Post-War Ammunition Stockpile Recovery

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Consulting Engineers and Planners:

- Agriculture
- Building and industry
- Civil works
- Energy
- Environment
- Management sciences
- Urban planning
- Transportation
- Social sciences
- Hazardous waste
- Defence & security
Introduction - NIRAS

• The number four consulting engineering company in Denmark
• 1,000 employees
• 14 offices in Denmark
• Subsidiaries in Poland, Sweden, Ukraine, Finland, Bulgaria, Greenland, Tanzania and Zambia
• Turnover: $ 120 mill annually
DEMEX Defence and Security Technologies

- Protection of vehicles against explosions
- Decommissioning of military installations
- Blasting for construction
- Mine & UXO clearance
- Security for Danish embassies
- Demolition
Post-War Reconstruction

- Lebanon
- Bosnia
- Kosovo
- Iraq
- Afghanistan
Agenda for ammunition stockpile disposal

- Excess stocks of military ammunition resulting from the ending of crises / conflicts
- Mines and UXO remaining from military activities
- Illegal use of explosives, e.g. IEDs
- Safety and security
- Pollution of the environment, e.g. by OB/OD
- Lack of capacity to deal with the problem
Principles of demilitarization and ammunition disposal

1. Removal from storage
2. Transportation and intermediate storage
3. Preparation and pretreatment
   - Downsizing
   - Treatment
   - Recovery of scrap iron and metal
4. Disposal of waste
5. Recovery of energy and chemicals
Mobile ammunition disposal plant

Mobile incineration plant for hazardous waste, designed by NIRAS Chemcontrol
Mobile ammunition disposal plant
Design

- Overall layout in accordance to the logistic management of ammunition stocks
- Opening ammunition and extraction of explosive material
- Preparation of explosive/water mixture
- Incineration process in accordance to European criteria for incineration of hazardous waste (2 seconds at 1,100 C/2,012F)
- Energy recovery (heating / electricity)
- Flue-gas cleaning, removal NOx etc. in accordance to EU requirements
- Control system including mechanical safety measures
Ammunition stockpile destruction program in Afghanistan

- Status January 2006: 50,000 – 100,000 t total abandoned ammunition stocks to be handled
- Afghanistan New Beginning Program (ANBP)
- Demobilization, Demilitarization, Reintegration (DDR)
- Disbandment of Irregular Armed Groups (DIAG)
- Cooperation between UN, International Stability Forces (ISAF), NATO and Afghanistan Army
- Donors: US, EU and Canada and others
Ammunition stockpile destruction program in Afghanistan

STOCKPILES OF AMMUNITION

- REQUIRED BY THE ARMY
- MIGHT BE REQUIRED
- TO BE DESTROYED

- SAFE TO MOVE OR UNSAFE/DANGEROUS
- TRANSPORT TO TEMPORARY/PERMANENT AMMUNITION STORAGE POINT
- DESTRUCTION BY OB/OD OR INDUSTRIAL DEMILITARISATION
HALO WAD Ammunition destruction by provinces
Period covered: Sept 2003 - Nov 2005

LEGEND
- Main Roads
- Main rivers
- lakes
- Province Boundary

Weight (tonnes)
- 1 - 17
- 18 - 79
- 80 - 191
- 192 - 447
- 448 - 597
- 598 - 950
- 951 - 1860
- 1861 - 3646
New Strategy

- Change of disposal methods
- Stop OB/OD as disposal routines
- Industrial DEMIL in accordance to the Best Available Technologies Not Entailing Excessive Cost (BATNEC)
- Organizing collection and sale of scrap metal (NB!)
- Education
- Information
- Training
- Capacity building
Summary and conclusions

- Stockpiles of ammunitions in post-war must be handled in a quick, safe and environmental acceptable manner
- Technologies for industrial demilitarization of ammunition are available
- Information, education and training is mandatory
- Donors must encourage all stakeholders, incl. NGO’s, contractors, local army, local authorities to optimize the demilitarization processes
- Demilitarization of ammunition must be prioritized in post-war reconstruction
Thank you for your attention!