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TNO report

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Analysing operational effects

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Het analyseren van operationele effecten

Probleemstelling

In de huidige missies worden militairen geconfronteerd met de zogenaamde 'three block war', waarin tegelijkertijd wordt opgetreden in een breed spectrum: als strijdkracht, als vredesmacht, en als humanitaire hulptroepen. De missies zijn dus niet meer alleen 'kinetisch' van aard. Door deze verschuiving van het type missie is het effect van het optreden van een eenheid (wat wil men bereiken met het optreden), en ook de relatie tussen het eigen optreden en het effect minder duidelijk vast te stellen. Met name in het lagere deel van het gewelds-spectrum (vredesondersteuning en humanitaire hulp) is het te bereiken effect minder vanzelfsprekend vast te stellen en te meten. Wat is bijvoorbeeld de definitie van 'veiligheid'? Wat zijn de indicatoren die bepalen of een omgeving veilig is? Hoe valt te meten of de omgeving veilig is, en hoe valt te meten of het eigen optreden daaraan heeft bijgedragen?

Beschrijving van de werkzaamheden

Juist omdat de effecten in de huidige missies niet altijd makkelijk te definiëren en te meten zijn, is er behoefte aan handvatten om te kunnen bepalen of, en hoe het eigen optreden bijdraagt aan het gewenste effect. Om deze handvatten te kunnen bieden, is een stappenplan opgesteld dat de analist kan ondersteunen in het bepalen van de operationele effectiviteit van eenheden. Dit stappenplan helpt de analist in het beantwoorden van de vragen:

- Welk(e) effect(en) wil men bereiken in de omgeving?
- Welke taken en/of acties worden uitgevoerd om deze effecten te bereiken?
- Hoe wordt gemeten of de gewenste effecten daadwerkelijk bereikt zijn?
- Hoe wordt gemeten of, en hoe het eigen optreden heeft bijgedragen aan het bereikte effect?

Vervolgens is een case uitgewerkt om de bruikbaarheid van het stappenplan te toetsen en te demonstreren aan de hand van een realistisch scenario. Tevens zijn de ervaringen beschreven die inmiddels zijn opgedaan met het gebruik van het stappenplan op stafniveau in het inzetgebied (Task Force Uruzgan). Ook is aandacht besteed aan de manier waarop het 'denken in effecten' (het centraal stellen van het gewenste effect) toegepast zou kunnen worden op de verschillende niveaus in de organisatie (van stafniveau tot het niveau van kleine eenheden).

Resultaten en conclusies

Ten eerste is een aantal begrippen helder omschreven (doelstelling, 'effectgebaseerd optreden', operationele effectiviteit) en gedefinieerd (effecten en taken). Ten tweede is door de stap-voor-stap beschrijving van het stappenplan, telkens aan de hand van een voorbeeld, het proces van de analyse van operationele effectiviteit van een eenheid inzichtelijk gemaakt. Het stappenplan beschrijft in feite een manier van denken: het methodisch 'denken in effecten'. Waar het om draait is dat het te bereiken effect centraal staat. De taken die worden uitgevoerd zijn dus geen doel op zich, maar een middel om een bepaald effect te bereiken. Dus niet: doen we de dingen goed, maar: doen we de goede dingen? Het voordeel van deze werkwijze is dat eerst het doel breed wordt geformuleerd en geanalyseerd, zonder direct aannames te doen over de wijze waarop het bereikt kan worden. Dit voorkomt dat bepaalde factoren over het hoofd gezien worden, en kan ook leiden tot oplossingen die niet direct voor de hand liggen maar wel het beste resultaat bieden.

Dit principe van 'denken in effecten' is van toepassing op alle niveaus van optreden. Alleen de invulling zal verschillen per niveau. Op het hogere stafniveau (bijvoorbeeld de TFU-staf) zullen alle stappen van het stappenplan 'exact' doorlopen kunnen worden, bijvoorbeeld tijdens het Operationeel BesluitvormingsProces (OBP). Op dit niveau kunnen niet alleen beslissingen worden genomen over welke effecten bereikt moeten worden, maar heeft men ook de beschikking over de middelen die daarvoor nodig zijn en kan er dus ook besloten worden over de taken die

uitgevoerd moeten worden om de gewenste effecten te bereiken. Op een lager niveau (bijvoorbeeld op het niveau van de kleine eenheid) zal de opdracht al veel gerichter zijn en specifieker omschreven, en zullen de middelen daaraan toebedeeld zijn. De exacte stappen uit het stappenplan zullen op dit niveau dus niet zo expliciet doorlopen worden, maar de manier van denken kan zeker ondersteuning bieden. Als men op het lagere niveau weet waarom een taak uitgevoerd moet worden (ten behoeve van welk effect) komt dit niet alleen het uitvoeren van een taak ten goede (bijvoorbeeld 'creatiever' gebruik maken van middelen en mogelijkheden), maar weet de (commandant van de) kleine eenheid ook beter waarop hij in de omgeving moet letten, kan hij eventueel aangeven van welke taken hij denkt dat deze zullen bijdragen aan het effect, et cetera.
In de praktijk zal altijd sprake zijn van meerdere effecten, meerdere indicatoren, en meerdere taken die worden uitgevoerd, die ook allemaal invloed uitoefenen op elkaar. Gecombineerd met het feit dat ook andere partijen actief zullen zijn in een gebied, de cultuur van een gebied van invloed is, de effecten niet altijd makkelijk meetbaar zijn, en acties ook onverwachte effecten kunnen hebben (zowel positief als negatief), vereist het vaststellen van de operationele effectiviteit een behoorlijke analytische capaciteit.

Toepasbaarheid

Het denken in effecten, en dus ook het plannen en sturen op basis van effecten, past zeer goed binnen het principe van de opdrachtgerichte commandovoering. Het sluit dus goed aan op een reeds bestaande, bekende vorm van commandovoering. De operationeel analist kan, met behulp van het stappenplan, de effecten en de effect-indicatoren concreet formuleren en centraal stellen. Ook ondersteunt het stappenplan in het meetbaar maken van de bereikte effecten, en de relatie tussen het eigen optreden en het bereikte effect.
Deze aanpak kan de effectiviteit van (kleine) eenheden concreet maken, en kan wellicht de commandant van een eenheid helpen bij de commando-voering in (nog) niet-gestandaardiseerde situaties.
Door het opgebouwde inzicht en het opgestelde stappenplan kunnen complexe missies beter worden geanalyseerd, en zijn medewerkers van TNO in staat om als reserve-officier de missies van de Nederlandse krijgsmacht (zoals die in Afghanistan) te velde te ondersteunen bij het meetbaar maken van de effectiviteit van het optreden.

PROGRAMMA	PROJECT
Programmabegeleider Ikol H.J.R. Oerlemans, OTCMan/GTS/IGOVG	Projectbegeleider maj X.A.R.M.J. Horbach, OTCMan/KCGM
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Summary

Problem statement
In the current missions the military are confronted with the so-called three block war, in which operations occur in a broad spectrum: as armed forces, as peacekeeping force and as humanitarian aid. The missions are not only kinetic in nature anymore.
This change in mission type makes the effect of unit operations (what does one want to achieve with the operations) and the relationship between the effect and own performed tasks less clear to determine. Especially in the lower part of the force spectrum (peacekeeping and humanitarian aid) the desired effect is less obvious, and more difficult to determine and measure. For instance, what is the definition of 'safety'? What are the factors that indicate that an area is 'safe'? How can be measured if an area is safe, en how can be measured if one's operations or tasks have contributed to that safety?

Project description
Precisely because the effects of the current missions are not easy to define and measure, there is a need for guidelines on how to determine if, and how own operations contribute to the desired effects. To offer these guidelines, a framework has been set up in order to support the analyst in determining the operational effectiveness of military units.
The framework helps the analyst in answering the following questions.
- What effects are meant to be achieved in the area of operation?
- Which tasks will be performed in order to achieve these effects?
- How can be measured if the desired effects are actually achieved?
- How can be measured if, and how the own operations have contributed to the achieved effect?

Besides the set up of the framework, a case has been worked out to test the usefulness of the framework in a realistic scenario. The experiences that have been gained with the use of the framework in practice, on staff level in theatre (Task Force Uruzgan), are also described. And finally, the level in the organisation (from staff level to the level of small units) on which this effects based thinking (in which the desired effect is the key issue) can be applied is discussed.

Results and conclusions
Firstly, a number of concepts is clearly described (e.g., goal, effects based approach, operational effectiveness) and defined (e.g., effects and tasks). Secondly, a step-by-step description of the framework (illustrated by an example) provided insight into the analytical process of determining a unit's operational effectiveness.
The framework basically describes a way of thinking; a methodical 'thinking in effects'. The key issue is the desired effect. The tasks that are performed are thus not a goal in itself, but a means to achieve that desired effect. So it's not about 'doing things right', but about 'doing the right things'. The advantage of this method is that the goal is broadly defined and analysed, without making in advance assumptions on *how* the goal can be achieved. This prevents certain factors being missed, and could lead to less obvious solutions that do prove to give the best results.
This 'thinking in effects principle' can be applied to all levels of operation, however the execution will differ per level. On the higher (staff) level (e.g. TFU staff), all the steps in the framework could exactly be went through, for instance as part of the operational decision making process. On this level one can not only make decisions on which effects have to be achieved, but one also has the necessary means at disposal, and the

authority to decide which tasks the units have to perform in order to achieve the desired effects. On a lower level (e.g. the small unit) an order will be formed much more specifically, with the means already assigned. The exact steps from the framework will therefore not be run through very explicitly, however, the way of thinking in effects can certainly provide support for the lower commander in the field. If this commander knows *why* a task has to be performed (as contributing to a certain effect) this will not only benefit the execution of the task (e.g., a more creative use of means and possibilities) but it will also benefit the commander's perceptivity of his surroundings (area of operation), and will enable him to indicate the type of tasks he thinks will contribute best to the desired effect.
In practice there will always be more than one desired effect, several indicators and several tasks that will be performed. And all of these factors influence each other. In combination with the fact that also other parties are active in the area of operation (non-governmental organisations for instance), the influence of culture, the fact that effects are not always easy (or possible) to measure, and that tasks could also have unintended and unexpected effects (positive and negative), makes the determining of operational effectiveness a complicated analytical process.

Applicability
Thinking in effects, and thus planning and monitoring based on effects, fits well within the concept of mission command. It thus connects to an already well-known, familiar way of command. The operational analyst can, supported by the framework, concretely formulate the effects and the effect indicators. The framework also supports in making the effects, and the relationship between the own operations and the achieved effects, measurable. This approach makes the operational effectiveness of small units explicit, and could possibly support the commander of a (small) unit in decision making and command in non-standardised situations.
The insight that has been gained in this project, and the framework that has been set up, enables a better analysis capacity in complex missions. It makes the effectiveness of operations measurable, and therefore enables the TNO analysts to better support the missions of the Royal Netherlands Army, as reserve officers, in theatre.

Contents

Abbreviations

ALOC	Air Liaison Officers Cell
ANP	Afghan National Police
AOR	Area of Responsibility
CCIRM	Commanders Critical Information Requirements Manager
CIMIC	Civil Military Co-operation
EBO	Effects Based Operations
ESB	Effects Steering Board
ETO	Effects Tasking Order
FRAGO	Fragmentation Order
FST	Field Support Team
GOP	Guideline for Operational Planning
HUMINT	Human Intelligence
ICP	Intelligence Collection Plan
IED	Improvised Explosive Device
IO	Information Operations
ISAF	International Security Assistance Force
ITO	Intelligence Tasking Order
LOO	Lines of Operation
MoE	Measures of Effectiveness
MoP	Measures of Performance
NGO	Non-Governmental Organisation
OA	Operational Analysis
OBP	Operationeel BesluitvormingsProces (Operational Decision Making Process)
OKE	Optreden Kleine Eenheden
OMF	Opposing Militant Forces
OPLAN	Operational Plan
OPP	Operational Planning Process
PMESII	Politics, Military, Economics, Social, Information and Infrastructure
POLAD	Political Advisor
PRT	Provincial Reconstruction Team
Psyops	Psychological Operations
RC(S)	Regional Command (South)
RoE	Rules of Engagement
SUA	Smallest Unit of Action
TAA	Target Audience Analyst
TFU	Task Force Uruzgan
TIC	Team Intell Cel
TPT	Tactical Psyops Team

1 Introduction

In November 2005, the project Describing Effects of Small Unit Operations [1] was completed within the scope of the TNO research programme Small Unit Operations ('Optreden Kleine Eenheden, OKE'). In that project, an analysis was performed on the relationship between the commander's intent, the performed tasks and the achieved effects of small unit operations. A framework was developed to describe the process of determining the tasks that are applicable for the realisation of the commander's intent, the results of the task performance and the final effect. The framework was developed to determine the operational effectiveness of small unit operations (for both peace and combat operations).
In the current project, the framework is further developed and improved. The new framework, described by an example case, can be used as 'guideline' for the operational analyst to determine tasks and measure effectiveness of the operation. The experiences of operational analysts with using the framework in theatre (Task Force Uruzgan) are described, and also based on these experiences the question is addressed to what level the effects based operations approach can be pursued.

1.1 Intent

Every mission has specific goals that the operational commander has to achieve in that mission. The commander states these goals, and sub-goals, and in this way formulates the intended effect(s) he wants to achieve within the mission. He also sets out the tasks to be performed to reach the intended effect(s). The commanders intent is stated as 'the following tasks will be performed [e.g. set up a vehicle check-point] in order to reach the following goal [e.g. ensure safety around own compound]'. In principle, each commander (starting from squad leader) knows the intent of the commander of two levels higher.
Originating from a history of combat operations, the effects or goals that were stated up to now were mainly kinetic and aimed at either terrain or enemy. The focus was on the outcome of tasks: the number of eliminated enemy combatants, destroyed strategic landmarks (e.g. bridges, buildings), disabling enemy freedom of action (e.g. destroy weapon depots), having control over a certain area, etcetera. Although these tasks still exist today, the shift towards peacekeeping operations has brought a new focus.
'New' effects include not only kinetic, but also other types of objectives: providing a safe and secure environment, supporting local economy, etcetera. The phenomenon that an operation has to deal with different types of objectives is also known as the 'three block war', in which soldiers may be required to conduct full scale military action, but also peacekeeping operations and humanitarian relief (see also [3]).

