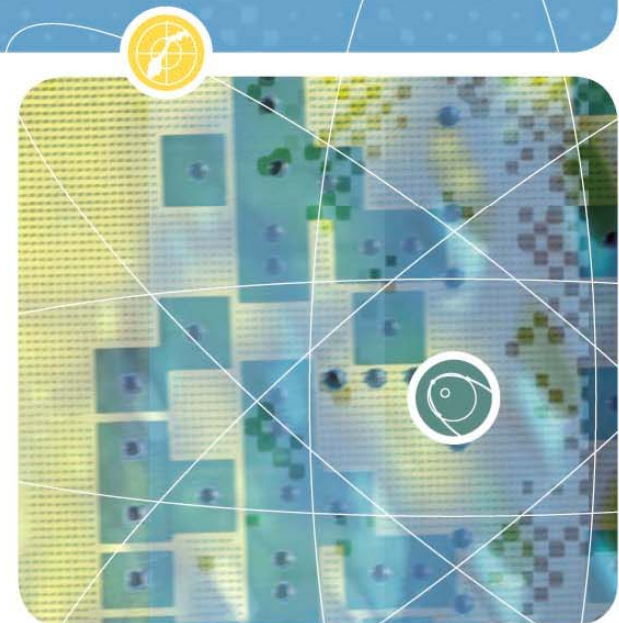


# Estimation of logistic consumption for the Norwegian Armed Forces



Terje Nilsen  
Norwegian Defence  
Research Establishment



# Overview

*”Be nice to a logistican if you want to hear a BANG! and not a CLICK! .....*”



- Introduction
- Consumption estimates
  - method
  - inputs
  - results
- Consumption rates and prognosis
- Methodological challenges
- Conclusions

