate of available resources. As it goes down in the organisation, through performance agreements between superiors and their subordinates, more and more accurate costing is done until, at unit level, accurate zero base budgeting can be done. These unit level budgets, in turn, are added from bottom-up to constitute the total defence budget. This obviously entails many iterations to “make ends meet resources”.

A typical annual budget cycle is shown in table 2.

Ongoing	Strategic planning and development of the defence plan. (Negotiations between Minister of Defence on behalf on Government and the Head of Department as supported by strategic planners.)
Month 1	Development of defence programmes. (Negotiations between the Head of Department and Programme Managers and the drawing up of draft top-level performance agreements as well as direct client-supplier negotiations between programme managers for the determination of service agreements.)
Month 2 to 4	Preparation of Business Plans. (Development of draft lower-level performance and service agreements through negotiation and the full costing from zero of all activities.)
Month 5	Submission of draft business plans to Programme Managers for checking, evaluation and consolidation into a single budget per programme. Necessary amendments negotiated and agreed.
Month 6 and 7	Consolidated budgets per programme submitted to departmental budgeting committee (chaired by departmental Accounting Officer/Head of Department) for evaluation, approval and consolidation of a single Departmental Budget. Necessary amendments identified, negotiated and agreed.  On completion budget, signed by Minister and Head of Department, submitted to Department of Finance.

Table 2

Month 8	Medium Term Expenditure Committee of Government evaluates departmental budgets against Government guidelines, priorities and available funds. Required amendments are identified against governmental priorities.
Month 9	Department of Finance provides final guidelines on expected allocation to the Department of Defence. Department of Defence amends plan, programmes and budget and prepares submission of the defence budget vote for the Minister of Defence to Parliament. Performance- and service agreements finalised.
Month 10	Minister of Finance submits national budget to Parliament. Parliament approves budget.
Ongoing	Expenditure according to budget and regular expenditure control exercised by Head of Department.

Table 2 (continued)

## EFFICIENCY, TRANSPARENCY AND ACCOUNTABILITY IN DEFENCE RESOURCE MANAGEMENT

All the processes discussed in this chapter have as foundation the need for efficiency, transparency and accountability in defence resource allocation and management. It is to achieve this that the importance of an inclusive defence planning, programming and budgeting process is put forward. To the same end, the process of performance and service agreements is stressed. Some further important guidelines for the achievement of efficiency, transparency and accountability in defence resource allocation and management are briefly discussed in the succeeding paragraphs.

### EFFICIENCY

Sustainability. If the defence plan and programmes are not sustainable over time, this will lead to the non-maintainability and ineffectiveness of capabilities. Sustainability will only be achieved if Government commits itself to the approved defence plan, all planning is done on full life cycle costing and the defence budget is expended in the most efficient manner possible. Care must also be taken in planning to accurately evaluate the effect of currency fluctuations on the life cycle cost of capital equipment.

The Funding of Operations. It is not possible or desirable to budget for the execution of military operations other than routine operations that can be foreseen and accurately planned well ahead of time. Most military operations come at short notice and in the running financial year for which the budget had been developed and approved many months ago. Examples are peace support missions, major disaster relief missions and even limited war. It is submitted that trying to budget for the unforeseeable will result in a misappropriation of funds. The only way to handle this problem is by the existence of a central contingency fund managed by the Department of Finance. For large-scale contingencies, exceeding the capacity of such a contingency fund, Government will have to revise the total budget both regarding departmental allocations and income.

Tooth-to-Tail Ratios. All possible effort must be made to ensure the optimal tooth-to-tail ratio of the Defence Force and the department of Defence. All too often supporting structures are bloated at the cost of operational capabilities. Determination of the size and capacity of support structures can only be done once the Force Design has been determined. Modern business process re-engineering (BPR) techniques can assist in the solution of this problem but will only be effective if top-management is committed to this cause and ruthless in its application.

