NATO/SPS Short Term Project

ENVIRONMENTAL ASPECTS
of
MILITARY COMPOUNDS

(PHASE II)

Workshops held in:

- ***Bad Neuenahr, Germany*** ***May 29-31, 2007***
- ***Gebze, Turkey*** ***October 16-18, 2007***
- ***Amsterdam, the Netherlands*** ***May 13-15, 2008***

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1. Summary report

INTRODUCTION

1.1 After the first (single event) workshop on "Environmental Aspects of Military Compounds" in Vienna, Austria in May 2006 the second phase of this project has been carried out in the period May 2007-October 2008. The "Environmental Aspects of Military Compounds (Phase II)" project consisted of three workshops and an editorial meeting. The project resulted in three Handbooks on environmental aspects during operations: the first one on Environmental Management Systems, the second on Environmental Standards and the third on Best Practices. Additionally a generic Environmental Appendix to an Operations Plan has been developed and recommendations have been formulated on a regular information exchange forum and on education and training.

1.2 The past 15 years the participation of military units in humanitarian, peace keeping and peace enforcing operations has become the core businesses of the Armed Forces. These forces are quartered in military compounds or base camps that are generally in use for many years and are handed over from one nation to another as troops are relieved. A few hundred to thousands of military personnel live and work in these compounds and the same environmental aspects as in their peacetime barracks are of interest. The preparation of safe drinking water, treatment of waste water, the management of waste, soil protection against petrol and oil spills, the sound storage of dangerous substances and a reliable energy supply are aspects that have to be taken into account. Often the civil power companies, waste collectors and drinking water and sewage companies work poorly or not at all anymore because of the instability in the country. There the troops themselves have to make sure these issues are dealt with in an environmentally correct way.

1.3 In May 2006 Austria and the Netherlands have organised a (single event) three-day workshop on "Environmental aspects of military compounds" at the National Defence College in Vienna, Austria. The workshop was visited by 69 participants from 25 different countries and from five NATO organisations: CCMS (Committee on the Challenges of Modern Society), SHAPE (Supreme Headquarters Allied Powers Europe), NATO School Oberammergau, ENTEC (Euro NATO Training Engineer Centre) and NAMSA (NATO Maintenance & Supply Agency). The goal of this workshop was to determine how the participating countries have covered these aspects in procedures and techniques, to share experiences and successes in this field and to establish a network of experts. As a result it was decided that a follow-up project (Phase II) would be useful.

OBJECTIVES

1.4 Based on the results of the discussions at the workshop the following objectives were set for the second phase of the project:

- Identify a forum or system for a regular exchange of information and co-operation in the field of environmental aspects of military compounds to enhance interoperability;

- Evaluate the feasibility of implementing an Environmental Management System for deployed operations and prove recommendations for a way forward;
- Formulate a range of environmental (minimum) standards for compounds over the full range of NATO-led military operations;
- Enhance vertical and horizontal co-ordination and co-operation between the functional organisations (command, engineering, logistics, occupational health, medical, environmental, etc) at the commencement of the planning cycle by providing a generic (annotated template) Environmental Annex for standardised NATO Operations Plan as pertains to environmental issues of compounds;
- Develop a "SPS Guidance Document for the Environmental Best Management Practises for deployed Camps" by a Subject Matter Experts group consisting of all relevant functional organisations. In the course of this process national documentation is to be reviewed to develop an easily accessible and up to date repository. Upon completion of the Guidance Document it will be turned over to a Centre of Excellence within the NATO framework for custodianship.
- Ensure that training and education in this field at NATO level is being organised to achieve interoperability and provide guidance in setting up this training and education. The Guidance Document should be an integral part of this training.

SECOND PHASE OF THE PROJECT

1.5 Germany, the Netherlands and the United States of America have agreed to act as co-directors for the second phase of the "Environmental aspects of military compounds" project. The project consisted of three workshops and an editorial meeting in the period May 2007- October 2008 with distinct activities in between workshops. The project proposal has been discussed and approved in the NATO Science for Peace and Security Committee Plenary meeting in October 2006.

1st WORKSHOP BAD NEUENAHR, GERMANY May 29-31, 2007

1.6 In May 2007 the first of three workshops was organised in Bad Neuenahr, Germany. There were 57 participants present; 38 from 14 NATO member countries, 14 from 8 Partner countries, 3 from 3 different NATO bodies and 2 from the EU. The goal of the workshop was to exchange the latest information on compounds and to set up an organisation and action plan in order to realise the "Vienna" objectives.

1.7 For the exchange of recent developments in the field of compounds presentations were given on the following topics: Practice of Environmental Protection in several real-life operations, Environmental Management Systems, environmental monitoring and measurement of performance and technical sustainable developments for deployed compounds.

1.8 The organisation for the realisation of the "Vienna" objectives has been established as follows. Three syndicates have been formed and tasked to each work out specific objectives. Syndicate A was tasked with the identification of a forum, the feasibility and the contents of an Environmental Management System during deployed operations and the

organisation of training and education in this field. Syndicate B occupied itself with the environmental (minimum) standards on the different environmental aspects and Syndicate C took on the "Best Practices handbook" and the generic Environmental Annex to a NATO Operational Plan.
Chairmen, scribes and mentors have been chosen for each syndicate, the relevant documentation has been screened and distributed and action plans and timelines were set up.

2nd WORKSHOP GEBZE, TURKEY October 16-18, 2007

1.9 The second workshop took place at the Tübitak Conference Centre at Gebze, Turkey in October 2007. The number of participants was 53; 36 from 12 NATO member countries, 13 from 9 Partner countries, three from 2 different NATO bodies and one from the EU.

1.10 A limited number of presentations was scheduled in order to reserve as much time as possible to discuss the comments on the draft documents. Presentations were given on: the introduction of the "User Handbook for environmental considerations during military operations" prepared by Finland, Sweden and USA, Environmental Protection training at the NATO School, UN Environmental policy and guidelines and a USA Web portal for environmental support to contingency operations.

1.11 In the syndicate meetings the draft documents have been discussed and commented upon. A more detailed timeline has been set for the remainder of the project. The relevant comments are to be incorporated in the draft documents.

EDITORIAL MEETING WASHINGTON DC, USA January 21-23, 2008

1.12 After the draft documents were revised the mentors, chairs and scribes of the three syndicates got together in January 2008 in order to evaluate and balance the contents of the separate documents that have been developed independently in the three syndicates, and make them into logical and coherent final products. These were then sent out to all participants of the workshops to be reviewed by their Ministries/Departments of Defence. The comments were to be discussed at the Amsterdam workshop.

3RD WORKSHOP AMSTERDAM, THE NETHERLANDS May 13-15, 2008

1.13 The third and last three day workshop took place at the Naval Barracks in Amsterdam, the Netherlands in May 2008. The workshop was visited by 52 participants; 34 from 13 NATO member countries, 14 from 9 Partner countries, three from three different NATO bodies and one from the EU.

1.14 Again a limited number of presentations was scheduled in order to reserve as much time as possible to discuss the final documents. Presentations were given on the latest developments in the field of environmental aspects of military compounds: real-life examples of environmental (waste) management in compounds, Environmental Technology developments, Defence related activities in the NATO SPS Programme and possibilities to anchor the results of the Compounds project within the NATO organisation.

1.15 After the Washington DC editorial meeting in January 2008 the six edited documents were sent to all participants of the Bad Neuenahr and Gebze workshops. They were asked to comment on the documents after discussing them with the relevant colleagues in their Ministries/Departments of Defence. Before and during the Amsterdam workshop these comments were collected, discussed in the three syndicates and decided upon. Some remaining outstanding questions have been answered before 1 July 2008 and all approved comments have been incorporated in the final documents. A proposal for custodianship and maintenance of the documents has been formulated as well.

