Netherlands Mission Experiences
On Infantry Ammunition

Army

Marines

Afghanistan

Airforce
Netherlands
Mission Area

Afghanistan

TFU Task Force Uruzgan
Appr: 1.900 People
6 month rotations

2008-2010
Netherlands Armed Forces

Population: 16 Million

Total Size: 68,300
- Army: 26,000
- Navy: 10,000
- Airforce: 10,000

Budget: Appr 8,3 Billion €

Airforce Base Eindhoven
Port Eemshaven
Netherlands

Camps

Camp Hadrian
Deh Rawood

Tarin Kowt

Camp Holland

Kandahar
Airforce Base
Afghanistan

Kandahar

Deh Rawood

Tarin Kowd
Netherlands Armed Forces
To Afghanistan

Airforce Base Eindhoven

Port Eemshaven

KDC-10

IL-76

C-17

6.000 km 2 days

10.000 km 25-45 days

75.000 Kg; 500h
Short landing track (1 km)
Netherlands Mission Area
Some Equipment in Afghanistan

For transport
C-130
(17,000 kg/128 passengers)

For missions
YPR
MB
Patria
F16
Apache
PzH2000
Fennek
Bushmaster
Viking

Convoy’s
Cougar
Chinook
Close Cooperation with ANA
TFU Experiences
Ammunition

Extremely High Need for Ammunition

Ammunition:
- Need for high quantities
- Need for good quality
- Need for improved performance
  (urban targets)
Experiences

Infantry Ammunition

- **Small Caliber Ammunition** (upto 12.7 mm)
- **Medium Caliber Ammunition**
  - 25mmx137 for 25mm Canon IFV
  - 40mmx46 for Underslung and Stand Alone (Low Velocity)
  - 40mmx53 for AGL (High Velocity)
- **Mortar Ammunition**
  - 60mm
  - 81mm
- **AT/AS ammunition**
  - AT4
  - LAW M72A1
  - PzF / Bunkerfaust
  - Gill
"Infantry Support" Weaponsystems (Ammunition)

- 155mm PzH2000NL
- Apache AH-64D Helicopter
  - 30mm HEDP
  - 2,75" Rockets
  - Hellfire Missiles
- F16 A/B MLU Aircraft
  - 20mm FAP (now M70 mix)
  - Bombs (laserguided/GPS)
  - Missiles (only Air-to-Air)
TFU Experiences

Other Infantry Ammunition

- Handgrenades

- Smoke grenades
  (vehicle protection)

Special Forces
Clay Walls (av. 80cm thick); Sundried, mixed with stones and other materials
TFU Experiences

Extremes Environment

Sandstorm

Winter conditions

HOT

COLD
TFU Experiences

Extreme Mistreatment of Ammunition

Tune Up the qualification programs?
TFU Experiences

Small Caliber Ammunition (upto 12,7mm)

High quantity use

Not very effective against Quala targets

- 5.56mm
- 7.62mm (Diemaco Minimi)
- 7.62mm (COAX)
- 7.62mm (MAG)
- 8.6mm (Long Range Rifles)
- 12.7mm (Shotgun)
**Medium Caliber Ammunition**

- ✓ 25mmx137 for 25mm Canon IFV
- ✓ 40mmx46 for Underslung and Stand Alone (Low Velocity)
- ✓ 40mmx53 for AGL (High Velocity)
**Experiences**

**25mm Ammunition (IFV)**

- **Malfunctioning**
  - 25mm APDS-T, nr121
  - RWMS: TLB073
  - Soft metal cartridge case

- **Linked Ammo**
  - 25mm APFSDS-T, nr554
  - RWMS: PLB090
  - Hard metal cartridge case

- **High quantity use**
  - STANAG 4173
  - Qualified for use up to +63°C

- **Initial quantity from:**
  - DNK & CND (C137)
Land Systems Branch
Weapon Systems & Ammunition Division

TFU Experiences

25mm Ammunition (IFV)

25mm APFSDS-T

NOT very effective against Quala targets
Effective at ranges > 2.000m (other type of targets)
TFU Experiences
40mmx53 High & Low Velocity Ranges

**TFU**

**CIS 40GL**
**M203**
**HK 69A1**
**M79**

**AGL**
Used at firing ranges
2,200m - 2,500m
40mmx46 (Low Velocity Ammunition)

- Underslung AG36
- Stand alone HK 69A1

- Need for a wide range of different types of rounds; from HE to Less than Lethal (F&B; IR ILL).
- Different colours of smoke (Marking).

High quantity use
**TFU Experiences**

**40mmx53 (High Velocity Ammunition)**

Used at firing ranges

2,200m - 2,500m

**40mmx53 HEDP M430**

**USA support**

**High quantity use**

Very effective
TFU Experiences

Mortar Ammunition

- 60mm
- 81mm

60mm Hotchkiss

81mm L16A1 / L16A2
TFU Experiences

60mm Mortar

60mm Rounds (examples)

HE  SMK  WP  ILL

Ammo quality problems:
- SMK (Low smoke production)
- ILL (Non functioning)

Usefull equipment (Platoon Level)

Ranges: 400m – 1.000m

High quantity use
TFU Experiences

81mm Mortar

High quantity use

HE with Fuzes PD or Prox

SMK WP
SMK RP
ILL
Also IILL IR

New ammo family coming up.
TFU

Experiences

AT/AS Ammunition

✓ AT4
✓ LAW M72A1
✓ PzF
✓ Bunkerfaust
✓ Gill
TFU Experiences
AT4 and LAWM72A1

Special Forces

AT 4

M72A1

Not effective against Quala’s
TFU Experiences

Panzerfaust Family

PzF DM12A2
Developed to defeat armour with inserted probe: HESH mode

BF DM32
Developed to defeat bunkers

BF most effective system to defeat Quala’s

Heavy System (in case of walking)
**TFU Experiences**

**Gill**

High Cost System

**Effective to defeat Quala’s**

Alternative: Apache / Art support

but that takes more time
TFU
Experiences

“Infantry Support”