Direct Client/Supplier Relationships. In many defence forces certain structures exist through historic reasons only. The client (e.g. a Combat Service) is forced through organisational culture or other interests to make use of the services of such an organisation and not allowed to “shop for this service” elsewhere. This is bad practise and entrenches inefficiency. Accordingly clients for services should be allowed freedom of choice and to establish direct client/supplier relationships.

Other potential solutions for the improvement of efficiency are indicated in table 3 at Appendix B and include outsourcing and public-private partnerships, improved “jointery” between services, improved management information through the use of better information technology, use of reserves, the better use of civilians in defence departments and improved management and leadership through education, training and development. Of these the improvement of management information through the use of better information technology might be the most crucial aspect to the improvement of efficiency in defence organisations.

## TRANSPARENCY AND ACCOUNTABILITY

Transparency and accountability are crucial issues in the allocation and management of defence resources for all levels of planning, programming and budgeting. If defence resources allocation and management are not transparent, defence will never be able to achieve public support or the co-operation and support of broader government. If not accountable to government and the people, defence becomes a cause onto its own and will not be aligned with national interests and priorities. It will easily be corrupted and decision-making will be easily manipulated towards self-interests. Civil involvement and control of overall budget decisions, as well as careful auditing at all levels, can help ensure that resources are actually used to accomplish policy objectives. Nevertheless, the most effective solution to this problem is a commitment at all levels to national interests and objectives and the development of clear and transparent planning, programming and budgetary processes and systems to implement them. These processes must of necessity be aligned with the national management framework.

Transparency and accountability are enhanced through the system of performance agreements as this relies on the definition of clear output objectives and performance standards and the agreement as to the required resources. The system is also based on negotiation, ensuring better insight, understanding and co-operation.

## CONCLUSION

The planning, programming and budgeting process is the central feature of defence management for providing resources to the defence force to ensure “the defence and protection of the state, its territorial integrity and its people” in alignment with national security and defence policy. The process rests on the rationale that defence budgets should be the result of good short-, medium- and long-term plans that are based on open and clear defence and national security policy. All plans, programmes and budgets should be driven by clearly defined and agreed upon outputs.

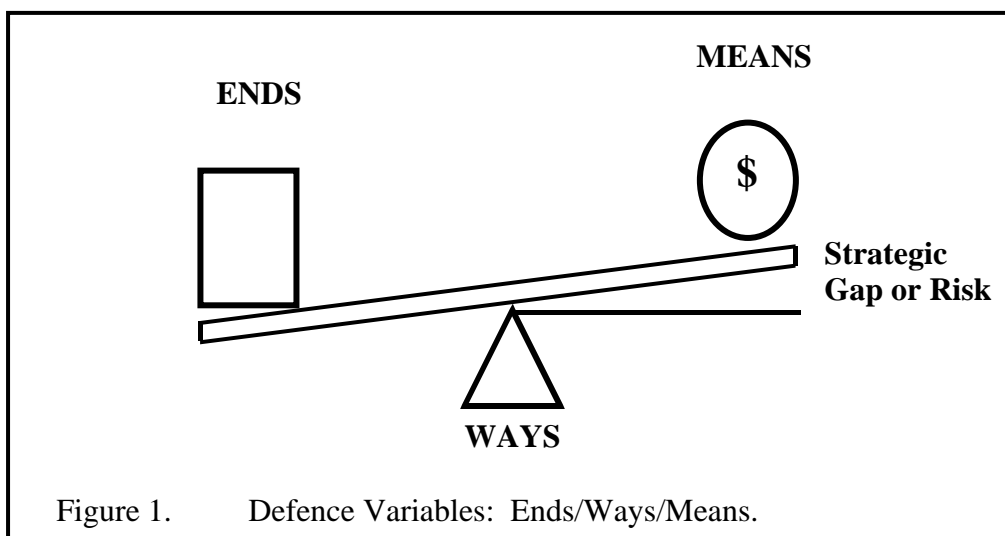
The defence planning, programming and budgeting process should clearly be aligned to and integrated with the national public expenditure management process and therefore the principles applied to defence management should not differ markedly from those applicable to other activities of government.