FINAL PRODUCTS

1.16 In the course of the "Environmental Aspects of Military Compounds" Project the following final documents were produced:

- Recommendation regarding fora for the exchange of information on environmental aspects in military compounds
- Planning an Environmental Management System (EMS) for NATO led military activities (Handbook)
- Environmental Protection Standards for NATO deployed compounds (Handbook)
- Appendix 3 - Environmental Protection to Annex EE for a standardised NATO Operations Plan
- Environmental Protection Best Practices for NATO deployed compounds (Handbook)
- Recommendation regarding Training and Education for Environmental Management in military compounds.

At the same time custodianship for each document has been arranged with standing organisations or working groups within NATO, so that maintenance and update of the documents is guaranteed and the best possible preconditions have been created for a successful implementation in the NATO organisation.

a. Recommendation regarding fora for the exchange of information on environmental aspects in military compounds

1.17 Information and lessons learned concerning the environmental aspects of military compounds will have to be regularly exchanged among NATO members and Partners in order to maintain and update the above mentioned Handbooks. The Environmental Protection Working Group (EPWG) as part of the NATO Standardization Agency consists of a mix of environmental policy makers, environmental experts, military engineers and logisticians from NATO and interested Partner countries. Under the EPWG plenary group a smaller Panel (the "Environmental Aspects of Military Compounds Panel") will be formed to maintain and update the Handbook on Environmental Management Systems and the Handbook on Environmental Protection Standards. These Handbooks will be transformed into Allied Joint EP Publications (AJEPP's), which have an official status within the NATO organisation.

b. Handbook on "Planning an Environmental Management System (EMS) for NATO led military activities"

1.18 The first Handbook produced during the Environmental Aspects of Military Compounds project is the planning document for an Environmental Management System (EMS) for NATO led military activities. The aim of this document is to provide Environmental Protection (EP) Officers with an understanding of the NATO planning process and how to integrate an EMS into this process. The document explains the NATO Operational Planning Process, key elements of the NATO EMS, environmental risks to be considered during the different stages of compound development, and the actions to be taken during draw down (force reduction), site transfer to other nations or site closure.

1.19 The Environmental Protection Working Group (EPWG) will form the "Environmental Aspects of Military Compounds Panel", which will take custodianship of this EMS Planning Handbook.

c. Handbook on "Environmental Protection Standards for NATO deployed compounds"

1.20 Compliance with applicable environmental laws and regulations is a necessary cost of doing business, even during military operations. Often national environmental regulations do not specifically apply to forces engaged in military operations in another country. This is not always the case, however, and the extent to which domestic laws and regulations apply extraterritorially will vary from nation to nation. Defining and quantifying standards for Environmental Protection within a NATO compound is necessary and important in defining and monitoring the potential level of environmental damage. As a general rule, participating nations must adhere to the "due diligence" principle in the application of environmental measures. It is generally accepted that most national environmental regulations will be more stringent than those of the host nation and therefore participating nations must strive to meet their own national standards for environmental protection. If no national standard exists for a specific environmental concern, participating nations will ensure activities do not adversely impact on the local environment, based on agreed-upon international standards.

1.21 The information contained in the Handbook on Environmental Protection Standards is meant to provide military commanders with guidelines in the application of environmental standards during the development of a NATO compound. These standards will be applied based on NATO command direction as well as applicable national and international regulations. It is not meant to replace existing regulations but offers a complementary source of information for military planners when considering environmental factors in the Operational Planning Process.

1.22 In ten Annexes the Handbook defines reasonable standards that can be used as a guideline for the environmental management in deployed camps. The following topics are covered: wastewater, solid waste, medical (clinical) waste, hazardous materials management, energy, petroleum, oil and lubricants (POL), soil contamination, natural, cultural and historical resource management, air pollution and noise pollution.

1.23 The Environmental Protection Working Group (EPWG) will form the "Environmental Aspects of Military Compounds Panel", which will take custodianship of the Handbook on Environmental Protection Standards.

d. Appendix 3 - Environmental Protection to Annex EE for a standardised NATO Operations Plan

1.24 In order to accommodate military planners and environmental officers in the planning phase of an operation, a generic example of an Environmental Protection Appendix has been produced. The Environmental Protection Appendix is part of the Engineering Annex EE to an Operations Plan. This Appendix covers protection of the environment during NATO-led operations and exercises.

1.25 Maintenance and update of the "Appendix 3-Environmental Protection to Annex EE for a standardised NATO Operations Plan" will be the responsibility of the SHAPE CJ4 ACO EP Officer. He will get input for this task from the Joint Forces Commands, the Environmental Protection Working Group (EPWG), the NATO Military Engineering Centre of Excellence and the NATO Joint Analysis and Lessons Learned Centre.

e. Handbook on "Environmental Protection Best Practices for NATO deployed compounds"

1.26 As a tool in the planning phase of an operation the "Environmental Protection Best Practices for NATO Deployed Compounds" Handbook has been developed. It consists of a so-called Functional Planning Guide and a large number of annexes, each dealing with a specific environmental aspect on compounds. Military planners can use this Functional Planning Guide (FPG) to incorporate EP standards and best management practices into applicable NATO military operation plans. This FPG focuses operational planners on the proper environmental measures for each phase of an operation.

1.27 The annexes to the Best Practices Handbook deal with the following topics: Operational EMS, Environmental Baseline Survey (EBS), wastewater and waste management, hazardous material management, infrastructure planning and energy conservation, petroleum-oils-lubricants (POL), soil contamination, natural, cultural and historical resource management, air Pollution and noise Pollution.

1.28 Headquarters SHAPE is the tasking authority for this Functional Planning Guide. Since March 2008, by decision of the Military Committee (MC 0560), Environmental Protection within NATO is the responsibility of the military Engineers. The existing Euro NATO Training Engineer Centre (ENTEC) will work towards accreditation as the "NATO Military Engineering Centre of Excellence". Maintenance and update of the Best Practices Handbook, which will be based on lessons learned from actual operations, is best placed with this new Centre of Excellence, which has functional relations with national operational military engineers and with the NATO Joint Analysis and Lessons Learned Centre.

For the intermediated period until formation of the NATO Military Engineering Centre of Excellence, the Environmental Protection Working Group will oversee maintenance and update of the Best Practices Handbook.

f. Recommendation regarding Training and Education for Environmental Management in military compounds

1.29 In order to make sure the content of the Handbooks on Environmental Management Systems, Environmental Standards and Best Practices will be used, it is essential that personnel going on a mission are aware of the contents of these Handbooks. This will have to be arranged through training and education. It is recommended that two training courses on the operational level at the NATO School Oberammergau should be adapted to include the contents of the Handbooks.

1.30 The Environmental Training Working Group (ETWG) functioning under the NATO Training Group (NTG) will oversee that the contents of the Handbooks produced in the Environmental Aspects of Military Compounds project are incorporated in the training courses at the NATO SHAPE School Oberammergau. The proposed NATO Military Engineering Centre of Excellence would be a key element in providing guidance for training below the operational training level in accordance with national responsibilities.

COMMUNICATION PLAN

1.31 The final reports of the "Environmental Aspects of Military Compounds" project including a CDROM with all presentations and documentation will be made available to all workshop participants, the NATO SPS Plenary representatives (member and Partner countries), members of the Environmental Protection Working Group (EPWG) and the Environmental Training Working Group (ETWG).
The results of the "Environmental Aspects of Military Compounds" project will be presented to the following fora: NATO SPS Plenary Meeting, members of EPWG and ETWG, SHAPE, JFC Brunssum, the Annual Joint Senior Engineer Conference and the Euro NATO Engineer Centre (ENTEC).
A summary of the final report of the "Environmental Aspects of Military Compounds" project with some pictures will be made available for the NATO SPS website.