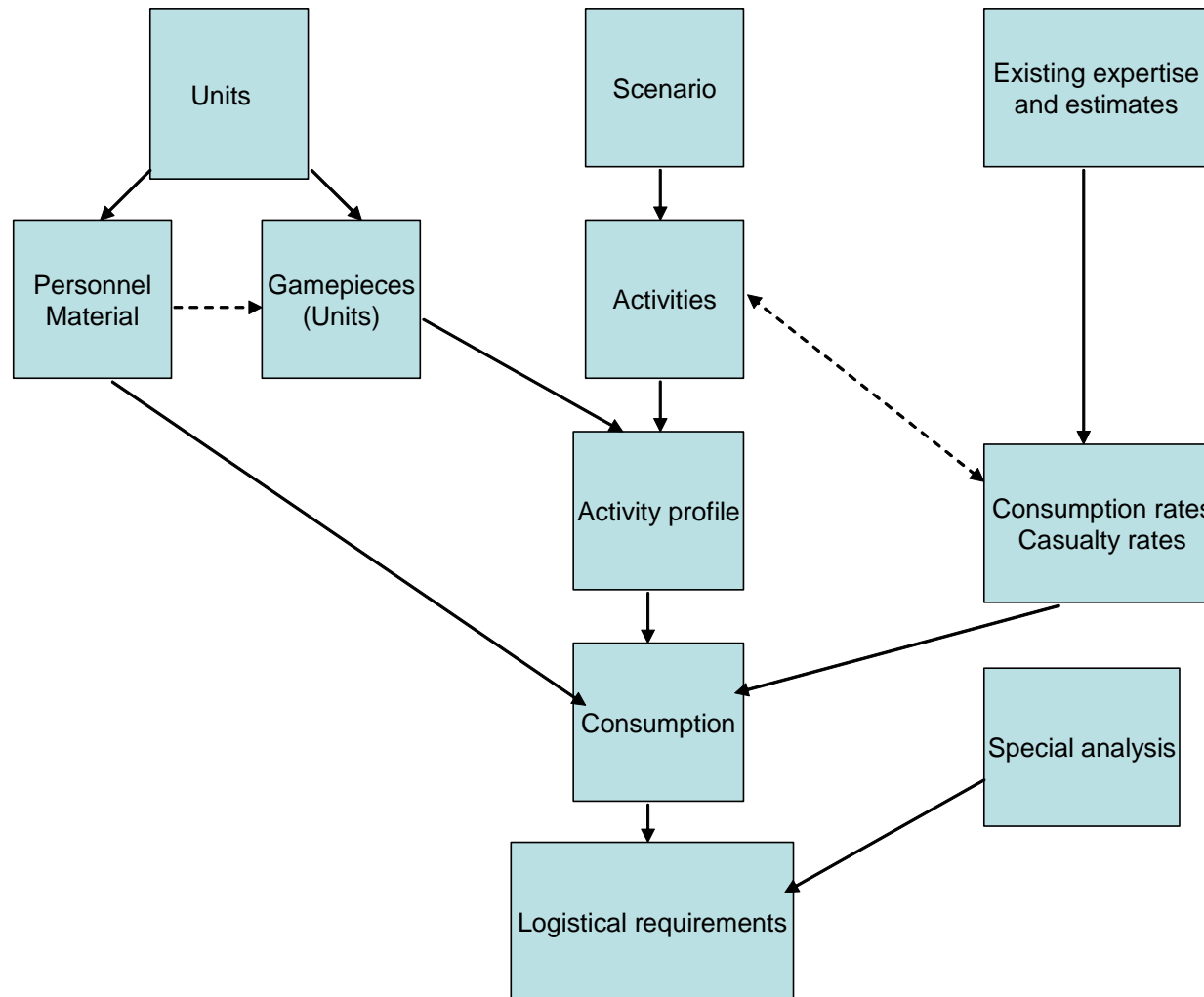


# Introduction

- NDRE has for about 6 years run a series of projects focussing on logistic issues
- The main reason for calculating the consumption estimates is to support a long term planning study on operational logistics
- Other applications of our estimation efforts are:
  - Logistics planning of stocks
  - Operational planning
  - Prognosis



# Consumption estimates - method





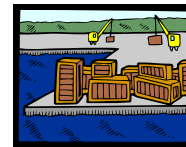
## Consumption estimates - inputs

- The choice of units, scenario, activities, and activity profiles were all done in close cooperation with military expertise
  - The **scenario** was based on three criteria: 1) Relevance, 2) Scope, and 3) Representativity
  - Defined the **activities** after mapping all the different tasks the units were to do in the different missions
  - **Activity profiles** constructed by a sequence of activities for each unit
- **Consumption rates** gathered from NDLO, staff handbooks, maintenance databases etc.
- **Casualty rates** equal to zero