The quality of these processes is crucial for ensuring the national defence and security whilst not making the opportunity cost of defence too high in terms of other social and developmental priorities. Inefficiency and imprudent use of scarce resources will undermine security and the broader national interest.

In the final instance, defence planning, programming and budgeting must be based on modern management practises, principles and procedures and on accurate research, analysis and strategic assumptions. It must have a long-term focus and be the product of an inclusive process. It must be innovative and ensure permanent efficiency improvements in order to make defence affordable. Whilst the nature of planning, programming and budgeting systems may vary widely internationally, the basic processes, techniques and principles put forward in this paper should assist in ensuring the effectiveness and efficiency of defence as well as greater transparency and accountability in defence resources allocation and management.

## STRATEGIC DEFENCE PLANNING

Too often the defence debate is dominated by short-term views on security, based on snapshot views of the world, and the cost of defence. The argument is “there is no threat, so why spend?” As has already been stated, strategic situations change rapidly whilst the building of defence capabilities and expertise takes time. All strategic defence planning must therefore take the long-term view. To do so it is necessary to understand the major variables in defence planning. These are the ends, ways and means of defence. Government and defence planners share the responsibilities for the determination of these ends, ways and means. Figure 1 presents these variables schematically.



This scale indicates that what Government requires from defence (Ends), taking into consideration the approved defence posture (Ways), must be balanced by defence capabilities (Means) and that this requires a determined amount of resources. The scale can be brought into balance by either reducing ends, adapting the defence posture (moving the pivot left or right) or by increasing means and thus resources. If there is an imbalance or inconsistency between ends, ways and means this will result in a strategic gap between what needs to be done and what can be done. This strategic gap must be managed as a risk by Government. These ends, ways and means are discussed in brief in the succeeding paragraphs.

Ends of Defence. Defence Ends are the required defence outputs in support of Government’s goals and objectives that include peace, security, stability and public safety. The primary responsibility for determining the ends of defence rests with Government (Parliament and Cabinet).

Examples of defence outputs (ends) are:

- Provision of deterrence through the existence of mission ready forces.
- Meeting international obligations such as search-and-rescue and disaster relief.
- Participation in peace missions.

- Peace-time border control and protection against non-military threats.
- Support to the Police.
- Support to Civil Authority.

Ways of Defence. The ways of defence are military strategic and operational concepts and are influenced by Government's national security and foreign policy as well as Government's strategic defence posture. The responsibility for determining the ways of defence is a dual Government/Military responsibility with the Military primarily responsible for expert advice to Government.

Examples of strategic and operational defence concepts (ways) are:

- Non-offensive defence or forward mobile defence concepts.
- A strategic defensive or offensive posture.
- Defence through regional defence co-operation and alliances or self-defence.

Means of Defence. The means of defence are essentially the operational capabilities of the defence force. This is expressed in the Force Design of the force. The determination of the defence means (Force Design) is primarily the responsibility of the defence planners in alignment with the ends and ways as prescribed by policy.

Examples of force design elements (means) are:

- Infantry units.
- Armour units.
- Artillery units.
- Naval surface combatants.
- Naval sub-surface combatants.
- Air Force fighter squadrons.
- Air Force transport squadrons.
- Air Force helicopter squadrons.
- Operational medical units.
- Military Attaches.

These defence means (Force Design) are the real cost drivers of defence. The creation, maintenance and development of these capabilities are the primary consumers of defence resources.

## SUMMARY

In strategic defence planning, these factors namely the ends, ways and means of defence are the principal factors for negotiation between Government and the Department of Defence. The selections made by Government will ultimately determine the cost of defence and therefore the long-term resource allocation to be provided to defence through the national medium-term expenditure framework (MTEF). No meaningful lower order planning, programming and budgeting can be done without this strategic guidance. These choices and decisions constitute the basis for the performance agreement between Government and the Department of Defence.