1.32 By making the "Environmental Aspects of military Compounds" issues part of the agenda of the Environmental Protection Working Group, of the Environmental Training Working Group and possibly of the new NATO Engineering Centre of Excellence (now ENTEC) and by giving this topic a fixed place in the curriculum of the NATO School Oberammergau, continued attention for this worthwhile effort is being guaranteed.

1.33 All participants were grateful for the opportunity given by the SPS Programme to launch the Environmental Aspects of Military Compounds project. The Compounds project is a good example of what can be achieved under the new Defence and Environment Agenda recently set up in the framework of the SPS Programme.

2. Introduction

2.1 The past 15 years the participation of military units in humanitarian, peace keeping and peace enforcing operations has become the core business of the Armed Forces. These forces are quartered in military compounds or base camps that are generally in use for many years and are handed over from one nation to another as troops are relieved. A few hundred to thousands of military personnel live and work in these compounds and the same environmental aspects as in their peacetime barracks are of interest. The preparation of safe drinking water, treatment of waste water, the management of waste, soil protection against petrol and oil spills, the sound storage of dangerous substances and a reliable energy supply are aspects that have to be taken into account. Often the civil power companies, waste collectors and drinking water and sewage companies work poorly or not at all anymore because of the instability in the country. There the troops themselves have to make sure these issues are dealt with in an operationally efficient and environmentally correct way.

2.2 The NATO Standardisation Agreement STANAG (Standardisation Agreement) 7141 EP, fully titled the "Joint NATO doctrine for environmental protection during NATO led military activities" states the necessity and gives the framework for environmental protection during operations. Most of the environmental load of an operation focuses on and comes together in the compounds.
The environmental questions while operating abroad within the framework of the operational task are: how to prevent health hazards to its own personnel and the surrounding local population, how to prevent damage to the environment and how to prevent legal claims when the site of a compound is supposedly polluted by a sending nation? Each individual sending nation is confronted with these problems and is working on solutions. Interoperability between troops of NATO and Partnership countries and the common practice to hand over the compound to another country when troops are relieved make it useful to find common ground on these topics.

2.3 Recent problems of several sending nations with waste management in relation to the Basel Convention, which restricts transporting waste from one country to another, and technical developments in drinking water and wastewater treatment make it worthwhile to exchange information on the different national solutions that are available.

2.4 The "Environmental Protection Working Group" (EPWG), as part of the NATO Standardisation Agency, is responsible for writing and updating STANAG 7141 EP. During its annual meeting at NATO HQ in December 2003, practices and experiences on this topic have been discussed and it became clear that each country has its own solutions and is often not aware of the actual practices in other countries. Therefore the possibilities for a workshop in NATO CCMS/EAPC-format have been discussed and the delegates of 13 nations (Austria, Belgium, Canada, Czech Republic, Denmark, France, Germany, Greece, Italy, Lithuania, the Netherlands, UK and USA) were in favour of this idea. This led to Phase I of the

Environmental Aspects of Military Compounds, the workshop in NATO/CCMS workshop in Vienna in 2006.

2.5 In the ongoing NATO SPS "Sustainable Building for Military Infrastructure" study environmental issues of permanent peacetime infrastructure are being addressed since 1999. This project complements the same topic for temporary operational infrastructure.

2.6 Germany, The Netherlands and the United States of America have agreed to act as co-directors for the second phase of the "Environmental aspects of military compounds" project. The project consisted of three workshops in the period Spring 2007-Summer 2008 with distinct activities in between workshops. The project proposal has been discussed and approved in the NATO Science for Peace and Security Committee Plenary meeting in October 2006.

2.7 Experts on the design, construction and operation of the above mentioned aspects of military compounds during operations were invited to take part in the project and share their knowledge and experience. Most likely these experts are to be found in the engineering, logistical, construction and environmental branches of the ministries of Defence. More specific we looked for:

- Experts involved in design, selection and procurement of equipment necessary for environmental protection
- Experts with experience in the design, construction, operation and removal of military compounds
- Experts involved in environmental protection procedures in MoD's.

3. Results of The Vienna Workshop – Phase I

Reference documents:

a. *EAPC(CCMS)D(2005)0005 Proposed Workshop on Environmental Aspects of Military Compounds*
b. *EAPC(SPS)D(2006)0003-REV1 Summary Final Report of the Workshop on Environmental Aspects of Military Compounds*
c. *NATO/CCMS Blue Book Report No. 276*

INTRODUCTION

3.1 On 9 – 11 May 2006 Austria and the Netherlands have organised a three-day workshop on the issue of "Environmental aspects of military compounds" at the National Defence College in Vienna, Austria. The goal of this workshop was to establish how the participating countries have covered the environmental aspects of military compounds in procedures and techniques, to share experiences and successes in this field and to establish a network of experts. Furthermore the usefulness of a follow-up project (Phase II) has been discussed.

3.2 The scope of the workshop encompassed the materiel, methods, techniques and procedures used during design, construction, operation, handover to other nations and dismantling of compounds. The relevant issues are drinking water facilities, wastewater treatment, waste management, storage of dangerous substances, soil protection and energy supply.

3.3 The workshop was visited by 69 participants from 25 different countries and from five NATO organisations: CCMS (Committee on the Challenges of Modern Society), SHAPE (Supreme Headquarters Allied Powers Europe), NATO School Oberammergau, ENTEC (Euro NATO Engineer Centre) and NAMSA (NATO Maintenance & Supply Agency).
The 16 NATO member countries represented were: Belgium, Canada, Germany, Estonia, France, Great Britain, Greece, Hungary, Lithuania, Latvia, the Netherlands, Norway, Portugal, Romania, Turkey and the United States of America. The 9 Partner countries present were: Albania, Armenia, Austria, Azerbaijan, Croatia, Finland, Former Yugoslav Republic of Macedonia, Georgia and Ukraine.

SURVEY

3.4 In the months before the Workshop a survey was sent to all participants, which focussed on the following items:

- the background of the participants
- the implementation of STANAG 7141 EP
- type of legislation applied during operations
- available procedures and handbooks
- international co-operation in this field and

- available environment related equipment.

Out of the 25 countries present at the workshop, 18 have replied so a fairly good impression of the situation has been obtained. This led to the following conclusions.

3.5 The implementation of STANAG 7141EP is already completed or underway in 76% of the countries present at the workshop.

3.6 Regarding the type of environmental legislation that is being applied during operations the results were as follows:

- 52% of the sending nations applies its own environmental legislation
- 24% applies the local legislation of the country where the operation takes place
- 19% uses the most stringent of the local or its own legislation

Quite a few countries use additional regulations besides legislation. Some of the regulations mentioned are the Status of Forces Agreement, MoU's, EU regulations and the STANAG 7141EP.

3.7 In 14 of the participating countries there are already 43 handbooks and procedures available; 18 more procedures are being prepared. That means there is already a lot of knowledge and experience on paper. At the same time it became apparent that procedures from other countries are rarely used, which is an indication of the fact that there is little international co-operation on this subject. About half of the countries present indicate co-operation with other countries. On average this co-operation took place with two other countries, with a maximum of five countries. The countries most co-operated with are Germany, Sweden and USA.

3.8 Half of the countries have their own equipment for drinking water, waste water treatment , soil protection, storage of hazardous materials and energy supply. Only five countries mention the availability of waste treatment equipment.

The conclusions of the survey have been incorporated in the overall workshop conclusions.

WORKSHOP PROCEEDINGS

3.9 The 3-day workshop took place at the Landesverteidigungs-Akademie (National Defence College) in Vienna, Austria on May 9-11, 2006 and consisted of plenary sessions with presentations and discussion, syndicate groups to look further into the specific aspects, followed by syndicate and overall conclusions. A fieldtrip to a topic related site was held.