1.2 Effects based approach

In this context, a term used often is 'Effects Based Operations' (EBO). Opinions differ on the definition of EBO, and one univocal definition does not seem to exist. To avoid confusion, we will not go into this further, and we will avoid the use of the term EBO in this report. However, the essence of the effects based approach is that the desired effect of the mission plays the central role. This means that performing a task is not a goal in itself, but a means to obtain an effect. It is about the effect the commander wants to achieve, and the tasks that can be performed best to achieve that effect (and not about the outcome of those tasks). For this, it has to be determined which tasks contribute the

most to the desired effect. In other words, it revolves around 'doing the right things' more than 'doing things right'.

1.3 Operational effectiveness

In an effects based approach, the focus is on operational effectiveness: the degree to which an intended effect is actually achieved. For this, the commander has to determine which tasks have to be performed to achieve the desired effect. This appears to be difficult, since we do not exactly know the relations between tasks and effects, or how different tasks contribute to a specific effect. Especially in peacekeeping operations these relations are not always straight. For instance what is the relation between 'patrolling' (task) and 'the safety and stability of the environment' (intent).
But eventually, the commander has to be able to determine whether it is better to set up vehicle check points, collect weapons or go on patrol, given a certain situation.
Also, the operational effectiveness has to be measured: has there been a change in the environment, and is the intended effect achieved. How to measure this can also be difficult. For instance, how do you measure if an area has become 'safer'?

1.4 The current report

This report focuses on this process of determining operational effectiveness.
A framework for the analysis of operational effectiveness is set up and described in Chapter 2. In Chapter 3 a case study is worked out, to test the usefulness of the framework in a realistic scenario. Also, the experiences with using the framework in theatre (Task Force Uruzgan 1) are described, in Chapter 4. In Chapter 5 it is discussed to what level this effect based approach can be worked by. And finally, Chapter 6 provides general conclusions and in the Appendix an overview is provided on the measures that were, or can be used to determine operational effectiveness.

2 Analysis framework

The framework that was developed in [1] is worked out and improved further in this chapter, and is described as a step-by-step analysis tool. The steps are explained more explicitly by means of an example case, which is not necessarily a realistic case but serves to be a clear and practical explanation of the (theoretical) steps in the framework.

2.1 Effects and tasks

A *change in the situation* is called an *effect*. This is true for both intended effects and achieved effects. Stating the intended effect is like stating the desired end state.
The intended effect can be formulated as: 'if we can change [this situation] in [such a way], then we consider this mission to be a success'.
An action that can be *performed by an actor* is called a *task*. Performing a task is aimed at attaining a change in the situation (an effect). For instance, collecting weapons (task) could result in a decrease in the number of weapons in the area (effect).
We have to realize that effects are not always and solely achieved by tasks and actions we perform. They can also be achieved by actions that other parties perform, by coincidence, by external factors (e.g. climate) or by a combination of these.
Also, achieved effects are not necessarily positive effects. Performed tasks could also, expected or unexpected, turn out to have negative (side) effects.

It appears that in practice, the distinction between tasks and effects is not always clear, and the concepts get mixed up. Discussion is easily evoked on the boundaries between these two concepts: when is something called an effect, and when do we call it a task. In theory, an effect is formulated as 'to have accomplished a change in the situation', and a task is formulated as 'to perform an action'. In practice however, the difference is not always clear. An example of this is the following: an intended effect could be stated as 'to improve the drinking-water supply'. Tasks that could be performed to achieve this effect could be 'to make a well', or 'to distribute bottles of drinking-water'. In this way, the distinction between the effect and the task(s) is rather clear. However, one could also state the intent as 'to have a well' (which is a change in the situation), and a task that could be performed to achieve this is 'to make a well'. And then the boundaries become blurred and it could be easily discussed what should be called an effect and what should be called a task.
In general, it seems that the more specific an effect is formulated, the more difficult it is to discriminate between effect and task. In the discussion on this distinction between tasks and effects, it could help to state effects on several levels: 'to have a well' could be seen as an effect on a lower level, and the effect 'to improve the drinking-water supply' an effect on a higher level. Or analysts could agree to only call something an effect when it can be reached in several ways. This would mean that 'to have a well' will not be called an effect (because it can only be reached in one way, namely making a well), and 'to improve drinking-water supply' is called an effect, as it can be reached in several ways.

2.2 The framework

In Figure 1, the new framework is depicted. The step-by-step analysis consists of two main parts: definition and measurement. In these parts six steps are defined:

Intended effect (1), Task (2), Task execution (3), Executed task (4), Achieved effect (5) and Analysis & Advice (6). In the following sections, the different steps will be explained and illustrated with an example case (depicted in a coloured box).

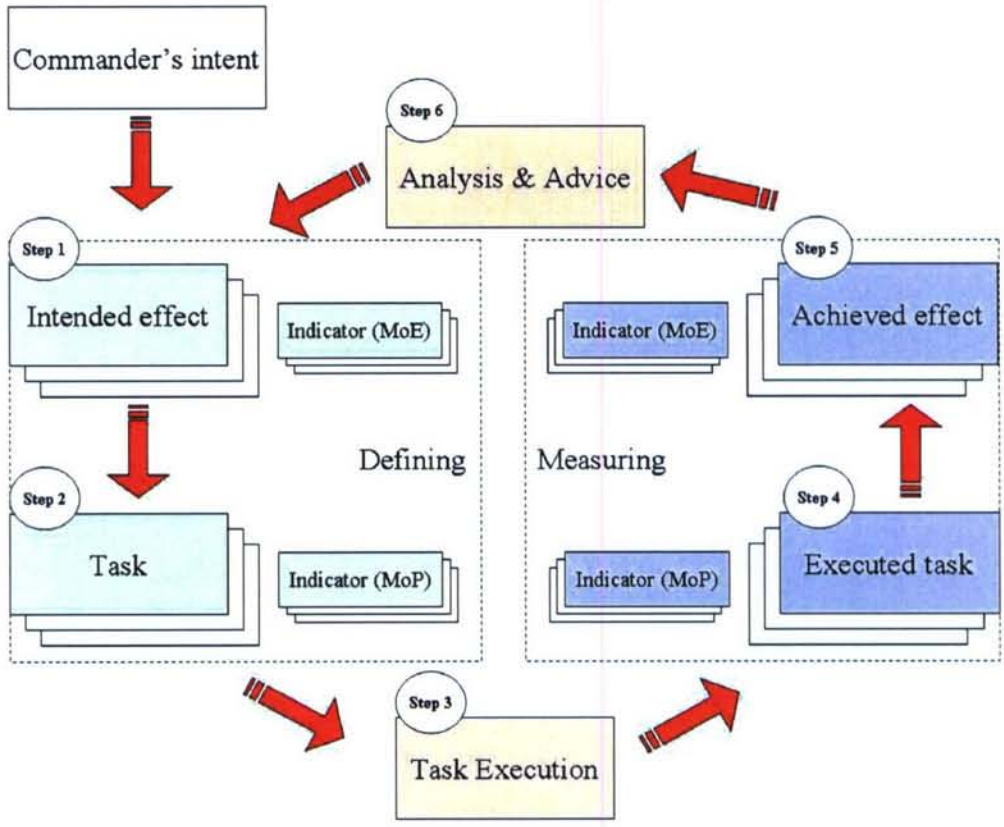


Figure 1 The framework.

Step 1: Defining the intended effect

Although not explicitly depicted in the framework, the intended effect is formulated by making three sub steps: deduce the intended effect from the commander's intent, define the indicators of the intended effect, and define the threshold of those indicators.
The intended effect (step 1.1) will be based on the commander's intent of a higher level. This commander's intent is always provided for two levels higher than your own.
So based on these two commander's intents, you will form your own intent and state your intended effect (what do you want to achieve with your operations). Then you have to define the indicators of the intended effect, which basically describe the factors on which you will decide if you have reached the effect (step 1.2). And finally, you have to set thresholds for those indicators, as a 'decision point' (when do you consider the effect to be reached) (step 1.3.). These sub steps will be further explained in the sections below.

1.1 Define the commander's intent
In the Army Field Manual I – 'Command & Control' ('Leidraad Commandovoering', see also [6]) the commander's intent is defined as the effect that the commander wants to achieve with the operation. Your own intent and intended effects are deducted from this commander's intent. The commander's intent is often formulated on an abstract level. Also, frequently (mainly in larger missions) several intents are formulated for one mission. These different intents can also influence each other.

Example

The mission ISAF-4 (see ref.2) is chosen for our example case. The ISAF4-commander had the following intents:
Create a safe and stable environment;

- Re-establishment of the Afghan authority;
- Improvement of the capacities of the Afghan police force and army;
- Operating from Kabul International Airport (KIA) and providing an Air Liaison Officers Cell (ALOC);
- Creating safety and security for own troops and improving the situational awareness.

For our example case we will use the first intent, 'create a safe and stable environment', or more correctly formulated *'to have achieved a safe and stable environment'*. We will only use one

As can be seen from the example it is difficult to use the correct formulations and definitions (see Paragraph 2.1). The intents formulated in the ISAF-4 example are stated more as tasks ('what are we going to do') than as goals ('what effects do we want to achieve'). The first intent for instance should better be stated as 'to have reached a safe and stable environment', the second intent as 'to have an established and functioning Afghan authority', etcetera. What is also striking is that the ISAF-4 intents are very diverse in their level of detail (compare for instance 'create a safe and stable environment' to 'providing an ALOC'). When analysing operational effectiveness, one should use the correct formulations and definitions, and also take notice of the levels that different intents are referring to.

1.2. Define the indicators of the intended effect

The commander's intent is usually described on an abstract level. To be able to determine whether the intent is reached it is necessary to express the intent, but especially the derived intended effect(s), in concrete terms (state your own intended effect). For this purpose, quantifiable and/or qualifiable factors should be determined that characterize relevant changes in the environment. In other words, what defines if the effect is reached, and based on what factors can this be measured? These factors are called *Measures of Effectiveness (MoE).*

Somebody has to determine these indicators (the MoE's), which is done in practice mainly on the higher levels. The indicators can be used by the lower levels, who can also refine or add indicators according to the situation locally. In the Appendix, an overview is given on several MoE's that are being used in specific missions. These lists are never exhaustive, and certainly do not imply that commanders should not spend time on defining 'new' MoE's and/or refining 'old' MoE's. After determining a list of possible MoE's for the particular mission, it is essential to select the ones that are measurable. If a MoE is not practically measurable (neither quantitatively nor qualitatively) it should not be chosen as MoE. Determining the MoE's can be difficult. An aid to define or select MoE's could be to reverse the intended effect. Ask the question why the intended effect is, at this moment, *not* reached. Maybe this leads to new insights on the indicators that play a role in reaching the intended effect.

Example

Some examples of MoE's can be the number of women on the streets, or the market activity. If we reverse the intent (create a safe and stable environment), we can ask ourselves 'what makes the environment at this moment *un*safe and *un*stable?' It could be that there are too many shootings on the street. This can lead to parents keeping their children inside their houses. The number of children on the streets will then be very small. If the environment would be safer, there will probably be more children on the streets. So the number of children on the streets is an indicator for the safety and stability of the environment. It is also a quantifiable factor, and in this example we assume that it can be measured. Therefore, in our case-study we will choose the MoE to be *'the number of children on the streets'*.
We realize that in reality there are several MoE's that determine the intent. However, to make the case-study as clear as possible we will choose one MoE.

The selected MoE's will differ between operations, although the general 'themes' of the MoE's are often quite common. MoE's must always be mission specific and in addition should be [4]:

• Mission Related • Meaningful • Measurable • Sensitive to changes • Culturally and Locally Relevant	Essential
• Comprehensive (cover all LOO[1]) • Timely • Cost/Time Effective (in terms of manpower)	Highly desirable

Restrictions of selecting MoE's are limited resources and limited availability of reliable data sources. After some time of data collection more useful metrics can be determined and reselected for further analysis. MoE's can be pursued throughout the whole operation but it is also possible that a MoE comes into force during a phase of the operation.
The reason for adding or removing MoE's can be analytical reasons (e.g. time expired, data becomes (un)available) or changes in the process (e.g. level of force is reduced, different knowledge/experience or scientific inclination of new operational analysts team leader) have taken place (see [4]).

[1] LOO = Lines of Operation (more on Lines of Operation in Paragraph 4.2.1).

The number of (playing) children in the streets can be an indication of safety.
Source: NL Ministry of Defence.

1.3. Define the indicator threshold

When the MoE is chosen it should be determined when the conditions of that measure are reached. In other words, we set the level, a threshold, for the MoE. This is called the *desired effect* (what do you want it to be: in Figure 1, the level of the 'indicators').

A desired effect could be stated in absolute amounts, in a percentage, or just as an increase or decrease as opposed to the situation at this moment. Two concepts that could help to determine the desired effect are normality and the baseline. *Normality* indicates the state of the MoE in a 'normal' situation: so for instance before a war started, or the situation in a comparable environment (same geographical, political, economical characteristics). This could be for instance based on historical data.
The *baseline* indicates the state of the MoE in the situation in which you started, so before tasks are executed. Both concepts could give a feel for the situation, and could help to determine the desired effect. The baseline and normality could for instance function as margins of a range in which the desired effect could be placed: the higher the 'ambition', the closer the desired effect is stated towards normality.
Information on factors such as terrain, enemy, and local population, is gathered during the mission by the intelligence section. It is very important that this information is also collected before the start of the mission, so that it can be used to define the normality and baseline.

Example

The desired effect is basically the threshold that has to be set for the indicators (MoE's): how many children do we have to see on the streets before we would label the environment as safe and stable? With 25 children, an increase of 10%, or is just an increase enough?

We could use *normality* to help us answer that question: what is supposed to be 'normal'? We could determine, or estimate, the number of children on the streets in a comparable situation. So, how was the situation before the war or what is the situation in a comparable environment (comparable village size, political situation, economic factors, etcetera)? In our case-study we assume that a normality 'analysis' has been performed, that resulted in a count of 50 children on the streets in a 'normal' situation in a particular district.

Also, we should know how many children are on the streets at this moment. This is *the baseline*, and could (together with some knowledge (or 'educated guess') on normality) help to determine a well-chosen desired effect. We assume that in our case-study the baseline is an average of 30 children on the streets.

With an indication on normality (50 children) and baseline (30 children), we can define the desired effect. In our case-study, we decide we would consider the intent to be fulfilled if there is *an increase up to 40 children on the streets.*

A possible approach in determining the desired effect is using a traffic-light format. In this format a couple of domains of possible thresholds are given with each a subjective assessment [4]. For example (the given example data is clearly related to the size of the area of operation):

	Subjective	Criteria and Thresholds
RED	Very High	No of IED attacks/week > 10
AMBER	High	No of IED attacks/week 6-10
YELLOW	Medium	No of IED attacks/week 2-5
GREEN	Low	No of IED attacks/week < 2

In a further refinement of this approach a small number of large scale attacks causing many casualties should be weighed with a large number of less serious attacks.
A disadvantage of this approach is that opinions may vary between the analysts which makes assessing the subjective difficult (see [4]).
There are several issues concerning the measurements itself, which are further addressed in Paragraph 2.3.