Weaponsystems (≡ Ammunition)

- 155mm PzH2000NL
- Apache Helicopter
  - 30mm HEDP
  - 2,75” Rockets
  - Hellfire Missiles
- F16 Aircraft
  - 20mm FAP (now M70 mix)
  - Bombs (Laserguided/GPS)
  - Missiles (Air-to-Air)
Experiences

155mm PzH2000NL ammunition

- HE: DM131A1 (40km), M107 (18km)
- SMK HC: DM115 (>20km)
- ILL: DM116 (>20km)

High quantity use
All types

Propelling charges
- M4
- Nr13 (8th charge)
- Modullar Charges DM92
**TFU Experiences**

Apache Helicopter

- **30mm HEDP**
- **2.75” Rockets**
- **Hellfire Missiles**

High quantity use
All types

Effective Ammunition
Against Quala’s?

Hellfire II, AGM-114N,
for use against buildings, bunkers:
Effective against Quala’s?
High cost system
TFU Experiences

F16 Aircraft

- 20mm FAP (now: M70)
- Bombs
- Missiles

High cost systems

High quantity use

All types
Experiences

Other Infantry Ammunition

Handgrenades

Smoke

Offensive

Incendary

High quantity use
All types

Extreme Rough Handling
(tune up qualification programs?)

Fragmentation

Smoke Colar

Teargas

F&B
TFU Experiences

Smoke Grenades

66mm Launchers on MB Special Forces

76mm Launchers on Fennek

66mm SMK RP

76mm Smoke RP

No info on High quantity use

Investigation on operational functioning in extreme climate area’s
TFU Experiences

IED threat

Working Levels

Mild Traumatic Brain Injury (mTBI)

Protection

Extremely Dangerous

RKG3
DATA Loggers

Pilot Data Collecting
- Shock
- Temperature
  (solar radiation)
- Humidity

120mm Leopard 2
120mm Tank Ammunition
155mm Artillery Ammunition

MOUT Experiment

35mm IFV Ammunition
AT/AS Panzerfaust Family

In planning:
Gill, Hellfire (?),
Medium Caliber (25, 30, 35, 40)
Others?

International Data Exchange
GER, TV28
USA, DEA1182
DNK, CH, CAN
MOUT Experiment
Ammunition Involved

- HEAT-T
- TP-T
- PELE
- TP & TP with Spotting Charge
- Canister
- TPCSDS-T

120mm

155mm

35mm

HE

TPFDS-T

HE/PD-SQ

Life and Training Ammo
Land Systems Branch
Weapon Systems & Ammunition Division

MOUT Experiment
AT/AS Ammunition Involved

PzF HEAT DM12A2
BF DM32

Inserted Probe:
HESH mode

PzF90 HEAT
PzF60 HESH DM62

PzF90 ASM

Dynamit Nobel
Breaching Experiment

Diemaco C7/C8

Simon

Underslung AG36

40mmx46 Breaching
New IFV with 35mm ammunition

OLD

YPR 765 with 25mm KBA B02B
ERA protection (TFU)

NEW

CV9035NLD with 35mm Bushmaster III

Dual feed, chaingun.
Linked ammunition

Studies on 30/35mm:
Life Cycle Cost
Ammunition Effectiveness
Firing Doctrines
35mm Linked Ammunition

Under Development

TPFDS-T, nr469
KETF, nr468

APDS-T, nr555
FAPDS-T, DM33
TP-T, PMD064
HEI-T, PMD040

APFSDS-T, PMD343
Temporary

> 400 particles
Effectiveness study
Additional Protection Programm CV9035NLD

ERA ?

APS ?
Standardisation of Ammunition

AN ABSOLUTE MUST!

Working together with coalition partners

A CHALLENGE

STANAG 4172
STANAG 2310
STANAG 4090

40mmx53

STANAG 4403

Male - Female
Standardisation of Ammunition

AN ABSOLUTE MUST!

Working together with coalition partners

A CHALLENGE

Problems

120mm Tank Ammunition

STANAG 4385

US Ammo in Leo and VV

STANAG 2427

81mm Mortar Ammunition

M252, L16, etc

Everything is different

Not System Ready

Problems
Some Interesting Developments

**Lightweight 12,7mm**
- External Powered
- Dual feed
- Linkless Ammunition

**Lightweight 25mm**
- External Powered
- Dual feed
- New Caliber (25mmx59)

**40mmx46 MV**
- Existing Weapons?

**Standardisation vs Modernisation**
- Warfighter Focussed
- Technology Driven

STANAG 4383

STANAG 4173
Peace Keeping Operation with High Ammunition Use

Systems In Action

A-10

F-16 NLD

PzH2000 NLD
Sunset in Afghanistan

Some gave all for a safer world
Thank You for your Attention

Hans Hoeneveld
Program Manager Ammunition
Land Systems Branch
Weapon Systems & Ammunition Division
Section Ammunition

Van der Burchlaan 31
P.O. Box 90822
2509 LV The Hague, The Netherlands
Phone: +31(0)70 316 35 88
Mobile: +31(0)6 53 43 98 04
Fax: +31(0)70 316 46 03
j.c.hoeneveld@mindef.nl