3.10 In the **opening session** presentations were given by representative of the two co-directing countries, Austria and the Netherlands, and of NATO/CCMS.
The Austrian Briggen Secur Cabanac, deputy director of the National Defence College Austria, spoke out a very hearty welcome to all participants.
Briggen René Veger, Director Operational Support of the Royal Netherlands Army, stated in his presentation that interoperability in compounds is very obvious, since much compounds

are used by different nations at the same time. Since the NATO military is well accustomed to standardisation in numerous areas and since NATO has provided a framework through MC 469 and STANAG 7141EP, the logical way ahead is harmonisation and standardisation by harmonising procedures and sharing field experiences through a networks of experts.
Dr. Deniz Beten, CCMS Programme Director of the Public Diplomacy Division at NATO, showed that since the early eighties NATO/CCMS has developed an influential programme of defence related environmental studies and conferences and offers a platform for building relations with EAPC countries within the PFP programme. Studies such as "Environmental Management Systems", "Sustainable Building for Military Infrastructure" and this workshop on environmental issues of compounds fit well in this category.

3.11 The following twelve **presentations** were given by representatives from Albania, Austria, Belgium, Canada, Germany, Rumania, United Kingdom, USA as well as from NAMSA and SHAPE.
The presentations focussed on:

- The NATO regulatory framework on environmental protection
- The implementation policy for Environmental Management Systems on deployed operations in a number of countries
- Design concepts for military field camps from Belgium, Germany. NAMSA, United Kingdom and the USA, which are modular, scalable and where the level of provisions follows the phase of the operation (e.g. the UK "3 tiers")
- Land quality assessments previous to the choice of a field camp location and at the end of an operation during handover and redeployment
- Technical solutions for the treatment of waste water
- Innovation on the reduction of solid waste in food packaging and on using waste as a source of electrical power supply
- Examples of situations where environmental protection failed with pollution as a result
- Examples of environmental protection during exercises by NSF and Rumania
- Soil protection measures through compound spill plans, pollution control equipment and pollution control absorbents,
- Examples of field camps, such as Camp Eaglebase near Tuzla, Bosnia i Herzegovina, the German Provincial Reconstruction Team (PRT) camp at Kunduz, North Afghanistan and the NATO Joint Task Force camp with NAMSA as host nation.

The full text of the workshop proceedings can be found in the NATO/CCMS Report nr. 276: "NATO/CCMS Workshop Environmental Aspects of Military Compounds".
The presentations can be found on the CDROM at the back of this report.

SYNDICATE CONCLUSIONS

3.12 Four syndicates discussed the following topics during the workshop:

- policy and procedures
- soil and storage

- water and wastewater
- waste and energy.

The syndicates conclusions are integrated in the overall workshop conclusions. There where more detail is given in the syndicate conclusions, this is used as a starting point for activities in the next phase of this project.

WORKSHOP CONCLUSIONS

3.13 Based on the survey conclusions and on the conclusions reached in the syndicates the overall workshop conclusions were formulated, discussed and amended in the final plenary meeting. The verbatim text of the workshop conclusions is given below:

1. Since 1990 the core business of military forces is peacekeeping operations. Military compounds house large concentrations of troops over a long period of time. Often there will be different nationalities working together and the compounds are handed over from one nation to another as troops are relieved. Environmental aspects such as the availability of safe drinking water, the treatment of waste water, the management of waste, protection of the soil, storage of hazardous materials and energy supply are vital during the complete lifecycle: design; construction; operation, handover and dismantling of these compounds.

2. Operational environmental management is essential for military commanders to create safe living and working conditions for their soldiers, reduce the risks of complaints and claims from the local populations and avoid adverse public opinion and relations.

3. At the NATO workshop "Environmental Aspects of Military Compounds" 65 experts from 24 countries were present. There was a good mix of NATO and Partners countries and NATO institutions and of policy, operational and acquisition experts. The established network will be valuable to make increasing co-operation possible in the future.

4. Considerable knowledge has already been developed in the individual countries, but exchange of this information and co-operation in this field is very limited. To enhance interoperability exchange of knowledge and harmonisation must be intensified.

5. NATO policy and STANAG's form a good basis at the strategic level to incorporate these environmental aspects into the operational planning process. Implementation in an early stage is a condition to be successful. However, NATO does not have an EMS (Environmental Management System) for deployed operations and compliance has been and continues to be an issue.

6. Clarity is required concerning environmental standards (waste water discharge, soil remediation, air emissions, etc.) for NATO-led multinational operations.

7. Training and education at all levels are essential for awareness on this topic and are necessary to be able to handle these issues in the right way to achieve interoperability. Nations must support the NATO School by providing speakers to share their expertise.

8. Vertical and horizontal co-ordination and co-operation between the functional organisations (engineering, logistics, occupational health, medical, environmental, etc) is necessary throughout the entire operational cycle, but it is essential at the commencement of the planning cycle.

9. Way ahead:

- Within the CCMS framework a Subject Matter Experts group consisting of all relevant functional organisations should develop a "CCMS Guidance Document for the Environmental Best Management Practises for Deployed Camps".
- National documentation is to be reviewed to develop a repository using the CCMS web-site.
- Upon completion, turn over to a Centre of Excellence within the NATO framework for custodianship.
- Integrate the Guidance Document into NATO School training.
- NATO and national predeployment training and exercises should include compound issues.

FUTURE ACTIVITIES

3.14 The final report of this workshop has been presented at the NATO SPS Plenary Meeting in October 2006 (*EAPC(SPS)D(2006)0003-REV1*) and the extensive Blue Book report has been sent to the participants and made available at the Plenary meeting and NATO HQ *(NATO/CCMS Blue Book Report No. 276).*
At the same Plenary meeting the proposal for a follow up study has been launched.

4. Objectives and scope of the project

Reference documents:

a. *EAPC(SPS)D(2006)0003-REV1 Summary Final Report of the Workshop on Environmental Aspects of Military Compounds*
b. *NATO/CCMS Blue Book Report No. 276*
c. *NATO document AC/328-D(2006)0004 d.d. 5 October 2006*
Proposal for the Short Term Project "Environmental Aspects of Military Compounds - second phase"

4.1 OBJECTIVES

Based on the results of the discussions at the Vienna workshop the following six objectives were set for the second phase of the project:

1. Identify a **forum** or system for a regular exchange of information and co-operation in the field of environmental aspects of military compounds to enhance interoperability;
2. Evaluate the feasibility of implementing an Environmental Management System **(EMS)** for deployed operations and prove recommendations for a way forward;
3. Formulate a range of environmental (minimum) **standards** for compounds over the full range of NATO-led military operations;
4. Enhance vertical and horizontal co-ordination and co-operation between the functional organisations (command, engineering, logistics, occupational health, medical, environmental, etc) at the commencement of the planning cycle by providing a generic (annotated template) **Environmental Annex** for standardised NATO Operations Plan as pertains to environmental issues of compounds;
5. Develop a "SPS Guidance Document for the Environmental **Best Management Practises** for deployed Camps" by a Subject Matter Experts group consisting of all relevant functional organisations. In the course of this process national documentation is to be reviewed to develop an easily accessible and up to date repository. Upon completion of the Guidance Document it will be turned over to a Centre of Excellence within the NATO framework for custodianship.
6. Ensure that **training and education** in this field at NATO level is being organised to achieve interoperability and provide guidance in setting up this training and education. The Guidance Document should be an integral part of this training.

4.2 SCOPE

The scope of the project consists of the materiel, methods, techniques and procedures used during design, construction, operation, transfer to other nations and dismantling of compounds. This includes modular design, specific measures during the different phases of an operation (tier 1-3), handover/takeover procedures and redeployment issues.