Step 2: Defining tasks

1 Define the tasks to be performed
In the first step the desired effect is determined. In this step, the commander has to decide which tasks have to be performed to achieve this desired effect, and also how these tasks have to be performed. It is important to assess which tasks have the highest contribution to the desired effect.
It is a difficult process *how* a commander should select the best task(s) to reach the desired effect. The shift towards peacekeeping operations has not only brought a new, more 'social' view on effects, but has also increased the possibilities to achieve those effects. Providing 'a safe and secure environment', for instance, can be achieved in so many ways, that selecting the tasks to be performed to achieve that effect involves considering multiple issues. There are a lot of options that can be considered, for instance with regard to opposing forces it could be chosen to:

- actively eliminate opposing forces;
- install road blocks and actively patrol an area, to reduce the freedom of movement of the opposing forces;
- 'convince' the opposing forces to cease resistance by negotiating.

But also with regard to the (local) population, several options are possible, such as:

- inform the population about the wrong intentions and method of operation of the opposing forces in order to change the attitude of the local population to resist the oppression of opposing forces;
- give development aid;
- protect the local population against actions from opposing forces.

And these are just some examples of the multitude of possible options. In providing development aid for instance, there are new choices that can be made: do you build a school, make a well, build a bridge? And do help the local community to do it themselves, or do you do it for them? And of course, more than one action could be taken at the same time. The final choice for the action(s) that will be performed will depend on several factors, for instance the intended effect (step 1 in this paragraph), the needs and input of the local community, the influence of that action on other desired effects (positive and negative), and the own capacities to take that action. Also, the chosen task will probably be part of a greater unity, which could limit the choices for the commander. And what needs to be considered is the interest in either a short term or a long term solution (e.g., change of political power). All these alternatives will be discussed and weighed to make a decision on the performed tasks. And, even performing no actions at all could be a decision, based on the issues described above.


Contact with the local population and local authorities.
Source: NL Ministry of Defence.

2 Define the task indicators

We need to have insight on the tasks that were performed, and the effort that was put into them. Therefore, indicators have to be defined with which we can measure the task effort, for two reasons: (1) to be able to determine if we are performing the tasks we planned to, and (2) to be able to determine if the effort that we put into the tasks is proportionate to the effect that is gained with it. If much effort is put into a task that does not produce any effect, it might be better to decide to shift effort to another task that does. So in other words, we have to continuously monitor if the effort that is put into a task is still 'worth it'. This effort indicator is also called *Measure of Performance (MoP).*

Example

The desired level of MoE in this case is to have 40 children on the streets. We assume that the platoon commander chooses to perform the task *patrolling*. The platoon commander argues as follows: more presence of (ISAF) soldiers could lead to less violence of the opposing forces toward the population, and people feeling more protected. This could lead to more parents feeling secure with letting there children go out on the streets. There are of course other tasks that could contribute to the desired effect (for instance 'weapon usage' could be handled with higher penalties). Or other parties (e.g., NGO's, Non-Governmental Organisations) could have started initiatives that contribute to the same effect.

The task indicators (MoP's) are used to measure the effort of the task performed. In this step we define the factors that will be measured of task performance, for instance: the patrolling location(s), duration and time of the patrol(s), number of soldiers on the patrol(s), etcetera.

Step 3: Task execution

The selected tasks are executed by the responsible actors.

Step 4: Measuring the executed tasks

In this step we register the effort that was put into the performed task(s). In other words, the values of the task indicators that were defined in step 2 are registered (e.g. 3 two-day patrols were performed in a period of 15 days, in [this and this] area, with two groups of [eight] soldiers).

Step 5: Measuring the achieved effect

To be able to monitor the effect of the mission, we have to determine if there is a change in the environment (an effect) during and after task performance. For that, we have to measure the MoE's (indicators of the intent) during and after performance of the tasks. In the first step ('intended effect') the MoE's were already measured before task execution (establishing the baseline). See also Paragraph 2.3.

Example

In our case example, the baseline was measured to be 30 children on the streets. We assume that after task performance, we performed 12 measurements, which led up to results of 47, 42, 48, 39, 45, 53, 34, 49, 41, 38, 51, and 44 children on the streets.

Note: as the MoE's could also be qualitative (instead of quantitative, see also step 1), measuring the achieved effect could also be consulting an 'expert's opinion', for instance. In our case study, this would be the case if the MoE's threshold was defined as 'children's freedom to play on the streets'. The achieved effect could then be measured by asking the units that were on patrol if they can assess the way they perceive the children playing in the streets, and if there might be more children playing, compared to the previous period.

In general, measuring the current state of the defined MoE's has to be performed at least after task performance, but also on a regular basis (independent of task performance). Since other parties or 'accidental factors' (e.g. climate) can also have an influence on the defined MoE's, and effects can influence each other, it is necessary to regularly measure the current state of the MoE's.

Step 6: Analysis & Advice

Although it is the last step in the framework, the process of analysis and advice is continuous. During the course of the mission, two issues are continuously monitored. Firstly the operational effectiveness has to be determined: are the intended effects in fact achieved? To answer this question, the achieved effect (measured in step 5) is compared to the intended effect (defined in step 1). When the achieved effect has reached the indicator threshold (the desired effect, step 1.3) it can be concluded that the intended effect has been achieved, and the associated tasks are considered to be effective. For comparison purposes it is important that the desired effect and the achieved effect are formulated in similar terms. In other words, if the desired effect would have been formulated in a percentage (e.g., an increase of 10%), the achieved effect should also be a percentage. Also, the desired effect could be 'just' an increase. In that case, the achieved effect is compared to the baseline: is the situation at this moment better than before the operation started?

Secondly, the contribution of the performed tasks (step 3 and 4) to the achieved effect (step 5) has to be determined. This can be a difficult process. The time required to achieve the intended effect could be quite long, and tasks might have to be executed many times before an effect may be noticeable. Also, because of the complex relationship between tasks and achieved effects, it will in general be very difficult, or maybe even impossible, to put a certain effect down to a certain (combination of) task(s). This cause and effect relationship is very difficult to establish, and also, several other factors have probably played a role in the achieved effect (e.g., economical, environmental factors, tasks performed by others). This is mostly true for positive effects; with negative effects it is often more clear what the effect of a task or action was (as with the Danish cartoons for instance).
Monitoring these two issues is a continuous process, of which the outcome could lead to adjusting, adding or ceasing some of the defined effects and tasks, or putting less or more effort into them.

Example

For determining the operational effectiveness, we want to know 'has the number of children on the streets changed after patrolling?' In the several steps we:

- formulated the desired effect as an increase of 40 children on the streets;
- performed 12 measurements after task performance, from which an average of 44,3 children on the streets can be calculated.

We can conclude that the desired effect is obtained (44,3 > 40). In our first action we chose the number of children on the streets to be an indicator (*MoE*) of a safe environment (*the intent*), and we determined that with 40 children on the streets, we would consider the environment to be safe (*desired effect*). As the desired effect is reached, we could conclude that the intent (a safe environment) is reached.
In this example, it seems that the effort that was put into the task was 'worth it'. This could mean that it is decided that these tasks are at least continued, and maybe more patrols will be executed. Of course, the effort put into the task and the achieved effect have to be continuously monitored in order to reach the 'optimal' effectiveness.

For clarity reasons, we chose to focus on one intended effect, one measure of effectiveness, and one task in our example case. In practice however, the intended effect is seldom determined by one MoE but by several MoE's. Furthermore, the commander will probably choose to execute more than one task to reach the desired effect and as we could see in the case of the ISAF-4 mission, also more than one commander's intent was formulated. These different commander's intents, intended effects and MoE's could be dependent of each other and have influences on each other, and the several tasks that are performed could have an influence on the different MoE's. Therefore, it will take a sufficient analytical capacity to determine the operational effectiveness in case of combining several intended effects, MoE's, and tasks.

2.3 Factors of influence on measurements

In general, one has to be aware of the possible influence of task execution on the MoE, and performing the measurement. For instance in our example case, the presence of ISAF-4 soldiers may in itself have an influence on the number of children on the streets. This effect could be minimized by choosing a type of measurement that is not (too) conspicuous. However as this effect will always be present, one should always realize this when interpreting the measured data.
Also, in ideal circumstances, the measurements before task execution (determining baseline) should be performed in the same way as the measurements after task execution (measuring achieved effect). For example, if a questionnaire is used to determine the feelings of safety in a village, the same questionnaire should be used after the tasks have been performed. However, we realize that in practice this is not always feasible.

Other factors that should be taken into account are:

How?
For executing a task, one can think about issues such as with how many people are you performing the task, will the task be performed armed or un-armed, etcetera.
Measuring the MoE can be done for instance by observing, counting, questionnaires, interviews, etcetera.

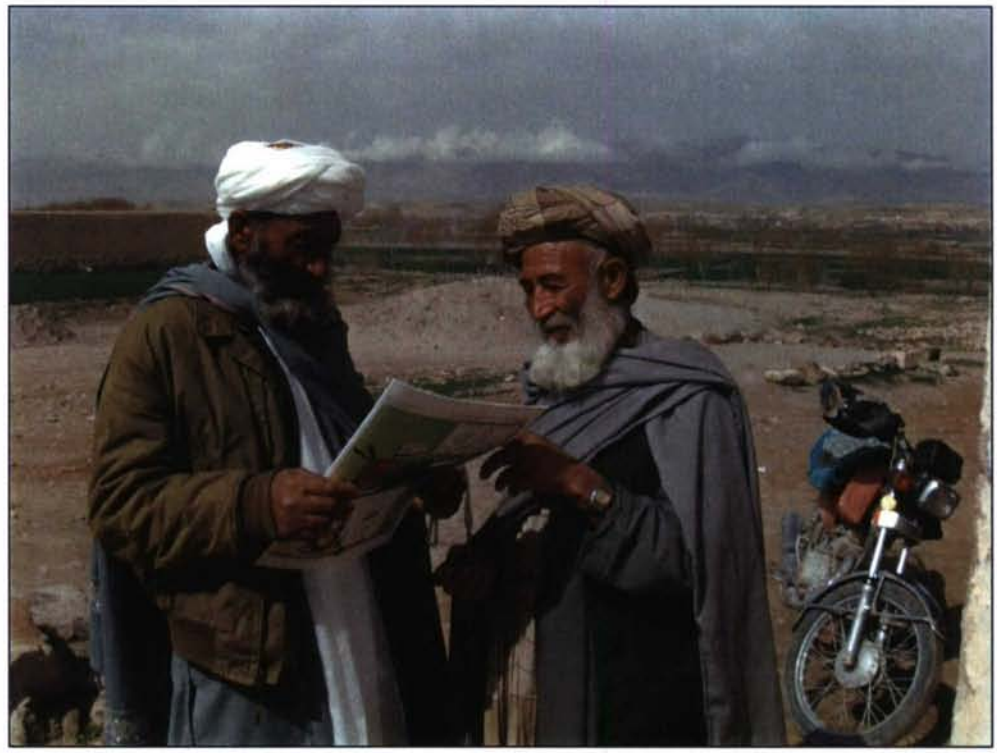
When?
Whether it is a holiday, weekend, weekday, day/night, specific seasons etcetera, will all have an influence on task performance and MoE measuring. One can choose to start with the task after a certain incident (e.g. after a council meeting). But also, how long after task performance will you measure the MoE? One day, a week or a month?
The MoE can be measured while performing the task, or a certain period after task performance.

Where?
The location of task performance and MoE measurement is also important. One can choose a particular district, in or nearby a school, on a playground, in the village or on the countryside, etcetera.

How often?
As the time required to achieve the intended effect may be quite long, tasks might have to be executed many times before an effect may be noticeable. Also, based on only one measurement it is almost impossible to make a distinctive judgement.
More measurements are necessary. The question remains, how many times should a measurement be performed (in a particular time frame) to have an unbiased result?
And what is practically realistic? Besides considering the number of times of a task or measurement, the time frame should be taken into account. Is it performed in the course of one day, one month, one year?

Who?
As stated earlier, the effects we measure in the environment (e.g. an increase of children on the streets) do not necessarily have to be the result of the tasks we performed.
Not only is the exact relationship between tasks and effects not clear, but it is also possible that effects are achieved by tasks that are performed by other parties.
NGO's (non-governmental organisations) for instance, the local community or maybe

even opposing forces, are also active in the area and their actions also have effects. We do not always have influence on the tasks or actions that are performed by these other parties, nor is it always possible to have insight on the effort they have put in their tasks. However, we do measure the effects that are achieved by them (positive and negative), and these are of importance for the progress of our own mission.



Information Campaign.
Source: NL Ministry of Defence.

3 The framework in practice: Case – Safe and Secure Environment

In this chapter the method described in the previous chapter is applied to a small case in order to illustrate the steps to be taken and the choices to be made. In this chapter only the steps concerning definition (steps 1 and 2) will be described, because without actual data it is not useful to describe the steps concerning execution and measurements.

3.1 Background of the case

Together with the Royal Netherlands Army the following case was developed:
'A battalion is carrying out an operation in order to create a *safe and secure environment* in the post conflict situation. The battalion has been in the area for one month and has moved into the Area of Responsibility (AOR) and mapped it.

The battalion consists of three companies. Each company has been assigned to an Area of Responsibility (AOR). In this AOR the company has to create a safe and secure environment. Each company has divided its AOR among the platoons and has assigned an AOR to each platoon. The platoon commander is responsible for building and maintaining contact with the local community, the local authorities, the local police and the local military, in his part of the AOR.

The AOR is unsafe and is characterised by crime, intimidation and violence. Especially during the nights it is very unsafe. Perpetrators have not been identified, but trails point towards police, military and gangs. The public distrusts the authorities and the police, and is reserved towards the international troops.'

3.2 Defining: Intended effect

The first step in the effects based approach is to define the intended effect. As discussed in the previous chapter, the intended effect is formulated by making three sub steps: define the intent, define the indicators of that intent, and define the threshold of those indicators.

3.2.1 Define the intent

At battalion, company and platoon level, the instructions are to create a safe and secure environment. Obviously, there are many ways to achieve this. In this case we will focus on the following two intents. The first intent is to have achieved a well functioning local government, police and military. The second intent is to have achieved a reduction of crime, intimidation, violence and corruption.