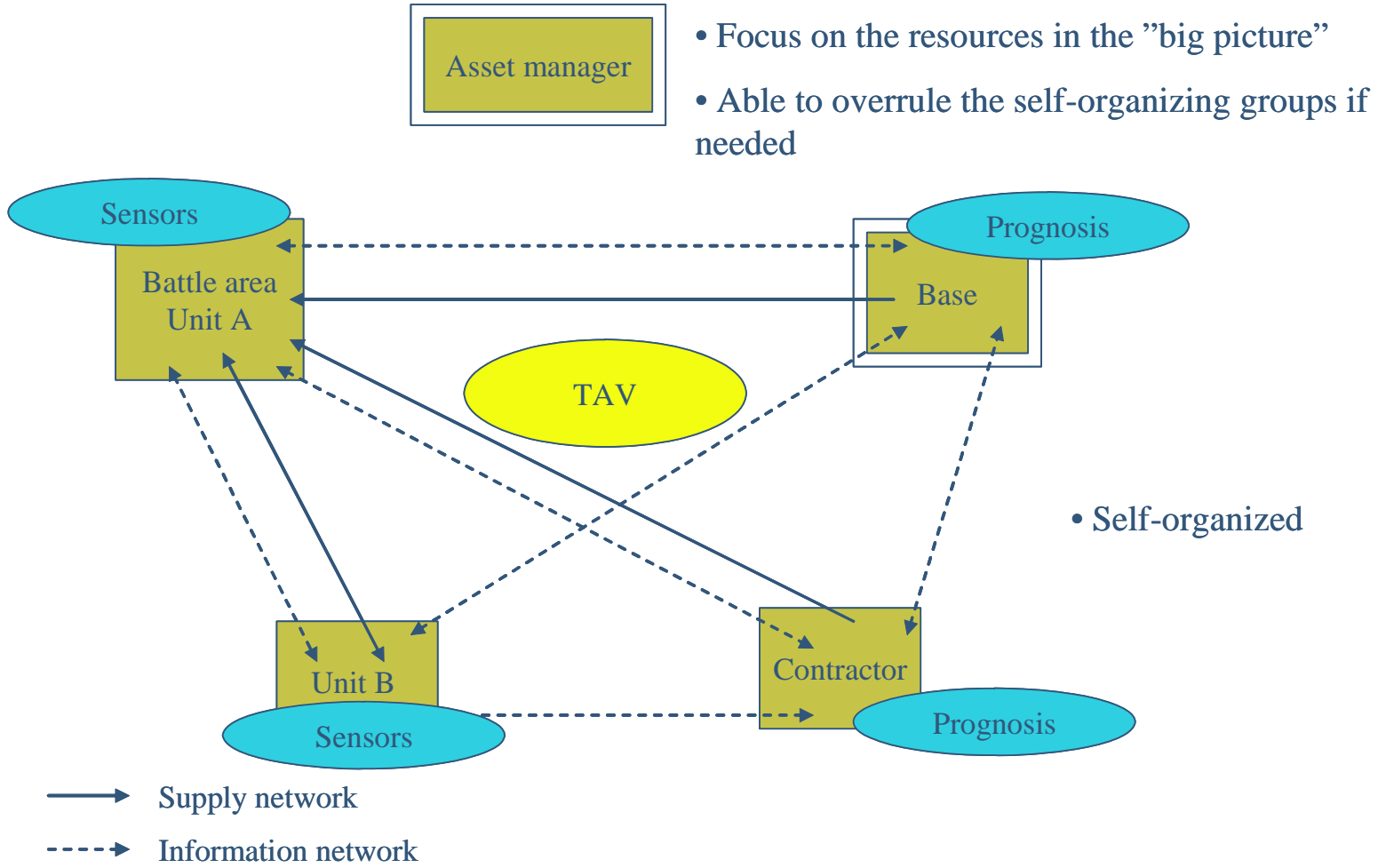
## Consumption estimates - results

- The results were made for the supply types: provisions, water, fuel, spare parts, and ammunition for each of the primary missions: training, defensive combat, offensive combat, normal and high stabilization
- Calculated consumption estimates:
  - in weight, volume and cost for a standard seven days period of each of the primary missions
  - for an operation of six months duration based on a sequence of consumption of standard seven days period





# Consumption rates and prognosis (1)



Based on the "Sense and Respond Logistics" concept (US)




## Consumption rates and prognosis (2)

- One objective in the "Sense and Respond Logistics" concept is to decrease stocks (reduced "footprint")
  - one way to do this is to have accurate prognoses tools, and hence the best possible input numbers in the form of consumption rates
- Our work gave consumption rates for the supply types: Water, provisions, fuel, spare parts, and ammunition
  - the consumption rates for all supply types except for spare parts is in the right measure to be used in prognoses tools
    - studies have been undertaken to get the right measure for spare parts but more work is necessary

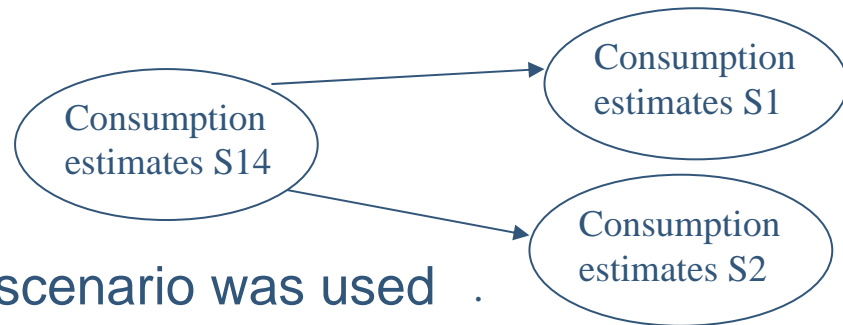




# Methodological challenges (1)

- Verification of the level of accuracy 
  - the results have only been validated intuitively by military experts
  - further validation: to compare the results with an actual operation as similar as possible to the scenario studied

- Representativity of results



- the most generic available scenario was used .
- necessary to get support from military expertise: if the results are going to be extrapolate to other scenarios .

.  
. .  
. .



## Methodological challenges (2)

- Area of application
  - four areas of application: Force structure planning, logistics planning of stocks, operational planning, and prognosis
  - operational planning: important for the operational planner to know all the assumptions that were used to get the results



## Methodological challenges (3)

- Deaggregation of results
  - the results for the supply types: water, provisions, fuel and ammunition all have the "right" measure from a supplier point of view
  - the challenge consists of getting the results for spare parts from Norwegian kroner per hour (for each consumer) to number of per hour (for each spare part)
  - a solution could be to get a fixed distribution of spare parts being used by each consumer corresponding to a certain amount measured in Norwegian kroner



# Conclusions

- We now have:
  - a method for calculating consumption estimates
  - a set of calculated basic seven days operations that can be used for quick estimates of different operations
- We would like to compare our results with experienced consumptions in real operations
- The consumption rates for the supply types: water, provisions, fuel, spare parts, and ammunition, except spare parts, will constitute a good basis as input numbers to prognoses tools



# QUESTIONS?

Contact information:

Terje Nilsen

Division of analysis

Norwegian Defence Research Establishment

[Terje.Nilsen@ffi.no](mailto:Terje.Nilsen@ffi.no)

+ 47 63 80 77 85

+ 47 41 62 16 56