4.3 ASPECTS

The relevant aspects that have been considered in the project are:

- drinking water,
- waste management
- waste water management
- spill control
- toxic and hazardous material management
- air pollution
- noise
- energy supply and
- natural/cultural resources.

5. Organisation of the project

5.1 PROJECT PHASING

The total project consisted of two phases. The first phase of the Compounds project consisted of one workshop (Vienna, May 9-11, 2006) to scan the situation of the topic, determine whether a follow-up would be desirable and if so, set objectives for the second phase. The second phase consisted of three workshops (Bad Neuenahr, May 2007 - Gebze October 2007 and Amsterdam, May 2008) to work out the objectives set out in phase I. Before the third workshop in Amsterdam an editorial meeting has been inserted (Washington, January 2008) to line up and organise the final products.

5.2 CO-DIRECTORS

The United States of America, Germany and The Netherlands have agreed to act as co-directors for the second phase of the "Environmental aspects of military compounds" project. The co-directors were:

The Netherlands	Maarten Gijsbers	Ministry of Defence
Germany	Harald Kilias	Federal Ministry of Defence
United States of America	Bill Mackie	Department of Defence

Their contact data are given in chapter 11.

5.3 PLANNING OF PHASE II

Phase II of the project consisted of three workshops and one editorial meeting in the period May 2007- May 2008 with distinct activities in between workshops. The activities were planned as follows:

Workshop #1 - Bad Neuenahr, Germany May 29-31, 2007

- *clearly identify requirements under each objective*
- *establish "Teams" and ""Team Leaders" for each objective*
- *Team Leaders assign responsibilities and establish time lines*
- *review all above in project plenary.*

Intermediate period between workshops #1 and #2 May-Oct 2007

- *teams to collect and analyse all necessary information*
- *identify missing information*
- *draft their initial report*
- *inform participants of workshop #2 to bring along missing information.*

Workshop #2 - Gebze, Turkey October 16-18, 2007

- *complete the information per team*
- *complete the initial report*

- *discuss the initial report in project plenary.*

Intermediate period between workshops #2 and #3 Oct 2007 – May 2008

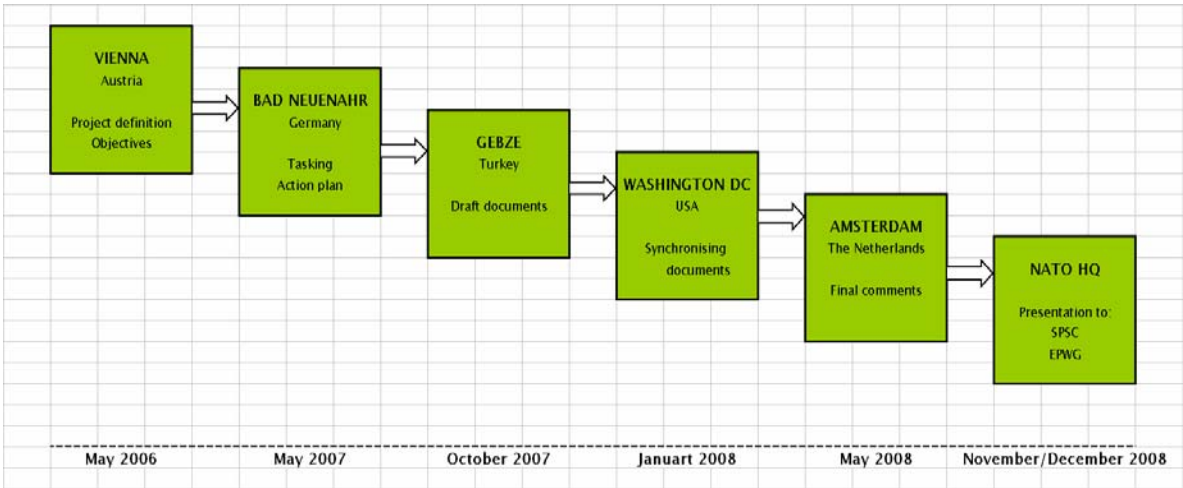
- *formulate final report and establish peer review process and national views.*

Editorial meeting – Washington DC, USA January 21-23, 2008

- *coordinate contents of the separate Handbooks and chapters*
- *decide what goes where and prevent redundancy of information.*

Workshop #3 – Amsterdam, The Netherlands May 13-15, 2008

- *present final report in Plenary for final overall approval including peer and national reviews*
- *incorporate relevant changes*
- *issue final report.*



5.4 SYNDICATES

During the course of the project the objectives have been worked on in three syndicates. Each syndicates operated under the responsibility of one of the co-directores:

- Syndicate A (Kilias): EMS Handbook
  Advice on an information exchange forum and
  Advice on training and education
- Syndicate B (Gijsbers): Environmental Standards Handbook
- Syndicate C (Mackie): Best Practices Handbook and
  Ops Plan Environmental Annex.

6. Proceedings of the Bad Neuenahr (DEU) workshop

1st WORKSHOP BAD NEUENAHR, GERMANY 29-31 MAY 2007

6.1 GENERAL

In May 2007 the first of three (three day) workshops was organised in Bad Neuenahr, Germany. The workshop was officially opened with welcome addresses by ms. Christiane Gericke of the German Federal Ministry of Defence, col. Tjeerd de Vries of the Netherlands Ministry of Defence and mr. William Mackie of the USA Department of Defence. There were 57 participants present; 38 from 14 NATO member countries, 14 from 8 Partner countries, 3 from 3 different NATO bodies and 2 from the EU. The goal of the workshop was to exchange the latest information on compounds and to set up an organisation and action plan in order to realise the "Vienna" objectives.

6.2 PARTICIPATING COUNTRIES AND ORGANISATIONS

The NATO member countries present at the conference were: Belgium, Canada, Estonia, France, Germany, Hungary, Latvia, Lithuania, Netherlands, Norway, Romania, Turkey, United Kingdom and USA.
The Partnership for Peace countries present: Albania, Austria, Finland, Former Yugoslav Republic of Macedonia, Georgia, Moldova, Sweden and Ukraine.
The following organisations participated in the Bad Neuenahr meeting: EU, NATO School Oberammergau, NATO SHAPE and NATO Joint Forces Command Brunssum.

6.3 PRESENTATIONS

In order to demonstrate recent developments in the field of environmental aspects of military compounds presentations were given by the following countries and on the following topics:

1.	Germany	Welcome address Mrs. Gericke
2.	Netherlands	Welcome address Col. De Vries
3.	USA	Welcome address Mr. Mackie
4.	Netherlands	"Position of SPSC and EPWG, results of the Vienna workshop and set up of the Bad Neuenahr workshop"
5.	USA	"Force provider footprint and burden reduction"
6.	EU	"EU methods of environmental protection in the Balkans"
7.	France	"Quality of the air in the military compound in Kabul"
8.	United Kingdom	"Measurement of environmental performance"
9.	Ukraine	"Environmental monitoring of military compounds in the Ukraine"
10.	Austria	"Environmental status report of Camp Eaglebase, Tuzla"
11.	Turkey	"Environmental Management Systems in Turkish military factories"
12.	Turkey	"Preview of workshop in Gebze, Turkey in October 2007"
13.	Netherlands	"Preview of workshop in Amsterdam, The Netherlands in May 2008"

These presentations can be found on the CD-ROM at the back of this report. A short description of the presentations is given in the following paragraphs.

6.3.1 Mrs. Christiane Gericke, the Bundeswehr Commissioner for Environmental Protection and Occupational Safety and Health, welcomed all participants to Bad Neuenahr. She showed the structure and areas of deployed operations of the German Bundeswehr as well as the history and position of environmental protection within the Defence organisation. She then discussed the objectives of the project and the specific goals to be reached at this workshop and wished everybody good luck in the work ahead.