3.2.2 Indicators for the intents

The first intent has to do with training and education: local authorities, police and military have to be trained in order to be able to do their job well. Once they are capable of doing their tasks themselves, they will be able to reduce crime, intimidation, violence and corruption and restore public order. Until that time, the international troops are tasked to reduce crime, intimidation, violence and corruption. This is the second intent.
There are many ways to measure how well the local government, police and military function.

Some examples of indicators are:

- the composition of the local authorities (ethnic, gender, age, etcetera);
- the organisation of the local authorities (overhead, salary payments, hierarchy, etcetera);
- the number of (successful) criminal investigations by the local authorities;
- the number of suspects arrested by the local authorities;
- the quality of screening procedures for (new) personnel of the local authorities;
- the schooling and training facilities available to the local authorities;
- the number of independent deployments of local police and military;
- the number of kidnappings, lootings, bombings, murders, robberies, burglaries, rapes, and so forth, officially reported by the public to the local authorities;
- the attitude of the population towards the authorities;
- the number of job-interviews by the local authorities;
- the number of visits to the police station and other offices by the local population;
- the amount of contact between authorities and population;
- etcetera.

Examples of indicators for reducing crime, intimidation, violence and corruption are:

- the number of incidents in the AOR (e.g., kidnappings, lootings, bombings, murders, robberies, burglaries, rapes);
- the number of weapons carried;
- the number of children playing in the streets;
- etcetera.

In practice a subset of these indicators will be chosen by the commander, based on the information available and the advice of his team of analysts.

3.2.3 *Thresholds for the indicators*

It is not possible here to specify exact threshold values for the indicators mentioned above. Instead, desired trends can be specified. For the first intent, examples of such trends are:

- an increase in the way the composition of the local authorities (ethnic, gender, age, etcetera) reflects the composition of the population;
- an increase in the effectiveness and efficiency of the organisation of the local authorities;
- an increase in the number of (successful) criminal investigations by the local authorities;
- an increase in the number of suspects arrested by the local authorities;
- etcetera.

For the second intent, examples of desired trends are:

- a decrease in the number of kidnappings, lootings, bombings, murders, robberies, burglaries, rapes, etcetera;
- a decrease in the number of weapons carried;
- an increase in the number of children playing in the streets;
- etcetera.

If some of the indicators had been measured under 'normal' conditions (for instance in surrounding countries) it may be possible to determine and agree upon some exact threshold values. Furthermore, if some of the indicators had been measured directly

before the international troops arrived, it might be possible to determine the baseline for some of the indicators.
For example: normality might indicate that all boys between 4 and 10 years old normally play in the streets, and girls do not. The baseline might be that directly before arrival of the international community, there were no children at all playing in the streets.

3.3 Tasks

3.3.1 Tasks to be performed

The tasks to be performed can be divided into two sets. The first set of tasks is intended to install a well functioning local government, police and military. The second set of tasks is intended to decrease crime, intimidation, violence and corruption.

Examples of tasks to install a well functioning local government, police and military are:

- work together with local authorities.
  - carry out (social) patrols to deter and detect crime together with the local authorities;
  - talk to the public to collect intelligence together with the local authorities;
  - carry out criminal investigations, arrest and interrogate perpetrators and bring them to justice, carry out checkpoints and weapon collection actions together with the local authorities.
- school and train local military (self defence, protection of area/building, etcetera);
- school and train local police (make an arrest, do a criminal investigation, interrogation techniques, crime scene investigation, etcetera);
- assist in creating the organisation (acquiring personnel, screening personnel, installing a hierarchy, creating function descriptions (e.g., tasks, qualifications, responsibilities and means);
- assist in making available the required resources (building, furniture, electricity, computers, salary payment, forms, etcetera);
- consult and advice.

Examples of tasks to decrease crime, intimidation, violence and corruption are:

- carry out (social) patrols to deter and detect crime;
- talk to the public to collect intelligence;
- carry out criminal investigations, arrest and interrogate perpetrators and bring them to justice, carry out checkpoints and weapon collection actions;
- etcetera.

3.3.2 Task indicators

Examples of indicators for tasks to install a well functioning local government, police and military are:

- number of joint patrols, criminal investigations, arrests, checkpoints, weapon collection actions, etc carried out together with the local authorities;
- number of schooling and training sessions organised for local military;
- number of schooling and training sessions organised for local police;
- number of times advice was given in creating the organisation;
- number of times advice was given in making available the required resources;
- number of consult and advice sessions organised.

Examples of indicators for tasks to decrease crime, intimidation, violence and corruption are:

- number of hours/days of continuous presence;
- number of (social) patrols, criminal investigations, arrests, checkpoints, weapon collection actions, etc carried out.

These task indicators indicate the amount of effort that was put into the tasks.

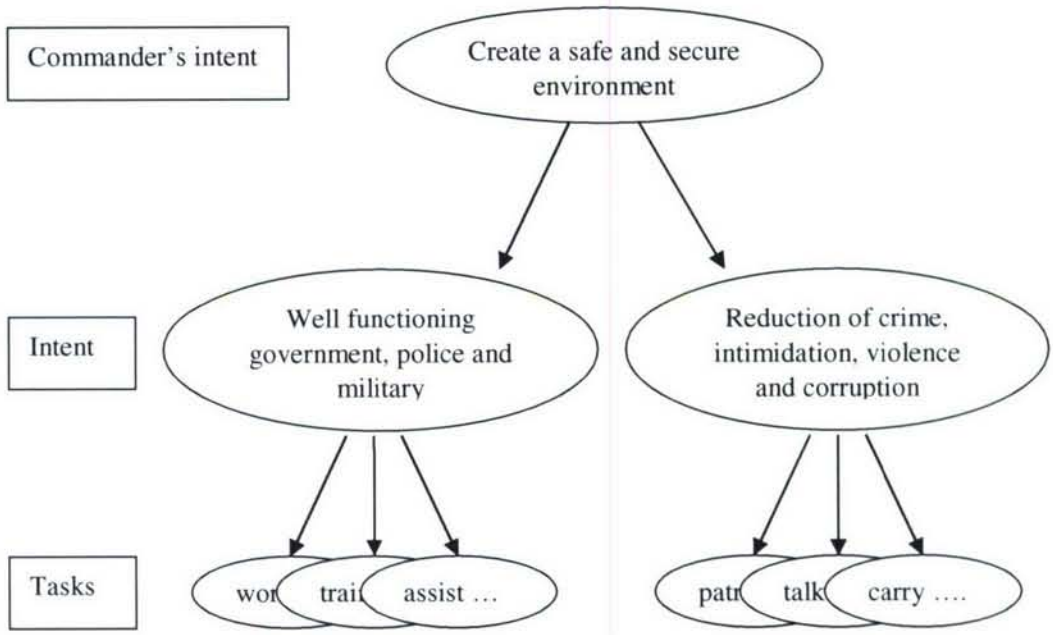
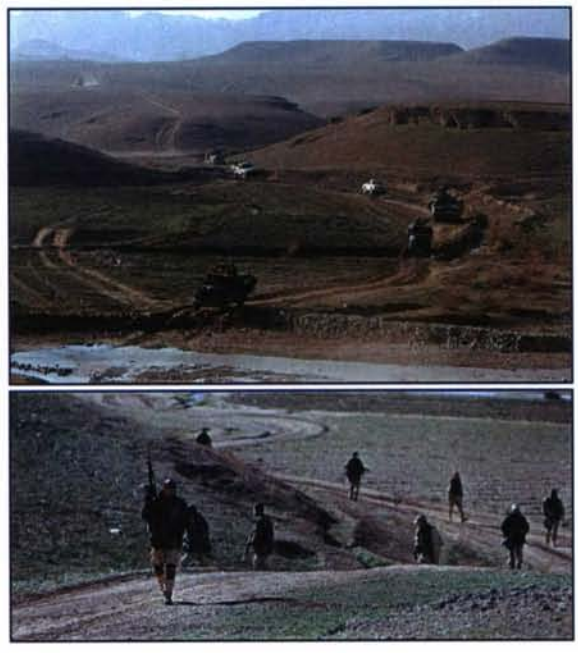


Figure 2 The relationship between commander's intent, intended effect and tasks in this case.

In Figure 2 the relationship between commander's intent, intended effect (for the small unit) and the tasks that can be carried out by the small unit is graphically depicted.



Patrolling the area of responsibility.
Source: NL Ministry of Defence.

4 The framework in practice: Experiences in theatre on TFU-staff level

For a period of two years (2006 – 2008), the Royal Netherlands Army contributes to the International Security Assistance Force (ISAF) mission in Afghanistan, with the Task Force Uruzgan (TFU). For this period two operational analysts of TNO Defence, Security and Safety are attached to the Task Force staff as reserve officers (as part of the section 5, plans), specifically to measure effects during the mission [7].
This embedded operational analysis capacity has led to the introduction of an Effect Measurement Process within the Task Force, with which practical experience with effects measurement has been gained. This chapter describes the experiences of the operational analysts from the first Task Force staff in theatre (TFU-1) with the Effects Measurement Process and the relationship with the other staff processes.

4.1 General experiences with the effects measurement

4.1.1 Effect measurement during preparation and execution of the mission

The effect measurement process is an integral part of both the planning process (in the preparation phase), as well as in leading the mission during the execution phase.
First the effects have to be defined, in order to be able to measure effects during execution.

Preparation

The lines of operation, the desired effects and the tasks to be performed, were defined in the initial planning process during preparation of the mission. This planning process consisted of two phases:

1 Developing a conceptual plan in which the lines of operation, the desired effects and priorities were determined. This resulted in the TFU Master plan.
2 Developing an operational plan that captures the tasks that have to be performed by the different units, that were derived from the conceptual plan. This resulted in the TFU OPLAN[2].

A clear and well-defined definition of the desired effects is a prerequisite for task execution and effect measurement. It is therefore essential that the operational analysis capacity is embedded in the initial staff preparation processes.

Execution

Measuring the effects was a continuous process during execution of the mission.
The effects measurement could lead to adjusting the prioritized desired effects in the conceptual plan (Masterplan) and/or adjusting the tasks to be performed in the OPLAN (by writing a new OPLAN or producing a FRAGO[3]). Small adjustments were continuously made, and periodically a new FRAGO was produced. Only in a limited amount of specific situations a formal planning process was started in accordance with

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[2] OPLAN = Operational Plan.
[3] FRAGO = Fragmentation Order. This is an adjustment on parts of the OPLAN, which occurs mostly during the execution of the operation.

the Decision Making Process[4]. This happened for instance in situations in which the task to be executed was too extensive and complex. Having to make large changes in the OPLAN was also a reason to start a formal Decision Making Process.

4.1.2 Success factors of effect measurement

It is important that the operational analysis capacity that conducts the effect measurement connects as much as possible to the existing staff processes, to avoid extra work or slowing down the work. Some practical success factors are:

- Use simple (univocal and concrete) definitions of effects, to gain support for the effect measurement and to ease the explanation of the results.
- Build up good relations with the key players in the intelligence collection and planning processes. As effect measurement is an integral part of these processes, it is important to know and regularly talk to them.
- Know and understand the staff (planning) processes; to know when the effect measurement plays an (important) part.
- Recognize the relevance of an international operational analysis network, to exchange knowledge and experiences on effect measurement (in general as well as mission-related).

4.2 Experiences with the framework step by step

4.2.1 Step 0: lines of operation

The first thing that was done in the planning phase of the TFU was defining the mission goals (this is called step 0, because it is done before the step-by-step framework is applied by the operational analyst). The goals were mainly based on orders from the higher level (Regional Command South, RC(S)) and the operational directive from the Netherlands Ministry of Defence. The RC(S) orders are in principle the main guide for the TFU, as RC(S) is the commander of the TFU. However, because of the national diplomatic and economic influences the Ministry of Defence is also of importance.

Three lines of operation

The Dutch operational directive and the plan of RC(S) both started from the same three lines of operation, or 'mission objectives'. These three main goals were:

- establishing governance and justice
- creating a safe and secure environment
- creating social-economical development.

These goals were chosen such that progress on these goals would directly influence the centre of gravity of the opposing forces (i.e. support from the local population).

Adding a line of operation

Lines of operation can not only reflect influencing the centre of gravity of the opposing forces, but also can be defined in order to protect the own centre of gravity. Therefore it was chosen to explicitly state the protection of the own centre of gravity as a fourth line of operation. This goal is:

- to maintain a credible taskforce.

[4] For more information on the Decision Making Process ('Operationeel Besluitvormings Proces' or 'OBP'), see the Army Field Manual 1 – Command and Control ('Leidraad Commandovoering').

This is a crucial factor in the mission and will have to be considered by the commander in all his decisions. Also, means and capacities that are used for this goal cannot be committed to the achievement of the other goals.

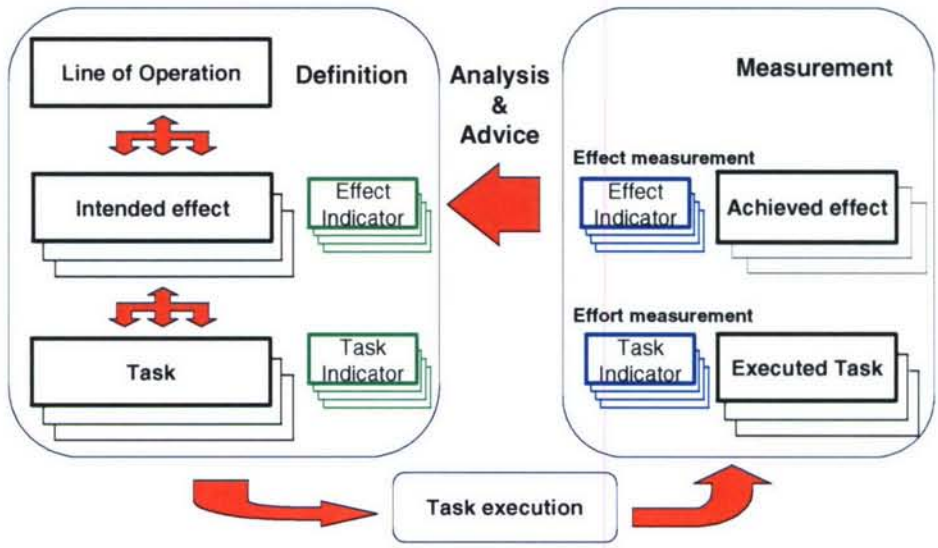


Figure 3 The effects measurement framework as used by TFU1.

After the four lines of operation were determined, we started with the definition of the intended effects as shown in the Figure above. The experiences in theatre with the six steps of the framework are described below. The six steps of the framework itself are described in Chapter 2.

4.2.2 *Step 1: Defining the intended effect*

In step 1, the determined lines of operation were worked out in intended effects that contribute to the mission objectives.