## **A PRACTICAL MODEL FOR THE DETERMINATION OF OPTIMAL DEFENCE CAPABILITIES**

The determination of optimal<sup>(1)</sup> defence capabilities to be developed and maintained as well as the associated readiness states is the major challenge to the defence planner. This is so because it is premised on an uncertain future, is severely constrained by the availability of resources, will always be contested by sectional interests within the defence establishment and is extremely difficult to motivate to a populace concerned with more immediate social and personal security issues. Furthermore the potential consequences of being wrong are enormous in their implications for the future security and well-being of the state.

The development and maintenance of defence capabilities are also the main cost-drivers of defence. The solution of the defence capabilities equation, therefore, requires the major effort in the defence planning process. It is also the prime area of debate between the defence planner and political decision makers. Political decision makers cannot be expected to simply decide on the ends and ways of defence without major inputs regarding the implications of their decisions especially the implications for the security of the state and the financial implications.

This poses the challenge to the defence planner to find a rationale for the determination of the requirement for defence capabilities that will elicit the understanding and support of political decision makers and civil society. Obviously such a rationale must be based on the need for efficiency in defence expenditure.

### **DEFENCE VALUE**

If it is accepted that the primary object of the defence force is to defend and protect the state, its territorial integrity and its people through the provision of contingency ready military forces and that this is to be done within given financial restrictions then, as already stated, the most efficient solution must be sought. Efficiency implies the most optimal output for any given input or simply put the best value for money. This raises the question of how to determine defence value. As defence is concerned with possible future events or threats (defence contingencies), each of which carries an implied risk to the state, defence value should be equated to risk reduction. Each defence contingency carries with it an associated risk. If, therefore, the relative risk value of such contingencies can be determined, this will allow for the development of a system of determining relative defence value.

**Defence Value is proportional to Risk Reduction**

(1). The word optimal in this context is intended to mean the greatest defence output for any given input or simply put the best defence value for money.

### **DEFENCE CONTINGENCIES**

The first step in this process is the determination of defence contingencies. This entails describing in some detail the possible future events that the defence force might have to counter. In this process there are no limits and the more contingencies accurately described the better. This list should not be restricted to probability, as that is the next step, but to as many possible defence contingencies as can be imagined. Examples are:

- Invasion of the national territory by a foreign power.
- Punitive military action against the state.
- Coercive military action against the state.
- Disruption of national sea lines of communication and trade.
- Military naval, air and land blockades.
- Border violations and trans-border crime.
- Natural and other disasters beyond the scope of civil society.
- Peace missions in alignment with international and regional obligations.

## RISK

Defence is mostly concerned with possible future events (defence contingencies) and the preparation for successfully countering them when they occur. For each such contingency a statistical probability of occurrence can be determined as well as the potential impact that the occurrence of such contingency might have on the country. Obviously contingencies of high probability and major impact carry more risk to the state than contingencies of low probability and minor impact. It can therefore be stated that risk is a function of probability and impact. High-risk contingencies have high probability of occurrence and the potential for grave impact and vice-versa. Risk is therefore proportional to the probability of occurrence and potential impact.

**Risk is proportional to Probability and Impact**

The Determination of Probability. The determination of probability is the most difficult exercise in defence planning, as it is the most subjective and somewhat akin to crystal ball gazing. It cannot be an exact science as it deals with an uncertain and ever-changing future. However, without applying the mind to this factor it is extremely difficult to plan for the future and to determine priorities for defence capabilities to be maintained and developed. This Appendix does not provide an exact formula for determining probability, but gives guidance regarding some factors to be considered. In “real life” the determination of the probability of occurrence of a contingency rests mostly with the intelligence community consisting of national

intelligence, foreign affairs and military intelligence and strategists. Pointers to the determination of probability are:

- Evaluate the historic (both international and national) frequency of occurrence over a very long period.
- Use a wide spread of probability over a range nearer 0,001 to 1 than 0,1 to 1. This ensures greater discrimination in the calculation of probability. As an example the probability of an invasion could be nearer 0,001 than 0,1.
- Absolute probability is nearly impossible to calculate. It is therefore recommended the effort should concentrate on the determination of relative probability between the likelihood of the occurrence of contingencies. The involvement of politicians, academics and civil society organisations in this exercise will greatly enhance the quality of the product.