6.3.2 Col. Tjeerd de Vries of the Dutch Army Engineering School welcomed the participants and gave his strong support to the Compounds project on behalf of the Dutch military. He stated that in this developing field of engineering many improvements can still be made and that international cooperation is essential in achieving these improvements. He wished for a successful workshop and promised to follow the results closely (presentation not on CD-ROM).

6.3.3 Mr. Bill Mackie of the USA Department of Defence and project co-director stressed the US involvement in environmental compound matters as shown by the number of US participants in this project, but also recognized that still a lot of work has to be done. He asked everybody to bring their experience to the working group tables and work hard towards a common result that can bring environmental protection to the next level (presentation not on CD-ROM).

6.3.4 Co-director Mr. Maarten Gijsbers of the Netherlands Ministry of Defence explained the history and objectives of the NATO Science for Peace and Security Committee, as well as its mechanisms and key objectives. He then talked about the proceedings of the Vienna workshop and the objectives and scope of the "Environmental Aspects of Military Compounds" project. The survey held in Vienna was discussed and the conclusions, objectives and action plan of the Compounds project were presented. Finally he gave an overview of the activities and composition of the three syndicates at the Bad Neuenahr workshop.

6.3.5 Ltc Craig Retty, Product Manager Force Sustainment Systems of the USA Soldier Systems Center demonstrated recent developments in the design of sustainable field camps. Special attention was given to shower water reuse systems, shelter system components and insulation, solar energy and illumination systems. The presentation showed that a lot of research & development work has already been done and is still underway in the US Department of Defence.

6.3.6 Dr. Michele Righi, the EUFOR Environmental Protection Officer, explained the way environmental protection has been developed within EUFOR and the ins and outs of the Environmental Management System used. Then he compared the EUFOR EP Policy with NATO Stanag 7141EP -"Joint NATO Doctrine for Environmental Protection during NATO led military

activities". He showed the guidelines, purpose, phases and structure of an Environmental Status Assessment (ESA) and finally demonstrated as an example the ESA made for the Sarajevo base, including climate, radioactivity, soil and water aspects.

6.3.7 Ltcol. Gilles Créhange, Chief of the Section Environmental Prevention & Security of the French Army gave a presentation on the quality of air in the military compound in Kabul. Following rumours of health problems supposedly caused by bad air quality an investigation was set up including sampling and analysis of air at various points of the compound. The results were compared to average exposure values and no chemical air pollution was found at the camp.

6.3.8 Maj. James Fletcher of the UK Army HQ demonstrated the different levels of hardening a field camp as time passes in an operation (skeleton camp, tier 1 through 3). He showed the EMS and risk assessment/risk management system used on site and the workings of a computerized Performance Measurement System in use by the UK troops.

6.3.9 Mr . Volodymyr Kuznyetsov of the Ukrainian Scientific Research Institute of Environmental Problems discussed environmental monitoring on military facilities in the Ukraine. He showed the history of environmental protection in the Ukraine, the responsibilities of the different parties involved in EP, the legal basis for EP and the challenges to be met in the future. He then demonstrated the extent of the current military site conversion, pollution found on military bases and the necessary steps to cope with the problems.

6.3.10 Mr. Günther Povoden of the Austrian NBC Defence School made a presentation on the Environmental Status Assessment on Camp Eagle Base in Bosnia-Herzegovina. He gave an impression of the way the fuel and hazardous material storages, heating systems, water supply, waste water treatment and waste management were taken care of. Finally he discussed the Environmental Status Assessment carried out on the base and the sampling of soil and ground water.

6.3.11 Mr. Sönmez Dagli of the Turkish Tübitak Marmare Research Centre and maj. Hakan Seyirden of the Turkish Army Engineers gave insight In the environmental and quality management systems used in Turkish military factories. They showed the organisation, training and results of the implementation of EMS in these factories. Unfortunately the program has been cancelled due to the lack of financial support.

6.3.12 Mr. Sönmez Dagli of the Turkish Tübitak Marmare Research Centre gave a preview of the facilities at the Tübitak Research Centre in Gebze, Turkey, where the second workshop of the Compounds project has been held in October 2007. He also presented the organisation of Tübitak and the fields of research of the different departments. Finally he showed some selected research projects in more detail.

6.3.13 Mr. Maarten Gijsbers gave a short presentation on the location of the third Compounds workshop in Amsterdam, the Netherlands. This workshop in May 2008 has been held at the Naval Barracks in the historic heart of the town.

6.4 ORGANISATION OF THE PROJECT

During this workshop the organisation for realisation of the "Vienna" objectives has been established as follows. Three syndicates have been formed and tasked to each work out a number of objectives. Syndicate A was tasked with the identification of a forum, the feasibility and the contents of an Environmental Management System during deployed operations and the organisation of training and education in this field. Syndicate B was to occupy itself with the environmental (minimum) standards or guidelines on the different environmental aspects and Syndicate C has taken on the "Best Practices handbook" and the generic Environmental Annex to a NATO Operational Plan.
Chairmen, scribes and mentors have been chosen for each syndicate, the relevant documentation has been screened and distributed, the results of each workshop and intermediate period have been described in action plans and timelines were set up. For further background the presentations of the three syndicates can be found on the CD-ROM.

6.5 ACTIVITIES IN BETWEEN WORKSHOPS

Following the workshop in Bad Neuenahr the syndicates have worked on their tasks preparing draft documents to be discussed at the second workshop in Gebze, Turkey in May 2007. A working draft of a military EMS has circulated among group members of Syndicate A for comment in July/August 2007. The forum in the NATO organisation to exchange this type of information on a yearly basis could be the Environmental Protection Working Group (EPWG) as part of the NATO Standardization Agency (NSA). Training and education could be performed at the NATO School Oberammergau and at the national level. The environmental standards being used have been considered and prioritised. Syndicate B has written draft chapters on different environmental aspects. Syndicate C has prepared a functional planning guide to be combined with best practices and lessons learned from operations.

7. Proceedings of the Gebze (TUR) workshop

2nd WORKSHOP GEBZE, TURKEY 16-18 OCTOBER 2007

7.1 GENERAL

The second three day workshop took place at the Tübitak Conference Centre at Gebze, Turkey in October 2007 and was officially opened by Ass. Prof. Mustafa Tiris of Tübitak. The number of participants was 53; 36 from 12 NATO member countries, 13 from 9 Partner countries, three from two different NATO bodies and one from the EU. A limited number of presentations was scheduled in order to reserve as much time as possible to discuss the comments on the draft documents prepared in between the Bad Neuenahr and Gebze workshops.

7.2 PARTICIPATING COUNTRIES AND ORGANISATIONS

The NATO member countries present at the conference were: Belgium, Canada, Estonia, France, Germany, Latvia, Lithuania, Netherlands, Romania, Turkey, United Kingdom and USA.
The Partnership for Peace countries present: Albania, Austria, Finland, Former Yugoslav Republic of Macedonia, Georgia, Jordan, Moldova, Sweden and Ukraine.
The following organisations participated in the Gebze workshop: EU, NATO SHAPE, NATO Joint Forces Command Brunssum and NATO School Oberammergau.

7.3 PRESENTATIONS

For the demonstration of recent developments in the field of environmental aspects of military compounds presentations were given by the following countries and on the following topics:

1. Turkey — Welcome address by prof. Mustafa Tiris
2. Finland — Introduction of "User Handbook for environmental considerations during military operations"
3. Netherlands — "Where are we now? Set up of the Gebze workshop"
4. NATO School — "Environmental Protection training at the NATO School"
5. USA — "Web portal for environmental support to contingency operations"
6. Jordan — "Environmental aspects of the Jordan military"
7. Sweden — "UN DPKO Environmental policy and guidelines"
8. France — "Lead in Kosovo".

These presentations can be found on the CD-ROM at the back of this report. A short description of the presentations is given in the following paragraphs.