Step 1.1: Defining the intent

Based on the plan of RC(S), the Dutch operational directive and knowledge of the situation in Uruzgan (amongst others by reading the Masterplan of the Dutch PRT[5] in Baghlan), 23 intended effects are determined that represents the complete area of interest. They are listed in the TFU Masterplan [7], and also cover the intended effects from the higher level.

Definitions and terminology

The effects have to be well defined, to make sure that the intended effects do not overlap and are also clearly understood. For measuring the effects it was also necessary to have clear definitions. In the beginning of the process of creating the TFU Masterplan (before releasing version 0.2) the definitions of the 23 effects changed on a regular basis. Firstly because determining the indicators (MoE's) and their threshold, and the relationships between the effects, led to new insights on the distinction between the effects. Secondly, because it had to be taken into account that terminology can have different meanings in several groups. For instance the term 'humanitarian aid' could not be used (despite of the clear definition that was given) because of political resistance

[5] PRT = Provincial Reconstruction Team. A Dutch PRT, consisting of CIMIC and BattleGroup units, was stationed in Baghlan (Northern part of Afghanistan) until mid 2007. The TFU PRT consists only of CIMIC units.

(humanitarian aid is considered ideally to be done by specific (specialized) organizations, not by a military organization).

Effects network

The effects are (contrary to the OPP[6]) not clustered in four lines, but form a network. The reason for this is that the effects influence each other, and the effects also contribute often to more than one line of operation. The effects are also slightly different from 'decisive points' that the OPP describes (where a decisive point has to be reached before one can continue with the next decisive point), because one can try to achieve more (or all) effects at the same time. This is even highly desirable. However per effect one can define a certain phasing. For several points in time one can define the level of ambition for this specific effect. This phasing is not shown in the network, but it can help to determine the amount of effort that has to be put in the tasks.

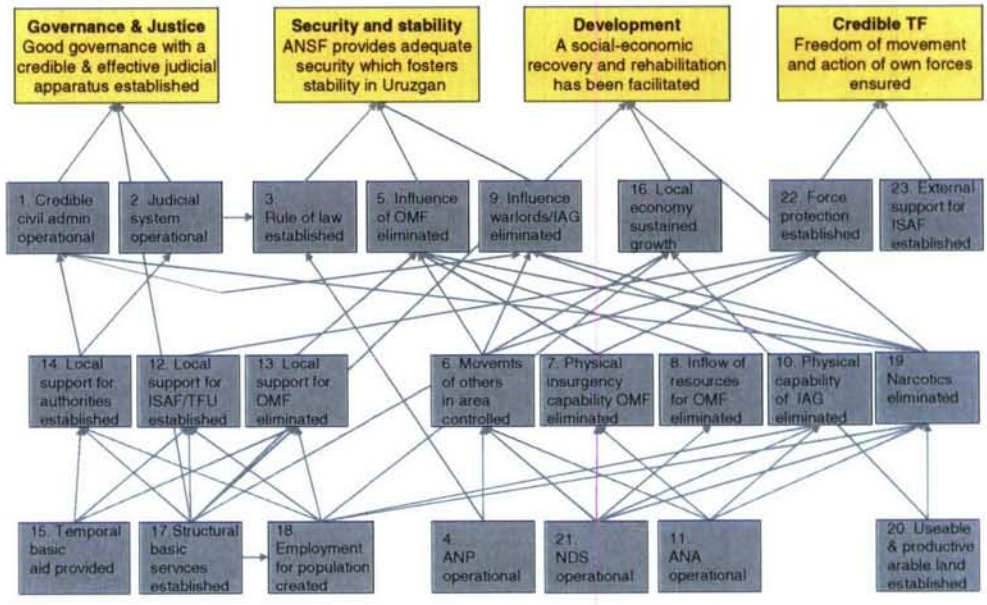


Figure 4 The Effects network.

Step 1.2: Define the effect indicators

Dividing in sub-effects

Many of the 23 effects still describe a very complex situational change. Therefore they have been divided into sub-effects, to make it possible to make statements on the total effect size and to make it easier to explain the effects status. An example of this is the effect 'Afghan National Police (ANP) operational'. This effect was divided in the sub-effects 'ANP manned', 'credible ANP leadership achieved', and 'acceptance of population for ANP achieved'.

Quantifying

As well as for the main effects as for the sub-effects, indicators are determined with which an effect could be measured (a quantitative characterization can be made). A relatively large number of effects (and sub-effects) are not directly 'tangible', such as 'a credible

[6] OPP = Operational Planning Process. This is a decision making process for the operational level, and described in the NATO Guideline for Operational Planning (GOP).

leadership'. Therefore not all effects could be expressed by quantitative indicators. However, for the purpose of effect measurement in order to monitor the mission, a semi-quantitative indication (in terms of 'good', 'moderate' or 'bad') is already very valuable. So the goal is not to express the (sub) effects in numbers, at all cost.
For many (sub) effects multiple indicators have been determined, because most effects have more dimensions that all characterize a part of the effect, and are all of interest. By giving the different indicators their own weight a statement can be made on the effect as a whole.

Flexibility
The indicators were created before the mission (in the office, so not in theatre), with limited knowledge on the region and culture of Uruzgan. In this (at first instance) theoretical approach, the focus was on identifying indicators that are important to be measured, to avoid that the indicators that are easily measured in practice are made important. Ideally the indicators are discussed with several people or experts, like anthropologists. The effects network structure and the indicators were also distributed to several staff sections and lower commanders for feedback, but this did not lead to much changes. However, it was used as a guidance for the people working on psychological operations (psyops) and intelligence gathering (intell) for their planning. It also enhanced the awareness of the staff for the effects network and the indicators. It was expected that there would be several changes once in theatre, but this did not happen. In version 1.0 of the TFU Masterplan [7] only a small number of indicators were changed and/or extended. This is partly explained by the fact that we initially waited which information was obtained by the intelligence organization (that used our list of indicators as a starting point). We did not immediately get information on all the indicators, but it remained unclear if some indicators were not measurable, or if the units did not have the opportunity to focus on those indicators. So the list of indicators that was drawn up beforehand was satisfactory, but will (if all is well) keep evolving.

Step 1.3: Define the indicator threshold
The threshold, or ambition, is set according to the level one wishes to have achieved on the effects at a certain moment in time.

Priorities
The conceptual plan (TFU Masterplan) was a plan in which the desired effects were prioritized. Because a large number of effects are closely linked to each other, it will always be desirable to pursue multiple effects at the same time. However, not all 23 effects can be given as much effort at the same time, so initially five of the effects were prioritized (based on significance for the overall goal, relations with other effects, and possibility to achieve results with the available resources). This is also captured in the TFU Masterplan, that should be and was a well known and well read document within the TFU.

Short versus long term
Preferably we would have defined a concrete ambition per effect and sub-effect in the TFU Masterplan [7], linked to a moment in time, and expressed in specific values or a range of values per indicator (quantitatively measurable). The more specific this is described (and set beforehand), the easier it is to indicate with the effects measurement if everything is going 'according to plan'. Because for most effects the TFU depends on other factors and parties, particularly the will and ability of the Afghan population, it is difficult to set concrete ambitions in a timeframe.

The ISAF long term goals are relatively easy to determine, because they are set for a period of 10 to 20 years and do not have constraints in the way *how* these goals are achieved. We have therefore chosen to compare the effect measurement to the long term ambition that ISAF has drawn up together with the Afghan government (as described in the Afghanistan Compact). This ambition described the goals for 2015 or further. On the short term, we defined the ambition sometimes by describing a global change of the current situation, sometimes by a certain amount of effort (in terms of actions to be performed) without specifying the timeframe for achieving the goals.

Refining ambitions
Determining a realistic TFU ambition is for a large part dependent on the current situation in the area and what seems feasible based on that situation. At the start of the mission there was limited information on the current situation, therefore the ambition was outlined rather broadly. In the course of time the ambition was refined and made more specific. For instance the tasks to be performed were specified, the priorities in the effects were adjusted and the priorities in geographical areas were drawn up. This latter issue depended much on the available opportunities, since the will of the local population and potential areas of development (e.g., government, safety, economics) dictate the chances on success.

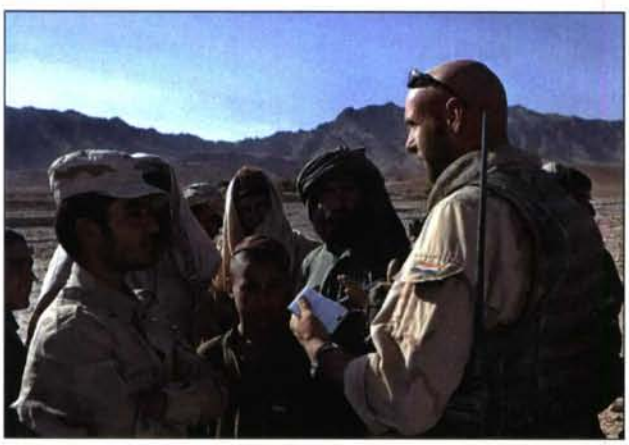
'Think tank'
The ambition of TFU1 was initially defined by the section Plans, and discussed thoroughly with several people. Ideally the ambition (priorities in effects and areas in time) should be set, in advance, by a small group of people in which all disciplines of politics, military, economics, social, information and infrastructure (PMESII) are represented along the lines of the different hierarchical levels. Since the Director of Operations (DOPS) is the constant factor in all the rotations of the taskforce staff, they ideally are the organization that coordinate this process. The people involved have to be able to think 'out of the box', and have a vision on the conflict in theatre.

Product definition phase
The TFU Masterplan [7] is the product of the definition of operational goals, effects, and the ambition.

Normality indicators
One of the methods of setting a realistic ambition, is to determine the situation in the area before the conflict took place. In the case of Afghanistan however, this appears to be quite difficult, since it is a turbulent area for decades. One could look at more developed provinces than Uruzgan, but it should be taken into account that this cannot always be a direct comparison, because of the different composition of the population. We did not make the historic point of reference explicit, but based the TFU ambition on the baseline situation and an estimation of what was realistically feasible. Everything we have read and know about other provinces has, subconsciously, influenced this estimation. There was information specifically on Baghlan and Kabul, because two operational analysts had previously been deployed to Kabul and two had visited the North of Afghanistan. In Kandahar and Helmand other countries already had started with the mission, and the British in Helmand also incorporated operational analysts. Exchanging information with those colleagues gave us the opportunity to estimate the speed of progress in these provinces.

Step 1.4: The need for information on the indicators
After the intended effects and the effect indicators are set, it is important that it is known (within the organization) on what the ambition and priorities are based and what (kind of) information is necessary to measure progress, such that all units within the TFU will contribute to building up a collective view on the situation.

Intelligence
In general, the intelligence-organization coordinates the initiation, collection and interpretation of information. For this reason, a strong appeal was made on the intelligence section of the TFU as well as of the underlying units to contribute to the effects measurement. Well in advance (during the preparation for the mission) we have discussed and attuned several issues with the CCIRM[7] of the intell (intelligence) section of the TFU staff. The CCIRM could very well use our list of prioritized effects and indicators to base the ICP[8] upon. In this ICP questions are being worked out and assigned to different units that have to collect information on these questions. This is communicated through the intell officer of each unit. Eventually the patrol commanders for instance were briefed and debriefed by the TIC[9], based on the questions set by the CCIRM. The CCIRM in turn has to monitor the answering of the questions, and possibly adjust the ICP. Although we already discussed these things in advance, and made certain agreements, in reality the execution of the operation is a lot less manageable. It has not become quite clear in how far the indicators set by us were in fact leading in the complete intell process. The intell section was very busy with collecting information on terrain and OMF (Opposing Militant Forces), and was therefore not always able to collect information on all the indicators.



Measurement of the perception of the population

Surveys
ISAF headquarters (HQ) coordinates several surveys that are held amongst the population. These were also an important source of information. Because the surveys were executed by hired Afghan personnel, the potential influence of ISAF was limited as far as possible. Unfortunately the security situation did not allow the surveys to take place in certain areas, including parts of Uruzgan. ISAF HQ also wanted advice of the Task Forces in the separate provinces on the type of questions to ask. And, there was a possibility to do a survey in the own province. In principle a survey would be the

7 CCIRM = Commanders Critical Information Requirements Manager.
8 ICP = Intelligence Collection Plan.
9 TIC = Team Intell Cel, this is a team of intell officers on team/company level.

responsibility of the intell section, since they coordinate all information gathering in the area (weather, terrain, threats). It should be noted however that the results of those surveys will be important for many sections, for instance also for Psychological Operations (Psyops). The CCIRM could for instance take the lead in initiating surveys. Because this is not yet the case (structurally), the operational analysts could play an explicit part in this. The operational analysts have, in collaboration with the Target Audience Analyst (TAA) of the Psyops unit, advised ISAF HQ on the surveys.

4.2.3 Step 2: Tasks

The second step consists of defining tasks that have to be performed by the units to achieve the desired effects in the specific areas. These tasks are the foundation of the operational plan for the area of operation, and is described in the TFU OPLAN and in FRAGO's.

Step 2.1: Translation to tasks – Effects based planning

To be able to achieve the effects, they first have to be translated into concrete tasks that the units can perform. Since the staff TFU was the only one that looked at the mission integrally (looking at all effects and all means) this was the level suited to translate the effects into tasks. On levels lower than TFU staff the effects were certainly kept in mind (especially the PRT) but in generally they worked with tasks.

Determining tasks

To keep it clear and simple, we started out with deducting tasks for the five prioritized effects. All planners of the TFU staff as well as the units have provided a list with possible tasks that contribute to the main and sub-effects. This task list was incorporated in the Effects Tasking Order (ETO), that was adjusted every one to two months. In this ETO the relationship between tasks and effects was depicted in a table, with the advantage that it always remains clear why the task (liaison, for instance) has to be conducted. All the planners of the units contributed to this ETO, with the advantage that all units immediately knew what had to be done (parallel planning).

Prioritizing: geographical

Initially the effects were not yet linked to geographical areas, apart from the fact that we would work 'from the inside out' (a spreading inkblot starting from the own bases). Since we at first knew little about the area, the translation to tasks remained abstract and tasks could not be prioritized. The units had relatively much freedom in choosing their own tasks and areas. Through a trial and error process, with units in the areas conducting tasks and collecting more information on the areas, the insights in the areas increased and it became possible to prioritize effects as well as tasks. This was also necessary to make sure that the units that were contributing to the same effects, got a common picture of what needed to be done on the short and mid-long term. The units of course still had the freedom in their own planning process to determine which one of their sub-units had to perform which task at what time.