The Determination of Impact. The determination of impact is less subjective than that of probability. Nonetheless this is not an easy exercise and the involvement of civil society and academics in particular in this endeavour is once again strongly recommended. The potential impact of a contingency, that cannot be successfully countered, can be calculated using the following parameters:

- The potential loss of life.
- The potential loss of infrastructure.
- The potential loss of economic production and trade.
- The relative loss of sovereignty.
- The relative loss of national image and prestige.
- The relative loss of international confidence.
- The effect on national morale.

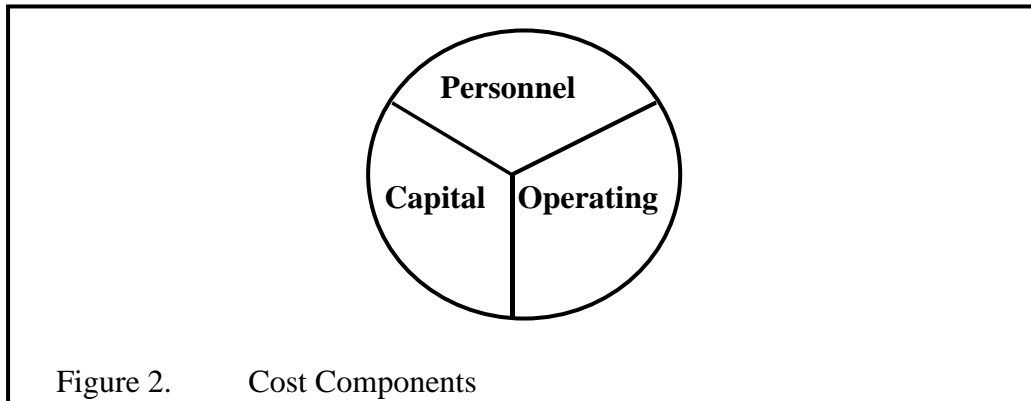
Once the list of contingencies and their relative risk value (probability and impact) have been determined, the value part of the “value for money” formula has been established. What now remains to be done is to calculate the cost of dealing with these potential contingencies. This, once again, is a complex exercise.

## CONCEPTS OF OPERATIONS AND FORCE DESIGN

For each of the defined contingencies the best operational concept to counter such an eventuality and the corresponding required capabilities (mini-force design) must be determined. War-gaming or simulation processes are the best tools for doing this. Once this has been done each mini-force design must be accurately costed. This is a major exercise that requires the full and honest participation of the combat services and units down to ground level as well as of financial experts. If this is not accurately done the basis for decision-making is seriously undermined.

## COSTING

Each element of the mini-force design must be fully costed over its life cycle to be able to determine cost/benefit ratios for optimisation. This cost consists of annual personnel cost, annual operating cost and annualised capital cost as shown in figure 2.



Annual personnel cost is the full cost of all personnel related expenses such salaries, allowances, bonuses, gratuities etc. Annual operating cost is the full cost for the normal day-to-day running of the unit. This includes administrative expenses, transport, subsistence and travel, provisioning, day-to-day maintenance, fuel and professional and specialist services amongst others. Annualised capital cost is calculated by adding the full acquisition cost and the mid-life upgrade cost of capital equipment and dividing it through the expected operational life of such equipment. This shows the effect that the inclusion of such equipment in the force design will have on the annual budget.