7.3.1 Prof. Mustafa Tiris, director of the Tübitak Institute for Energy Systems and Environment Research, welcomed all participants to the Tüsside Conference Centre in Gebze and wished them a fruitful conference. He explained the organisation of Tübitak as one of the major Turkish research centres and the activities of each of the seven Tübitak institutes.

7.3.2 Ms. Hanna Uusitalo of the Finnish Ministry of Defence, Ms. Annica Waleij of the Swedish Defence Research Agency and Mr. Timothy Bosetti of the US Department of Defence presented the "Environmental Officer's Guidebook for military operations", produced in a trilateral cooperation of Finland, Sweden and the USA. The purpose of the guidebook is to define Environmental Management responsibilities, show relevant environmental requirements, policies, standards and preventive measures, integrate environmental considerations into the planning and execution of military operations and provide a toolkit for operational planners and environmental officers. This valuable source of information has been made available by the three countries to the Environmental Aspects of Military Compounds project as a reference document.

7.3.3 Co-director Mr. Maarten Gijsbers of the Netherlands Ministry of Defence explained for the benefit of the new participants in the workshop the history and objectives of the NATO Science for Peace and Security Committee, as well as its mechanisms and key objectives. He then talked about the proceedings of the Vienna workshop and the objectives and scope of the "Environmental Aspects of Military Compounds" project. The conclusions, objectives and action plan of the Compounds project were presented. Finally he gave an overview of the activities and composition of the three syndicates at the Gebze workshop.

7.3.4 Ltcol. Rudolf Duerr of the NATO School Oberammergau (NSO) gave a presentation on the Environmental Protection Training at the NSO. He explained the history and organisation of the NSO and the development in the number of students and speakers. Then he talked about the different environmental courses given and the curriculum of each of these courses. The results of this Environmental Aspects of Military Compounds project will be one of the topics in the M3-77 "Environmental Management for Military Forces" course.

7.3.5 Mr. Kurt Kinnevan of the US Army Engineer School discussed "Environmental and Sustainability (E&S) considerations to military operations". The US Army Engineer School has developed a web-based secure E&S Resource site, where quick access can be obtained to doctrine and policy, best environmental practices, local conditions and practices, subject matter experts, documentation and general information.

7.3.6 Mr. Mu'taz Al-Alawi presented several environmental aspects in the Jordanian military. He showed the results of a water saving program and the activities in the fields of energy, hazardous materials, waste, noise abatement and nature protection.

7.3.7 Ms. Annica Waleij of the Swedish Defence Research Agency informed us on the "Environmental Considerations in UN Field Missions". She gave insight in the UN Environmental Policy milestones (summits and treaties) and in the UN Peacekeeping operations. Then the environmental policy and guidelines of the UN Department of Peace Keeping Operations (DPKO) were discussed, as well as their Environmental Management System and the Environmental Officer's tasks. As an example the UNMIS (Sudan) fact finding process was shown.

7.3.8 Ltcol. Gilles Créhange, pharmacist at the French Ministry of Defence, gave a presentation on the investigation on lead in the blood of French military personnel in Kosovo. Because of lead and zinc mines and industry in Kosovo and lead pollution around these locations the personnel has been monitored. Créhange shows the methodology of the investigation and the results; high values were only found in personnel that came in contact with lead during leisure (making lead soldiers) or professional activities (rifle ranges).

7.4 RESULTS OF THE WORKSHOP

In the syndicate meetings the draft documents, that were prepared in between the Bad Neuenahr and the Gebze workshop, have been discussed and commented upon. A more detailed timeline has been set for the remainder of the project. The relevant comments are to be incorporated in the draft documents and formats for these documents have been fixed. The final documents are to be discussed at the third and last workshop in Amsterdam, the Netherlands in May 2008.
The presentations of the three syndicates can be found on the CD-ROM.

7.5 ENVIRONMENTAL PROTECTION WORKING GROUP, NATO HQ, December 2007

In December 2007 during the annual meeting of the Environmental Protection Working Group at NATO HQ a discussion has been scheduled to determine the way in which the final documents will be anchored into the NATO organisation and how the handbooks and guidelines will be kept up to date. In the minutes (NSA(JOINT)0084(2008)1/EP d.d. 29 January 2008) it was recorded that:

> *59. After the presentation the future of the documents (EMS on Military Compounds, Best Practices Handbook) resulting from the project was discussed. It was made clear by SPSC that it is logical step to submit the documents to EPWG for further staffing (ratification, implementation into existing NATO documents). It was decided that a custodianship of the documents will also be determined upon their presentation in December 2008.*
> *60.* ***Recommendation: EPWG to be prepared to take over responsibility for future staffing of the documents prepared by SPSC (EMS on Military Compounds, Best Practices Handbook) within NATO document structure, with ACO in lead.***

7.6 EDITORIAL MEETING IN WASHINGTON DC, USA, January 2008

The mentors, chairs and scribes of the three syndicates got together in January 2008 in order to evaluate and balance the contents of the separate documents that have been developed independently in the three syndicates, and make them into logical and coherent final products. These were then sent out to all participants of the workshops to be reviewed by their Ministries/Departments of Defence. The comments were to be discussed at the Amsterdam workshop.

8. Proceedings of the Amsterdam (NLD) workshop

3RD WORKSHOP AMSTERDAM, THE NETHERLANDS 13-15 MAY 2008

8.1 GENERAL

This third and last three day workshop took place at the Naval Barracks in Amsterdam, the Netherlands in May 2008. It was officially opened by briggen. René Veger of the Netherlands Army HQ. The workshop was visited by 52 participants; 34 from 13 NATO member countries, 14 from 9 Partner countries, three from three different NATO bodies and one from the EU. Again a limited number of presentations was scheduled in order to reserve as much time as possible to discuss the comments on the final documents that had been prepared in between the Gebze and Amsterdam workshops, and edited at the Washington DC meeting.

8.2 PARTICIPATING COUNTRIES AND ORGANISATIONS

The NATO member countries present at the conference were: Belgium, Canada, Czeck Republic, France, Germany, Latvia, Lithuania, the Netherlands, Norway, Portugal, Turkey, United Kingdom and USA.
The Partnership for Peace countries present were: Albania, Austria, Finland, Former Yugoslav Republic of Macedonia, Georgia, Jordan, Moldova, Sweden and Ukraine.
The following organisations participated in the Bad Neuenahr meeting: EU, NATO Science for Peace and Security Committee, NATO School Oberammergau and NATO SHAPE.

8.3 PRESENTATIONS

The following presentations were given on the latest developments in the field of environmental aspects of military compounds:

1.	Netherlands	Welcome and keynote address by briggen René Veger
	Germany	Welcome address by mr. Harald Kilias
	USA	Welcome address by mr Bill Mackie
2.	Netherlands	"The Compound project; where do we stand?"
3.	Canada	"Canadian Forces and the environment (real-life examples)"
4.	United Kingdom	"Waste Management in the maritime and land environment"
5.	USA	"Force Provider Environmental Technology Initiative"
6.	NATO SPS	"Defence related activities in the NATO SPS Programme"
7.	Norway	"Environment and waste management in ISAF"
8.	NATO SHAPE	"ENTEC Transition to the NATO Engineer Centre of Excellence"
9.	Netherlands	"NATO Involvement with Environmental Aspects of Military Compounds after 2008"
10.	Sweden	"Workshop on Environmental Security concerns prior to and during Peace Support and/or Crisis Management Operations"
11.	Canada	"Options for a Defence and Environment Agenda"

These presentations can be found on the CD-ROM at the back of this report. A short description of the presentations is given in the following paragraphs.