Prioritizing: effort versus effect

For some of the general tasks, such as patrolling, and intell- and psyops activities, it appeared to be difficult to make clear what the tasks are, how much capacity and effort it costs, and what specific added value people expect of these tasks (what exactly is the intended effect). The TFU needs this information to be able to prioritize. Especially the prioritization of intell-tasks is difficult. In principle, the CCIRM is in the lead in prioritizing the intell questions that are given to units through the Intelligence Tasking

Order (ITO). In some cases these intell collection units can be used just for collecting intell, which makes it seem easy. However even then it might be possible that these intell collection units need capacity from other units, for instance the force protection. That is why the prioritizing of the intell-tasks partly has to be done by the Plans section (G5), however it has to be done based on information on costs and benefits.

Clustering tasks
The tasks in the ETO are clustered per sub-effect. The advantage of this clustering is that it is immediately clear which tasks contribute to the same effects, and thus should be coordinated . Besides that it is also important to have an efficient clustering of tasks. The list of tasks to be performed grows easily to large proportions, but the available means and time are always limited. Because of the continuous threat the TFU always had to move with a large number of vehicles (and force protection) when going into the area (also called a Smallest Unit of Action, or SUA). Therefore it was desirable to combine several tasks efficiently, giving one SUA a maximal impact. A SUA for instance consists of elements of force protection, engineers, logistics, the PRT, tactical psyops teams (TPT[10]), a field support team (FST[11]), a forward air controller (FAC) and electronic warfare (EOV). These elements each have their own task, which often causes conflicts of interest and makes it difficult to combine. For instance the units that have to talk to the local population (PRT, FST, TPT) need to be at a certain location for a couple of hours during daytime, with a repeating pattern for a couple of months, whereas other elements would like to be in an area during the night. If the tasks aren't compatible at all, the section Plans (G5) also has to set a priority for this.

Coordination during execution
During the execution of the mission the G5 organized a coordination meeting in order to monitor the task execution. It this meeting it could be decided to temporarily prioritize specific tasks differently because of changed circumstances. Initially this meeting (the Effects Synchronization Meeting, or ESM) was weekly, and the topics were mainly practical task execution problems (in time, space and force) that had to be solved. By doing this, the TFU staff was in fact de-conflicting the detailed plans of the units. A strict coordination of tasks was not yet being done at the start of the mission. Later it appeared that the amount of tasks that have to be performed (by the units but also by diplomatic and economical agencies, in the area as well as on regional level in RC(S) and national levels e.g. in the Netherlands) was too large that it is quite difficult to coordinate these tasks constantly. Initiating these tasks is the easiest part, but continuously tracking and monitoring is a different issue. On the one hand this is caused by the fact that there are so many parties involved that it is hard to get them all together. And on the other hand, people do not have enough time and patience to go through the list of tasks every time and adjust the list. The consequence is that not all agencies know of each other's activities, and that they are therefore not all coordinated in time or space.

Step 2.2: Determining the indicators of the effort (Measures of Performance, MoP)
MoPs are used to be able to determine the amount of effort that the TFU has put in several tasks, in order to determine the relationship between the effort and the achieved effects on the long term.

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[10] The tactical psyops teams collect information on the perception of the Target Audience (TA, in this case the local population) is and how they can be influenced (psychologically).

[11] The field support teams collect Human Intelligence (HUMINT) by talking to members of the local community.

Task indicators

In one of the first ETO's we have focused on working out the MoP's. This was about a first set up of indicators, and concerned mainly indicators such as the frequency of the performed tasks and the areas where the tasks were performed. The effort measurement was limited in the first Task Force rotation, and consisted mainly of registering for instance the number of contact with the local community (certain persons or agencies), the number of patrols that were performed and the number of medical consults that were given in an area. The cost/benefit analysis between performed tasks and achieved effects was mostly qualitative in nature.

4.2.4 *Step 3: Task performance*

In this step the units will execute the tasks according to the ETO and collect the information according to the ITO. During execution the status of the units can be partly monitored by the TFU staff and the battle group staff in the Opsroom, but most information follows after the activities have been executed as the units report on their actions (verbally or in writing) in a Situation Report (Sitrep) and in an Intelligence Report (Intrep), or in specific cases with a Village Assessment or a Meeting Report.

4.2.5 *Step 4: Measuring effort*

To determine the relationship between own operations and achieved effects in the area, it is relevant to know which tasks have been executed in what areas, and in what manner. For this measurement Measures of Performance are used.

Frequency

Based on the standard Sitreps, and through the presentations during the morning and evening meetings, we have tried to create an image of the frequency of performed tasks. Because presentations or reports are not always directly clear or complete, it was necessary to talk to the section Operations of all the different units (or the ones executing the tasks: commanders, PRT staff, mission teams) to get a better picture.

Geographical insight

To be able to relate changes in a specific area to our own operations, it is desirable to keep track of the tasks that are performed per region or village. It was quite difficult to get a good overview of this. First of all it was registered how many patrols had been executed, but hardly where they had been executed. In principle there are ways to map the actual driven routes of the patrol. If the unit has a certain type of GPS, it can even map the route automatically in ISIS. However only just a few units had this type of GPS. In the planning phase the areas where the tasks were performed were indicated on so-called 'drill-down slides'[12]. This gave an idea of the frequency, and a general geographical image of the patrols.

Secondly there was no database that kept track of all the military (battle) actions, governmental and economical rebuilding activities and psyops activities in the specific villages. During TFU1 this information was mainly collected through individual reports, that had to be individually processed. During the course of TFU1 the operational analysts created a central database, called the 'village assessment database'. This database supports the prediction and explanation of the attitude and actions of the

[12] A drill down slide is a slide that graphically depicts the concepts of operation (e.g., routes, positions) and specifies textually in the sideline important information such as timings of execution, task organization, line of command and call signs, mission statement (who, what, where, when, why), scheme of manoeuvre during different phases, logistical support, close air support, ground based fire support and external assets required.

local population in the specific areas. Besides the fact that this information is relevant for the operational analysts, it is also necessary for all units moving around in the area. Ideally the units should receive a printed version of the latest information and with the remaining open questions on the areas, before they go out.

Measuring conversations
Measuring diplomatic and governmental (re)building activities is very hard, because the effort that is put in concerns the topics and type of conversation held, and not so much the number of conversations. Often there are only a few people involved in these conversations and the quality of task performance is therefore also very dependent on individuals. We did not measure the contents of the conversations, in other words which topics were addressed and how convincing the military were, because this costs too much effort with limited added value for the effect measurement.

Activities of others
To be able to explain changes in the environment, it is desirable to determine which other agencies (such as NGO's, IO's) are active in the area, besides our own operations. Purely spoken you would want to keep track which activities the local population, the government and councils, several tribes and even Taliban undertake, that might influence the environment (and thus effects) in a negative or positive manner. Of course this is even harder than measuring our own effort. Preferably there has to be a good liaison, such that the TFU can keep track of what other parties like the NGO's and IO's are doing in the area. This was a PRT task, and because of the small amount of NGO's and IO's this was still manageable. And for the rest, the intell section had to collect the information on the groups that the TFU does not have contact with.

Balance effects measurement and effort
One of the challenges in the effects measurement is keeping the balance between the effort that the effect measurement takes and the effort that it takes to execute the tasks for the rebuilding and safety of the area. For instance, one could easily map all the schools in the area, however this sizeable task will leave no capacity for other tasks. In that case it might be better to use other sources of information (and leave capacity of own troops intact for other tasks) although this might decrease the quality and reliability of the information. The effects measurement should not be too big of a load. In the first rotation we have limited ourselves to an 'information push'; in other words we waited on the information that the units would bring us. In the beginning every information was welcome, as we still knew little. However at a certain point in time it should become more clear of what effects and indicators we still know little, and one could start to ask about specific information ('information pull').

Products of effort measurement
The products of the effort measurement are:
- The weekly assessment: this report assesses the activities and the most important events in the area. It was mainly written for the higher levels (RC(S), and the Director of Operations, DOPS) to provide them insight on the developments in the area.
- The mission progress flyer: a periodical report directed to the own units, to keep the TFU informed (mostly on the performed tasks of own units, and if possible on the progress)[13].

[13] This report focused on the prioritized desired effects, however without naming the term 'effect'. Because the report had to be approachable for everybody, we strived for an easy-reading text on a limited number of pages.

4.2.6 *Step 5: Measuring the effect (baseline / measurement)*

The actual measurement of the effects is the core activity and should be done as complete and accurate as possible.

Collecting information elements

Measuring the effects was done (in first instance) by analyzing the standard internal Task Force reports, in which the relevant information elements were linked to the effect indicators. Since these information elements could consist of both numbers and text, and we wanted to keep track of the information on three dimensions (several indicators, locations, and time), a flexible database was necessary. This database was first created in Excel and later transformed into Access. It is desirable to have a clear reference to the source document, such that the original document itself can be easily retrieved. The source documents were internal reports (like intreps, sitreps, and village assessments) and external reports such as the ISAF surveys and the Civil assessment (an assessment written by the Netherlands Ministry of Foreign Affairs, on the (baseline) situation in Uruzgan).

Of course we preferred to use as much products of the Intell section, to avoid doing double work. But because of the large amount of information and the limited intell capacity, they were mostly focused on the products concerning OMF and terrain, which made the intell products not completely adequate for our purposes. Besides that, the intell products had the disadvantage of giving a qualitative assessment without naming the underlying information elements, which makes a trend analysis impossible. All led to the fact that we also read the standard reports of all the (subordinated) commanders, besides reading the intell reports. Especially the reports of the PRT provided a lot of information on the area. Because the reports were not always directly clear, and the database gave us enough material to ask questions about, it was necessary to have a lot of conversations with the Intell sections of all the units, and other direct observers of the situation in the area (commanders, PRT staff, mission teams). By asking them questions, they were also often stimulated to find out more information or improve the reports. The possibility to communicate directly with the people involved was very important, and also indicates that the operational analysis will be severely hampered when it has to be done from a back office (not in theatre).

Figure 5 Rating the indicators.

Determining the effect level

Based on the available information elements an image was formed on the level of the indicator. By rating the indicators, is became possible to give a rating to the (sub-) effects. Four color levels were used: green (satisfies ambition), yellow (the Afghans can continue this level autonomously), orange (moderate, however the Afghans cannot maintain this level autonomously) and red (situation is poor). See Figure 5. The colors were used on the level of (sub-) effects and are deducted from the values of the underlying indicators. It provides a general impression, based on collected detailed information. Ideally the thresholds of the indicators are set in advance: what values lead to which color? These thresholds are very hard to determine, because of the limited reference data, limited information on the area and the limited detail of the ambition. Therefore in practice hardly any thresholds were set. On the longer term this is important to do, to

make sure the operational analysts of several Task Force rotations rate the information and the effects in the same way.
In version 1.0 of the Masterplan [7] we have related the actual situation (in colors) to the long term ISAF ambition, which made all effects red or orange. The advantage is that the scale of red to green is easy to explain to everybody, and easy to interpret. The disadvantage is that small changes (in both directions) are not well visible on such a scale. To solve this, an arrow could be used to indicate an improvement or a deterioration compared to the last measurement.
The rating of effects with a color and/or an arrow always has to be accompanied by a textual explanation to avoid misunderstandings or misinterpretations. The colors are only an aid for quick visualization, but it needs the 'story' behind the color for a good interpretation. In a presentation, this explanation is limited to a few words, however in the reports it is described more extensively. The frequency of colors changing or arrows being added was not very high. The environment does not change that fast that there are big changes every week or even month. Even more so, the amount of information was limited, and therefore there was a gradual increasing image of the area next to possible changing in effects.

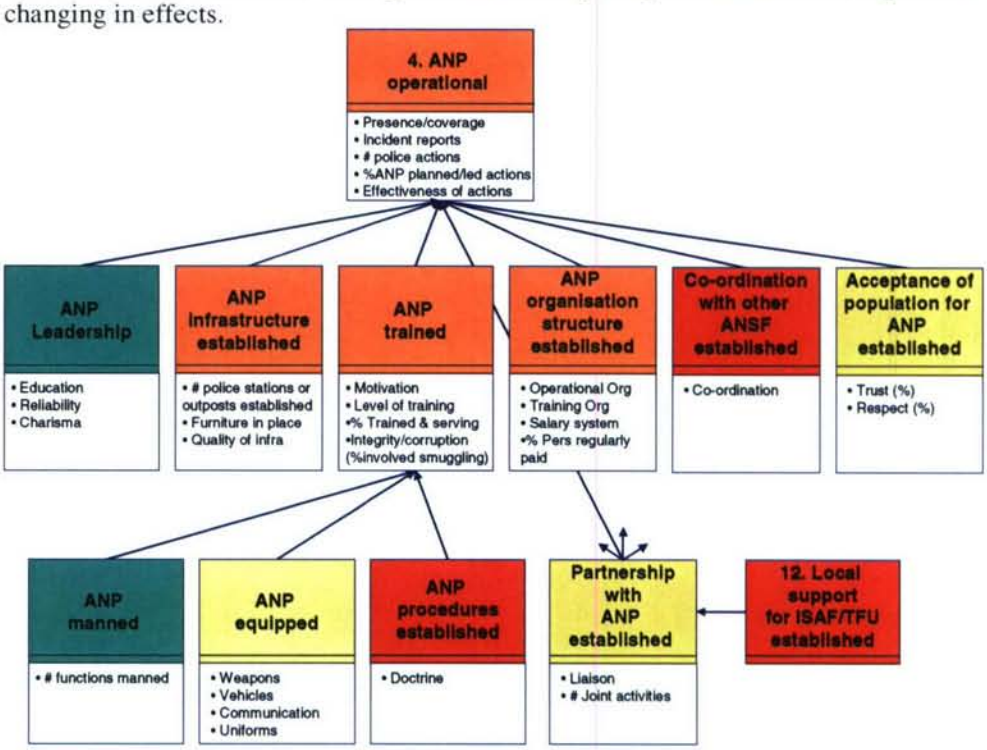

Figure 6 Example of effect measurement (fictitious colouring).

Quality of the effects measurement
A challenge in the effects measurement is the limited amount of available information. Of all the indicators that we set up in advance, at least half was still 'blank' in the first few months. Especially the refinement of indicators in certain areas and villages, was hardly possible in the first six months. In the first period the effects measurement resulted in a global picture per district and effect. However in time, more information could be gathered such that the differences between the areas could become more clear. Much more difficult is the unreliability of information. Information is sometimes contradictory, or it changes regularly, without knowing if the situation in the environment has also changed. Because of this, a lot of information on all the effects is necessary, and this takes time and effort (to verify all this information, also with the

help of other sources). For the effects measurement itself one can even question if it is absolutely necessary that the information is completely reliable before it should be taken into account. The commander prefers a global sense of what is happening, possibly with some inaccuracies, over no idea at all. However for planning specific operations it is necessary to get as much as accurate information as possible.

