TNO capabilities on CBRNe Protection
Company: TNO

» Mission
  » To enable scientific knowledge to strengthen innovative capacity of private and public sectors

» Founded in 1930, by law (*independent* organisation, no shareholders)

» Turnover: > 500 Meuro

» ~ 4000 employees
Themes and innovation areas

1 HEALTHY LIVING
2 INDUSTRIAL INNOVATION
3 DEFENCE, SAFETY AND SECURITY
4 ENERGY
5 TRANSPORT AND MOBILITY
6 BUILT ENVIRONMENT
7 INFORMATION SOCIETY

1 VITALITY FOR LIFE
2 FOOD AND NUTRITION
3 WORK AND EMPLOYMENT
4 BIOMEDICAL INNOVATIONS
5 HIGH-TECH SYSTEMS AND MATERIALS
6 MARITIME AND OFFSHORE
7 CHEMISTRY
8 GLOBALLY DEPLOYABLE ARMED FORCES
9 SAFE AND SECURE SOCIETY
10 OIL AND GAS
11 ENERGY EFFICIENCY
12 GEOLOGICAL SURVEY OF THE NETHERLANDS
13 RELIABLE TRAFFIC SYSTEMS
14 SAFE AND CLEAN TRANSPORT
15 DYNAMIC URBAN AREAS
16 SUSTAINABLE BUILDING AND INFRASTRUCTURE
17 FUTURE INTERNET USE
18 SOCIETAL IMPACT OF ICT DEVELOPMENTS
19 VITAL ICT INFRASTRUCTURES
20 SPACE
Department: CBRN Protection

Mission: Committed to innovative protection against CBRN hazards

Vision: To be one of the world's leading, independent providers of CBRN solutions, based on an excellent knowledge base and unique test facilities and equipment

Customer base
- Dutch Ministry of Defence
- Dutch Ministry of Justice and Ministry of Internal Affairs
- European Union and European Defence Agency
- Foreign Ministries of Defence (US DoD)
- International Industry (Defence, Aerospace, Maritime)
Pillars CBRN Protection

CBRNe threat

- Threat analysis
- Situational Awareness incl. Detection & Identification
- Physical Protection
- Medical Countermeasures

Facilities

Optimal Protection
Threat assessment

Pillars
CBRNe Protection

Facilities

CBRNe threat

Threat analysis

Situational Awareness
incl. Detection & Identification

Physical Protection

Hazard Management
incl. Decon.

Medical Counter-measures

Optimal Protection
Situational awareness

Pillars
CBRNe Protection

CBRNe threat

Threat analysis
Situational Awareness
incl. Detection & Identification
Physical Protection
Hazard Management
incl. Decon.
Medical Countermeasures

Facilities

Optimal Protection
Physical protection

Pillars
CBRNe Protection

- Threat analysis
- Situational Awareness incl. Detection & Identification
- Physical Protection
- Medical Counter-measures

Facilities

CBRNe threat

Optimal Protection
Medical countermeasures

Pillars
CBRNe Protection

- Threat analysis
- Situational Awareness incl. Detection & Identification
- Physical Protection
- Medical Countermeasures

CBRNe threat

Optimal Protection
System approach

Pillars CBRNe Protection

CBRNe threat

Threat analysis
Situational Awareness incl. Detection & Identification
Physical Protection
Hazard Management incl. Decon.
Medical Countermeasures

Facilities

Optimal Protection
The military and the civil domain

All hazard approach

CBRN and E
M&S capabilities

- Effects
- Hazard prediction

Multi-order impacts

- Countermeasures (CABIS)
Example analysis

CABIS output format: analysis of mask performance in 3000 scenarios

X
Y
size
color
OA: BBN system analysis (under construction)

- Physical environment
- Threat
- Detection, Identification & Monitoring
- Personal exposure
- Physical state of personnel, environment & equipment
- Perception of phys. state pers, env. & equipm.
- Perception of maintained operational effectiveness
Example analysis

Sensitivity of ‘task degradation’ to a selection of system variables