The emphasis on full life cycle cost is to ensure sustainability of the end result. If this is not done, it will lead to decisions being taken that will prove to be unaffordable in the future. This is the cause of many militaries in the third world having large inventories of unserviceable, unsupported and unusable equipment.

## OPTIMISING

Once the list of contingencies, defence value calculations (relative risk reduction values) and the cost of the elements of the force design are available, calculations of best value for money can be done. This would probably provide the best results if computer support is used. The process for determining optimised force designs is repeated below:

- Step 1. Determine the list of possible defence contingencies.
- Step 2. Determine defence value (risk reduction) per contingency through probability and impact calculations.
- Step 3. Determine best operational concepts and the associated required mini-Force Design per contingency.
- Step 4. Determine full sustainable cost per mini-Force Design.

Step 5. Draw up a table/graph of all contingencies indicating the defence value and associated cost for each.

Step 6. Evaluate and engage with decision makers.

It must be emphasised that this process will not provide precise scientifically accurate answers, but it will provide insight into the defence planning problem and a good basis for discussion with decision makers. It removes the subjectivity of arguments by the individual combat services for prioritising their requirements. It provides a menu for decision-making where the services that can be ordered are shown against cost and from which the implications of decisions can be seen. It is also emphasised that the more inclusive the participation in this process (political decision makers, other government departments, academics and civil society organisations together with defence experts) the better and more credible the results will be.

#### FORCE DESIGN AND SUPPORTIVE PLANNING

This process must lead to and culminate in the approval by Government of the Force Design of the Armed Forces. This also implies a clear commitment by Government to fund the Defence Department for the development, preparation and maintenance of such a force. Without this, no meaningful long-term planning or medium-term programming and budgeting can be done. The force design, together with the required support structures (which will be discussed later), will form the basis for the development of other long-term plans such as the Capital Acquisition Plan, the Facilities or Infrastructure Plan and the Personnel Plan. These plans are long term plans providing for the acquisition of weapon systems, facilities and personnel and the development, preparation, maintenance and eventual disposal of such assets. All these plans should have a long-term horizon commensurate with the life cycles of these assets.

There are of course many practical challenges to this planning process. The most prominent ones are listed in table 3.

Challenge	Potential solution
<p><u>Accurate Costing Data</u></p> <p>The answers obtained would only be accurate if based on reliable costing data for each capability area for all personnel, operating and life cycle capital costs.</p>	<p>This is a complex and large task and requires on-going improvement and updating. The use of auditors within the DOD and from outside, will enhance the accuracy of answers. The ultimate solution requires modern information technology systems.</p>
<p><u>Tooth-to-Tail Ratios</u></p> <p>This logic provides a model for the optimisation of the “sharp-end” or “teeth” of the force. It does not address the support structures or “tail” of the organization.</p>	<p>Determination of support structures can only be done once the Force Design has been determined. Modern business process re-engineering (BPR) techniques can assist in the solution of this problem.</p>
<p><u>Service vs. Corporate Interests</u></p> <p>One of the main challenges to the determination of real defence requirements remains the so-called “inter-service rivalry”. This leads to trade-offs and sub-optimal solutions.</p>	<p>This challenge requires dynamic leadership at the Head of Department level and the use of professional staff in the Joint Planning and Operations Divisions. The use of modelling, simulation and war-gaming will also help to alleviate this problem.</p>
<p><u>Efficiency Improvements</u></p> <p>Money spent on defence must be spent in the most efficient and economical way possible. This means that innovative solutions must be found to reduce the cost of defence.</p>	<p>Some potential solutions for the improvement of efficiency are:</p> <ul style="list-style-type: none"> <li>• Outsourcing and public-private partnerships.</li> <li>• Improved “Jointery” between Services.</li> <li>• Improved management information through the use of better information technology.</li> <li>• Use of reserves.</li> <li>• Better use of civilians in defence departments.</li> <li>• Improved management and leadership through education, training and development.</li> </ul>

Table 3