Products effect measurement
The products of the effects measurement are:

- The interim assessment: a two or four monthly report of the status of all effects, including the textual explanation.
- The Masterplan: a report per Task Force rotation in which the status of all the effects (including the explanation) is described, together with the ambition and the concept of operations.

These products functioned as standard measure for the TFU itself, and gave the higher units and the DOPS the desired insights in the mission's progress.

4.2.7 *Step 6: Analysis and Advice*

After the effort and the effects are measured, an analysis can be done and based on this analysis the commander can be advised on adjusting his plans.

Status and explanation
First of all we can look at the status of the (sub) effects that are or are not looking promising, and what might be the causes for this. The underlying (sub) effects and indicators provide insight on these possible causes. This gives a quick overview, after which one can zoom in on the possible bottlenecks and problem areas within an effect.

Trend analysis
We can also look at the status of effects that have changed over time. Are there trends to be seen? Of course we have to realize that the information might be inaccurate in the first period, and it might be that there were no changes in the environment. Of course, the more aggregated the performance of all the effects the less indication of change over time will be seen.

Causal relationship between effort and effect
By combining the effects measurement with the effort measurement, we might be able to say if our own operations had any influence on the changes in the environment (the achieved effects). A causal relationship is difficult to determine, but with some insight in the effort it might be able to give some indication of that relationship.
These indications could state which tasks or activities were successful and which less successful. Although one has to consider that a lot of tasks and activities have a gradual effect, which cannot be seen directly (so one have to think in long-term effects).
At this moment this analysis of the relationship between effort and effect is purely qualitatively, without any supporting means. However in the future this kind of analysis could be supported by quantitative influence diagrams, systems dynamics or other methods.

Advice
Based on the analysis it can be assessed what the possible solutions could be to achieve the effects more efficiently and maybe faster. Actually, the overview of effects (in colors) is mostly input for discussion, to get the individual opinions and insights of the different experts more clear and collected. In the analysis we could also use the experiences in

other provinces for our advice, or at least provide an overview of the possible options and consequences.
This advice was presented to the commander and his 'think tank', with the main goal of presenting them a mirror (self-reflection). The situation is too complex to give a straight advice, but holding the mirror up already had added value for the staff and (subordinate) commanders to self-reflect and discuss about several issues. When preparing a presentation it is recommended to focus on some issues for discussion, and limit the effects measurement and analysis to those issues. The complete number of effects is too large to go through with the whole group.

Product of the analysis
The product of the analysis is:

- The food for thought presentation: a presentation of some core findings to the think tank or Effects Synchronisation Board (ESB), leading to a further discussion on these issues.

Effects Synchronisation Board / Effects Steering Board (ESB)
The results of the analysis could lead to a discussion on the way forward. Should we start with working on the effects that score quite poorly, or should we exploit and go on with working on the effects that score pretty well? Should we continue the tasks that cost less effort but benefit a lot, or should we keep up performing the tasks that take a lot of effort? Most discussion was held on the method of achieving a specific main effect, since this can be achieved in many ways and a multidisciplinary (diplomatic, information, military, economical) and multi level approach (DOPS, RC(S), embassy of Kabul) is desirable.
This discussion was best held with people who have a certain vision on the matter, and want to participate in the discussion. In the first rotation, the informal think tank was composed of the TFU commander, the TFU chief of staff, the section Plans, the political advisor (Polad), the development advisor (Devad) and some subordinate commanders. This think tank was called the Effects Synchronisation Board (ESB) or Effects Steering Board. Discussion in the ESB could lead to adjusting the ambition, adjusting the prioritization in effects and in areas, that were worked out in the Effects Synchronization Meeting (in time, space, force) and led to a new Effects Tasking Order (ETO).

4.3 Added value of the effects measurement

The added value of the effects measurement is fourfold.

- The effects- and effort measurement provides insight for the benefit of adjusting operations. A fast recognition of possible effects caused by own operations, makes it possible to further exploit successful activities, or decrease activities that have little effect.
- It is important to have a collective view on the situation, such that all units 'sing from the same sheet of music'. The TFU is able to perform much better when all units know what the other units are doing, so they won't be surprised in a village or area. This consciousness of the others also gives a feeling of solidarity and enhances motivation.
- The insights in the own effort and the effects are important for external justification. External audiences are for example:
  - higher command levels, who are eager to know what units are doing, to possibly intervene or adjust, or give support. The better the insight and the better the contact with higher levels, the better the synergy of the activities on the different levels;
  - national political level;
  - Media;
  - home front.
- Documenting the results of the effects measurement contributes to the history records of the mission.

Having an effect on the local population.
Source: NL Ministry of Defence.

5 Effect based approach on different levels

As said in Chapter 1, the focus of operations is not solely on military goals anymore. Non military goals (e.g., politics, economics, social structures, culture) play an increasing role in current operations of our armed forces, in which also other parties are actors in theatre (e.g., NGO's, development aid agencies, local authorities). The military is thus forced to consider all these different goals and factors in their operations, and the consequences of those operations: what do you want to achieve in all these spheres (or what do you want to avoid)? The essence of the effects based approach is to make well-founded decisions regarding these goals, and derived from that, which tasks have to be performed in order to achieve those goals.
The framework (set out in Chapter 2) supports in making these decisions. It is a step-by-step model that the analyst can go through to determine the operational effectiveness, and as we have seen in Chapter 4, support the (higher level) commander in determining strategies for the mission. In the current chapter, we look at the different ways of utilization of the framework: in theory (the operational analyst) and in practice (the operational analyst and the military in the field). Is it the same process, what are the conditions and implications, how does it change the way of operating, and how can the framework or the 'thinking in effects' support the commander on a lower level in his tasks and decisions?

5.1 The operational analyst

There is a difference in the nature of the work that is performed on the different levels in the organisation. On a high level the focus is on designing strategies and operations: making plans, assessing means and assets, and assigning tasks to units. On the lower level the focus lies more on executing: refining and executing the plans set out on the higher level, performing tasks, and using tactics, techniques and procedures (TTP's).

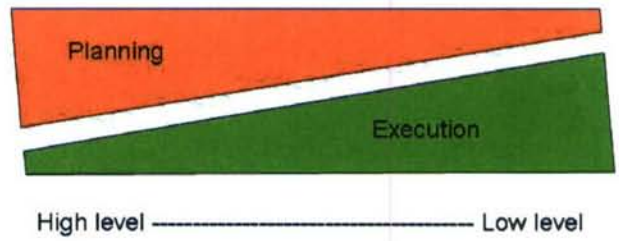

Figure 7 Nature of work on different levels.

For the analyst in a scientific environment the framework can serve as a 'steppingstone', that helps to focus the attention on all the different elements in the analysis. In other words, when analysing operations the analyst can go through the framework step-by-step, independent of the level of operations that are analysed.
The framework supports the analysis on all the different levels, even if the choices for strategies, operations, tactics, tasks to be performed, or outcomes are limited. This only means that that particular step in the framework is 'small', or might be passed over.

5.2 The operational analyst in the field (on staff-level)

On (higher) staff level, the focus is on planning (see Figure 8): making decisions about setting the goals for the mission, and the tasks that have to be performed to achieve those goals. The higher the level of the staff, the more overview a staff has on the mission: the availability of assets (e.g., logistics, materials, personnel), expertise (e.g., specialists such as the POLAD[14], DEVAD[15], LEGAD[16]), area information and other factors such as political interests and finances. Based on this overview, and also the command of several military units, the staff is able to make certain decisions: which areas have priority, which tasks have to be performed in those areas, and which units will perform these tasks. Time is invested in going through this process, in for instance the Operational Planning Process (OPP) and the Operational Decision Making Process (Operationeel Besluitvormings Proces, OBP).
In the planning process the operational analyst follows the first two steps of the framework: determine the intended effects, MoE's, and derive tasks from the desired effect. In other words, first determine 'what we want to achieve' (desired effect) before comparing options on how that effect could be achieved best (determine tasks).
And also think about how those effects will have to be measured. Several tasks could contribute to the desired effect in a different way, so options have to be weighed.
During the course of the mission, the analyst constantly monitors the 'state' of the effects and the progress of the mission (are we achieving what we intended to) and based on those reports the plans are continued, adjusted or renewed. The framework can be used in the several phases, 'exactly' following the steps (as described in Chapter 2). Chapter 4 describes the experiences with this form of analysis in theatre, where the operational analyst was allocated to the TFU-staff.

5.3 The military in the field

The lower the organisational level, the more task-oriented the focus will be (see Figure 8) and less assets and expertise will be at disposal. The lower level will lack a full freedom of action, because of several factors (e.g., other units active in the same area, distribution of assets, area priorities) that have to be attuned at a higher level. It could be that the commander on a lower level does have some freedom of choosing his own courses of action, but it could also be that orders from a higher level are 'translated' into concrete tasks and basic (combat) techniques. Sometimes a unit can only be deployed for executing one task.
When the tasks are set out so specifically (or bound by the ROE[17]), the commander will not use the framework in the step-by-step manner as described in Chapter 2, since the determination of the intended effects and/or derivation of tasks will be too trivial at that point. However, the effects based approach is still of importance, even on this low level. For one, because it is useful for the commander to know *why* he is performing his task: which effect it serves and what his share is in the greater unity (insight into his contribution to the 'greater good'). This not only creates commitment, which would probably make him perform the task as good as possible, it also gives him the chance to pay attention to specific information (during task execution) that could be useful for the higher level effects. Socially, it also provides a certain feeling of control (which makes it 'easier' to

[14] POLAD: Political Advisor.
[15] DEVAD: Development Advisor.
[16] LEGAD: Legal Advisor.
[17] ROE: Rules of Engagement.

comply to orders). Secondly, it is not only important to know the desired effects, but it might even be more important for the lower level to know the undesired effects. If the commander is aware of the higher level desired and undesired effects, he could prevent an action of a unit causing (unintentionally) negative effects.

In practice it appears that with the current type of mission, with more non-military effects playing a role, complexity increases also on the low level. For instance, a higher level effect such as 'winning the hearts and minds of the local community' means that a commander on the lower level has to interact with this local community. He can do this in several ways: talking to villagers on his patrol, visiting the village elderly, or attending the village council. Also, several capacities are available on the lower levels, and a unit (the Smallest Unit of Action, or SUA) is composed according to a specific mission (depending on the type of task the unit could comprise combat support and logistics, but also Psyops[18] and CIMIC[19] elements). This means that a commander on a lower level also has to make complex decisions, and has several means at his disposal to reach the (higher level) intended effects.
When the commander does have some freedom in choosing his actions to perform, or the way in which he performs them, the effects based approach could also help him in making decisions. This means that he will probably not follow the exact steps of the framework as is the case on a higher level (Paragraph 5.2), but he could be supported by a way of 'thinking in effects'. Always considering the intended effects could provide him the flexibility to perform ordered tasks (by the higher level) in the way he thinks is most effective. And, if one solution for a problem fails, it could support him to choose another action, in sight of the effects that have to be reached.
The current type of mission places more responsibility on the commander on the lower level, also known as the 'strategic corporal'. In view of the effects based approach this could be seen as a positive change: provide the lower level commander more space to outline his own tasks, as long as they contribute to the (higher level) effects to be achieved. On the other hand, the success of this 'strategic corporal' depends for a great part on the personal skills and educational level of this commander, which could have a negative outcome. This is an issue that will come into play, and therefore should be recognised and also integrated in the commanders' education and training.

As was already said above, on a lower level not every step of the framework will be passed through exactly according to the framework. The most important contribution of the effects based approach on a lower level is the way of thinking: always think in terms of the effects that you want to achieve with your actions (putting the emphasis on 'doing the right things', more than 'doing things right'). In the end, the most important is not the task that is executed, but the effect that is reached with it. On a lower level, we have to stimulate creativity with this approach. The military units acting in the area of operations are the 'experts' on this area: they see what is happening, they see what needs to be done to reach an effect. So they should be stimulated to inform the higher level of their own ideas about tasks that could be performed, in sight of the desired effects that are defined at a higher level.

There is still an ongoing discussion within the Netherlands Armed Forces on the level on which the approach of thinking in effects can be used, and how it can be used. Our view is that thinking in effects and the framework should be embedded in the organisation and it's doctrine on all levels, for reasons we have discussed and described in this chapter.

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[18] Psyops: Psychological Operations.
[19] CIMIC: Civil Military Cooperation.

How this should be shaped exactly (e.g., what elements of the approach should be incorporated at what level, to what level of detail should the framework be used on the different levels, how will this approach be embedded in doctrine, and training and instruction) will have to be worked out further in close co-operation with the Netherlands Armed Forces. The ongoing experience of the succeeding TFU's and other comparable missions contributes positively to this conceptualization.

6 Conclusions

This report focussed on how to determine the effectiveness of military operations. As we have seen, this has become more complicated in the current type of missions, where the effects are more widespread than just being kinetic in nature. There is a need for a systematic approach, in order to provide an analyst guidelines on how to determine the operational effectiveness.

To provide these guidelines, we set out a theoretical framework for the analysis of operational effectiveness (Chapter 2). The framework is an extension and improvement of the framework described in [1]. It provides a step-by-step guideline for the operational analyst, and provides insight into the process of determining operational effectiveness. The framework helps the analyst in answering the following questions:

- What effects are meant to be achieved in the area of operation?
- Which tasks will be performed to achieve these effects?
- How can be measured if the desired effects are actually achieved?
- How can be measured if, and how the own operations have contributed to the achieved effects?

The framework describes a systematic way of 'thinking in effects'. The core of this way of thinking is the central role of the effect that one wants to achieve with the operations. In other words, the tasks that a unit performs are not the goal, but a means to obtain an effect. The focus is therefore not on 'doing things right', but on 'doing the right things'.

The framework was 'tested' in a realistic scenario, by using the framework in a case study (Chapter 3). What we see is that it requires substantial analytical capacity to identify effects and MoE's, and to rightly formulate these effects, but also the MoE's and MoP's. This is not a trivial issue: both are of influence on the successful implementation of the framework.

The framework can be used in 'off-line' and 'on-line' mission support (support in advance, or in simulations, versus support in theatre). The practical experiences with using the framework in theatre, when supporting the TFU-staff in the ISAF mission in Afghanistan, is also described (Chapter 4). This description provides a useful insight in the (planning) processes that take place, the role of the operational analyst in those processes and the way of integrating effects based thinking (and the framework) in planning and monitoring the mission. Defining the MoE's and deriving tasks from these MoE's is a difficult process. One of the reasons is the influence of all the effects and MoE's on each other, and also the other influences in the area. It requires expertise and experience, and Chapter 4 shows that this (practical) expertise is being built up in the current missions. The experiences with using the framework in theatre show that this is of added value for the operations in current missions.

We also looked more closely at the different levels that this effects based thinking could be applied to, and the use of the framework on these levels (Chapter 5). It appears that the framework itself is useful on all levels, from the operational analyst in a staff, to the military (commander) in the field. The execution however (the way in which the framework will be used) will differ, depending on what level it is applied. On the lowest levels it will help the commander to put his actions into perspective: knowing the effect that is intended with the tasks he has to perform, will enable him to perform these tasks

more 'creative', and also act upon windows of opportunity. He can observe his surroundings more specifically, and can maybe (suggest to) perform other tasks that would be useful to obtain the intended effects. On the higher levels, it will support the commander in the planning process, as he will be better able to determine changes in the situation (have the goals been achieved) and the contribution of the own operations to the desired effects, and based on that prioritize tasks and means for the operations.

The framework enables the analyst to express the effects, and the effect indicators, in concrete terms. It supports in making the effects, and the relation between own operations and the effects, measurable. The approach of thinking in effects might furthermore support a small unit commander in his decision making and command processes, especially in non-standardised situations. And the framework (and the insights that are obtained in the process of setting it up) enables operational analysts to be better capable of supporting missions in theatre, by defining and measuring the effectiveness of the military operations.

Thinking in effects is a necessary approach in the current type of operations.
It is recommended to embed this approach in the Dutch doctrine, and in staff training. Given the fact that the impact of commanders on the lower levels increases, and with that their responsibility, they need guidance and also a better preparation for this. Thinking in effects could provide this guidance, and it should therefore be considered to incorporate (elements of) this approach in the training and instruction of junior leaders.

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8 Signature

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A Example measures

The tables in this appendix summarise the measures (effects and MoE's) collected by operational analyst teams, during the support of the major peace support operations over the last ten years. However, because of the individuality of every operation, these measures can never be completely generic and therefore these tables should be used only as an example of what type of measures can be collected and as an aide memoir of previous operational analysts deployments.

DSTL MOEs

This table is taken from the publication *'Code of best practice for the use of MOE'* of DSTL (Defence Science and Technology Laboratory, UK). See [4].

Line of Operation	*Measure*	*Sub-Measure*	*Operations used on*			
			Bosnia	*Kosovo*	*Afghan.*	*Iraq*
Compliance	POW's		✓			
	Boundary Line Crossings		✓			
	De-militarisation		✓	✓	✓	
	Cessation of Hostilities			✓		
	Location of Forces			✓		
	Co-operation with forces / civil presence	Smuggling	✓	✓		✓
		Demonstrations	✓	✓		✓
		Reaction to patrols	✓	✓		✓
		Attacks on allied forces	✓	✓	✓	✓
		Intimidation	✓	✓		✓
		Illegal roadblocks	✓	✓	✓	✓
	Mass Graves	Number of sites		✓		
	Allied Force Patrolling	Number of patrols		✓	✓	
		Fixed Tasks		✓	✓	
		Handover of tasks		✓	✓	
		Intelligence-led operations		✓	✓	
	Opium Production			✓	✓	
	KPC			✓	✓	
	KPS			✓		
Security	Alert State / Threat Level				✓	✓
	Freedom of Movement		✓		✓	✓
	Rule of Law		✓	✓	✓	
		Cases of murder	✓	✓	✓	
		Cases of Armed Robbery	✓	✓	✓	
		Cases of arson	✓	✓	✓	
		Cases of looting	✓	✓		
		Cases of hijackings	✓	✓		✓
		Cases of kidnappings	✓	✓		✓
		Violent demonstrations	✓	✓		✓
		Crimes witnessed	✓	✓		✓
		Arrests made	✓	✓		✓
		Judicial Reform	✓	✓	✓	✓
	Mine Clearance		✓	✓	✓	
	Level of Policing	Police Behaviour	✓			✓
		Effectiveness & Impartiality	✓		✓	✓

Line of Operation	*Measure*	*Sub-Measure*	*Operations used on*			
			Bosnia	*Kosovo*	*Afghan.*	*Iraq*
		Number of stations	✓		✓	✓
		Staffing	✓			✓
		Equipment levels	✓			✓
		Level of interaction with patrols	✓			✓
	Arrest of war criminals		✓			
	Incidents	Number of Attacks	✓	✓	✓	✓
		Attack type		✓	✓	✓
		Details of target	✓	✓		✓
		Location of attacks		✓	✓	✓
		IED contact risk times		✓		✓
		Perceived target		✓	✓	✓
	Armed PAX			✓		✓
	Force Reduction		✓	✓		
	Interference by external power		✓	✓		
	Creation / build up / training of nations military forces		✓	✓	✓	
Stability / Normality	Food Stuffs and Basic Commodities	Urban Food and Goods outlets / nearest market	✓	✓		
		Availability / presence of food and goods	✓	✓		✓
		Prices and their stability	✓	✓		
	Transport	Urban traffic levels	✓			
		Road Traffic accidents	✓	✓	✓	
	Accommodation / Living Conditions	Occupancy and use of housing	✓			
		Damage Assessment	✓	✓	✓	
		Repair rates	✓	✓		
	DPRE		✓			
		Number & Distribution	✓			
		Number wishing to return	✓		✓	
		Safe & viable return rates	✓		✓	
	Infrastructure	Water availability	✓	✓		✓
		Sewers / Sanitation	✓	✓		✓
		Oil production	✓	✓		✓
		Power availability	✓	✓		✓
		Fuel availability	✓	✓	✓	✓
		Level of Health care	✓	✓		✓
		Level of Education	✓			✓
	Employment	Closed Shop Employment (Unions)	✓			
		Prospects	✓			
		Level of unemployment	✓			
	Freedom of Speech	Media monitoring	✓	✓	✓	✓
	Government & Administration	Transition of power	✓		✓	✓
		Constitutional convention	✓			✓
		Balance of representation	✓			✓

Line of Operation	*Measure*	*Sub-Measure*	*Operations used on*			
			Bosnia	*Kosovo*	*Afghan.*	*Iraq*
		National ministries manned	✓			✓
		Conduct national census	✓			✓
		Acting in liaison / consultation with government and administration	✓		✓	✓
		Facilitation of countrywide government influence	✓		✓	✓
		Warlords	✓		✓	✓
	Election Support	Voter surveys	✓		✓	
		Polling station requirements	✓			
		Voter Routes	✓			
		Establish electoral institutions	✓			✓
		Voter turnout	✓		✓	✓
		Deterrence of attacks to election process	✓		✓	✓
		International recognition and local perceived legitimacy of elections	✓		✓	✓
	Population	Ethnic areas / status		✓		
		Pre-war / post-war levels	✓	✓	✓	
		Migration Trends	✓	✓	✓	
	Dress	Proportion of men / women wearing western clothing	✓	✓		✓
Shape the information environment	Production of Questionnaires / Support to PsyOps		✓		✓	✓

NATO Soldier Modernisation MOEs

This table is taken from the publication *'NATO Soldier Modernisation Measurements for analysis – a framework for modelling and trials'*. See [5].

Mission level	*MMoE*	*Scope of measurement Interpretation of measurement*
Defeated enemy	Enemy killed, wounded or taken prisoner so that they can take no further part in the campaign. For the purposes of this MMoE an assessment of those enemy who retreated/ withdrew so as to take no further part in the mission should also be made	How many of the enemy were killed? How many enemy were taken prisoner or wounded? Did the enemy prisoners/ wounded impinge on the commander's ability to undertake further operation until relieved of them? How many enemy retreated/ withdrew from this mission, but were capable of conducting subsequent operations in the campaign?
Own casualties	Own forces killed, incapacitated or captured such that they are unavailable for re-tasking at the end of the mission, expressed as absolute numbers for both. In trials, due to the limitations with instrumentation, it may only be realistic to measure numbers 'killed' and possible captured. Casualties would feed into higher level modelling	How many blue casualties were inflicted? Under what circumstances were the casualties inflicted? Did the capabilities provided to the force cause actions to be taken that led to blue casualties being inflicted? To what extent did blue casualties reduce tempo?
Key event times	Time taken to achieve the key events in the mission (Key events as defined by Standard Operating Procedures. Subjective comments should describe the factors that had an impact on the time taken.) Comment should also be given as to the effect on any following events that were time critical	Time available for planning/ orders (from end of superior commanders orders to start of prep? Time taken for estimate? Time taken to issue preliminary orders? Time taken to complete the position? Movement rates etc?
Consumables	Primarily ammunition (initial quantities and that consumed during the mission). Other items will become important with longer/larger missions.	Ammunition Grenades Smoke Ammunition carried for others
Re-organisation time	Time taken between securing an objective and being ready to undertake the next phase of the operation, or the time taken to establish the reason why the section was unable to continue.	Time taken for: finding casualties; processing prisoners; making ammo returns; checking arcs of fire; repairing positions.
Detection avoidance (yes / no)	The measure of the ability to operate covertly. This requirement may either be specified or implied in orders or become apparent at appropriate moments during the mission in order to obtain a tactical advantage.	Was detection avoided throughout the mission, where it was specified or implied in the orders? Was covertness achieved and detection avoided at an appropriate point in the mission in order to achieve a tactical advantage and gain surprise?
Ambush quality	The overall ability to spring the ambush as planned.	Was fire opened in unison by all weapon systems in the Killer Group such that the enemy was defeated before being able to offer resistance? Were extra instructions required?
Maintain	Ability to maintain traffic flow. The	Maintenance of traffic flow, within

Mission level	*MMoE*	*Scope of measurement Interpretation of measurement*
'traffic' flow	term 'traffic' covers people as well as vehicles whether motorised or otherwise	controlled traffic zone, at the rate specified in orders to permit traffic flow yet maintain security, within the limitations of vehicle types, road characteristics and weather.
Non-combatant casualties	MMoE is within the context of ROEs, orders & commander intention. Non-combatants (neutral forces, civilian population, journalists, etc..) killed or wounded (and by who) requiring hospitalisation	Non-combatant casualties expressed as absolute numbers, killed or wounded requiring hospital treatment, and including who inflicted casualty (Friendly, Enemy, Unknown), the circumstances around it and the impact on the mission.
Crowd (& non-combatant) control	MMoE depends on the commander's intention, which may be one of the following: 1 Disperse. 2 Modify behaviour. 3 Get to act in accordance with the commander's intention.	MMoEs expressed as follows: Were the non-combatants/crowd controlled as to the commander's intentions, e.g. within the geographical limits laid down in orders? 1 Crowd disperses with minimum casualties to either Security Force (MMoE2) or crowd (MMoE9). 2 Crowd modifies behaviour with minimum casualties to either Security Force (MMoE2) or crowd (MMoE9). 3 Crowd acts in accordance with the commander's intention with minimum casualties to either Security Force (MMoE2) or crowd (MMoE9).
Suppressive performance	Ability to generate sufficient suppressive fire power (could be within a mission or a mission objective itself).	Did the fire support group achieve effective suppression that prevented the enemy from interfering with Blue freedom of action?
Brief/ Debrief	In the context of the orders set, a comparison of the information captured and reported to the information that could have been captured and reported.	In the context of the orders set, a comparison of the information captured and reported to the information that could have been captured and reported allied to the quantity and quality of the information actually passed to the recipient.
Reinforcement	The time taken to obtain reinforcements and be available for tasking	The time taken to obtain reinforcements and be available for tasking.
Re supply	The time taken to get Consumables (e.g. ammunition) to the soldiers or issue humanitarian aid at the point of delivery.	How responsive was the re-supply system to the immediate demands for re-supply of consumables (e.g. ammunition, water etc) to the soldiers.
Re-equip	The time taken to provide replacement equipment to the soldiers.	How responsive was the re-supply system to the immediate demands for providing replacement equipment? How long did it take to provide replacement equipment to the soldiers?
Equipment preparation	Time spent and what was done against time spend and what should have been done, preparing	Was time made available to prepare equipment?

Mission level	*MMoE*	*Scope of measurement Interpretation of measurement*
	equipment for mission.	
Orders timings (pre-mission)	Measures of the time taken at each command interface prior to mission commencing.	Measures of the time taken at each command interface prior to mission commencing. Was sufficient time available at each level of command to prepare and issue orders? Was the 1/3 – 2/3 rule adhered to?
Mission difficulty	Not specifically a MMoE but is a mission level measurement. It provides an assessment of the mission context in which the command agility level 2 was implemented. It enables the other MMoEs to be better understood.	External mission difficulty indication that takes into account unexpected geographical features and enemy behaviour and the impact of climatic conditions as a combination of all three factors. The indication ranges from 0 (no difficulties under any of these categories) to +7 (substantial difficulties associated with all three).
Force condition	A measure of the ability of the force to continue operations associated with the physical condition of the soldiers.	Did the force have sufficient opportunities for eating and drinking and rest? Did the clothing system provide adequate performance in the environment? Was the fitness level sufficient to ensure timely recovery at the end of each mission? Was health maintained to an adequate level? Was the level of morale sufficient to continue successful operations?
Collateral damage	Unintentional damage to infrastructure (buildings, bridges, roads, power) that could impact key-event times of the mission or have a post mission impact (there may be 'key items' for which orders state damage should be avoided plus forces have a legal requirement to minimise collateral damage)	What items, desirable not to be damaged, are damaged during the mission. The impact of this damage on the mission would be captured through the other MMoEs but undesirable damage which didn't directly impact the Mission would also need to be recorded.

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15. ABSTRACT (MAXIMUM 200 WORDS (1044 BYTE))

Because the effects of the current missions are not easy to define and measure, there is a need for guidelines on how to determine if, and how own operations contribute to the desired effects. To offer these guidelines, a framework has been set up in order to support the analyst in determining the operational effectiveness of military units. The framework helps the analyst in answering the following questions. What effects are meant to be achieved in the area of operation? Which tasks will be performed in order to achieve these effects? How can be measured if the desired effects are actually achieved? How can be measured if, and how the own operations have contributed to the achieved effect? Besides the set up of the framework, a case has been worked out to test the usefulness of the framework in a realistic scenario. The experiences that have been gained with the use of the framework in practice, on staff level in theatre), are also described. And finally, the level in the organisation (from staff level to the level of small units) on which this effects based thinking (in which the desired effect is the key issue) can be applied is discussed.

16. DESCRIPTORS	IDENTIFIERS
Military operations other than war, Military Doctrine, Measures Of Effectiveness	Small Unit Operations, Effect Based Operations

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