8.3.1 Briggen. René Veger welcomed all participants to Amsterdam and the Naval Barracks and stated that environmental management results in operational benefits. Reduction of energy consumption leads to lowered vulnerability on logistic lines and therefore more troops are available for the actual mission. It also leads to a more effective local development of the supported nations. He concluded by asking all present to develop achievable environmental management goals and means to realise them, to act as good news messengers to operational commanders and to show the multiplier effect of environmental management.

8.3.2 Co-director Mr. Maarten Gijsbers of the Netherlands Ministry of Defence explained for the benefit of new participants the history and objectives of the NATO Science for Peace and Security Committee, as well as its mechanisms and key objectives. He then talked about the proceedings of the Vienna workshop, some survey results and the objectives and scope of the "Environmental Aspects of Military Compounds" project. The conclusions and the action plan of the Compounds project were presented. He gave an overview of the activities of the three syndicates (discussion of the final documents) and the last steps for completion of this project. Finally some ideas about maintenance of the documents, once finished, were brought forward for further discussion in the syndicates.

8.3.3 Maj. Lloyd Chubbs of the Canadian Expeditionary Forces Command showed some real-life examples of Canadian field camps and its environmental aspects. He explained the Canadian military structure and environmental regulations and showed environmental problems and solutions at Kandahar Airfield in Afghanistan and at Port-au-Prince Airport in Haiti during the UN mission in 2004. He concluded with lessons learned from both operations.

8.3.4 Mr. Barry Whitehead of the UK Defence Equipment and Support (DE&S) organisation demonstrated what equipment is being developed and installed in Navy ships to cope with waste and waste water disposal in combination with production of potable water and potential energy supply. DE&S is currently testing this naval equipment for use in field camps. The achievable reductions look very promising: fuel reduction 25%, waste water reduction 95%, solid waste reduction 95%.

8.3.5 Ltc Craig Rettie, Product Manager Force Sustainment Systems of the USA Soldier Systems Center showed recent developments in the design of Zero Footprint (sustainable) field camps. He demonstrated the R&D efforts in the fields of waste-to-energy transformation by means of a Tactical Garbage Energy Refinery (TGER), shelter system components and insulation, solar energy, LED illumination systems and shower water reuse systems.

8.3.6 Dr. Deniz Beten-Yüksel of the NATO Public Diplomacy Division and Programme Director of the Science for Peace and Security (SPS) Programme explained the history and objectives of the SPS Programme, the different forms of international co-operation and the SPS key priorities. Then she showed the primary goals of the Programme, the mechanisms by which these goals are being achieved, some examples of projects that are carried out under the SPS Programme and the ways of dissemination of information. Finally she reached conclusions on the effectiveness of the Programme, the need to continue with environmental security projects and the initiative for a "Defence and Environment Expert Group" by Canada, Germany, Belgium and the Netherlands (see 8.3.11).

8.3.7 Maj. Per Olsen of the Norwegian Joint Headquarters gave a clear presentation on the relation between the environmental documents produced within NATO (Policy, Standardization Agreements, Allied Joint Publications, Standard Operating Procedures) and the different levels in the NATO organisation. As a second topic he presented the way the Norwegians are dealing with their solid waste in Northern Afghanistan.

8.3.8 Ltc. David Lloyd, the Environmental Protection (EP) Officer at SHAPE J4 Engr, discussed the problems in getting EP operational during ISAF due to lack of an EP organisational structure, trained personnel and support. One of the problem areas is dealing with solid and hazardous waste. Then he talked about the meeting between ACO, Chair EPWG and co-directors of this Compounds study on how to provide maintenance to the Handbooks that are being produces as final products of the Compounds study (see also Chapter 9.2). Finally he showed the position and tasking if ENTEC (Euro NATO Training Engineer Centre), its route to becoming an accredited NATO Centre of Excellence and the role it could play in maintaining one of the final products of the Compounds project: the Best Practices Handbook.

8.3.9 Mr. Michael de Kock of the Netherlands Army Staff explored the possibilities for the Environmental Protection Working Group of the NATO Standardization Agency to take custodianship of Handbooks produced during the Compounds study. This could be done by forming and "Environmental Aspects of Military Compounds" Panel under EPWG. The Handbooks could be transformed into documents with a NATO status, in this case Joint Allied Environmental Protection Publications (AJEPP's, see also Chapter 9.2).

8.3.10 Ms. Annica Waleij of the Swedish Defence Research Agency asked attention for a NATO PfP workshop on "Environmental Security Concerns prior to and during Peace Support and/or Crisis Management Operations". This scenario based workshop is to be held in Sweden in October 2008.

8.3.11 Mr. Michael Dawson, Head of Sustainable Development Strategies, Environmental Management Systems, Policy, Doctrine and Training of the Canadian Department of Defence explained the setting up of the "Defence and Environment Expert Group" as part of the Science for Peace and Security Committee structure. This initiative by Canada, Belgium, Germany and the Netherlands is intended to respond to the new demands of the

environmental dimension of defence-related activities (in particular military operations) and to act as a forward looking framework. The areas of interest have been recognised, a Terms of Reference for the Expert Group has been adopted by the SPS Plenary meeting in March 2008 and the group will meet for the first time in September 2008. Mr. Dawson asked countries to step forward to take part in the Expert Group.

8.3.12 Co-director Mr. Maarten Gijsbers of the Netherlands Ministry of Defence gave a short presentation on the field trip to be held on Thursday afternoon, which includes a mix of military and cultural highlights. The Muiden Castle as part of the defensive "Holland Waterline", a 19th century ring of fortresses around Amsterdam, is to be visited as well as some buildings of the Amsterdam School of architecture and the 17th century VOC (United East India Company) ship in the Amsterdam harbour.

8.4 RESULTS OF THE WORKSHOP

8.4.1 Syndicate and Plenary conclusions

After the Washington DC editorial meeting in January 2008 the six edited documents were sent to all participants of the Bad Neuenahr and Gebze workshops. They were asked to comment on the documents after discussing them with the relevant colleagues in their Ministries/Departments of Defence.
Before and during the Amsterdam workshop these comments were collected, discussed in the three syndicates and decided upon. Some remaining outstanding questions have been answered before 1 July 2008 and all approved comments have been incorporated in the final documents. A proposal for custodianship and maintenance of the documents has been formulated as well.

The presentations of the three syndicates, the Plenary conclusions of the workshop and the final documents can be found on the CD-ROM.

8.4.2 Next steps

As next steps in the process were identified:

- Prepare final report
- Submit final report to Science for Peace and Security Committee to be presented at the November 2008 Plenary
- Send final report to EPWG (Environmental Protection Working Group) delegates to be discussed at the December 2008 meeting
- Send final report to Environmental Training Working Group (ETWG) delegates to be discussed at their Spring 2009 meeting
- Continue discussions on the role of ENTEC as custodian of the Best Practices Handbook
- Carry out the communication plan.

9. Project Results and Maintenance of Documents

9.1 FINAL PRODUCTS

In the course of the "Environmental Aspects of Military Compounds" Project the following final documents were produced:

- Recommendation regarding "Fora for the exchange of information on environmental aspects in military compounds"
- Handbook on "Planning an Environmental Management System (EMS) for NATO led military activities"
- Handbook on "Environmental Protection Standards for NATO deployed compounds"
- Appendix 3 - Environmental Protection to Annex EE for a standardised NATO Operations Plan
- Handbook on "Environmental Protection Best Practices for NATO deployed compounds"
- Recommendation regarding "Training and Education for Environmental Management in military compounds".

The main texts of the documents (without annexes) can be found as Annexes C.1 through C.6 of this report. The full text (including annexes) can be found on the CDROM. A short description of each final document follows below.

9.1.1 Recommendation regarding "Fora for the exchange of information on environmental aspects in military compounds"

Information and lessons learned concerning the environmental aspects of military compounds will have to be regularly exchanged among NATO members and Partners in order to maintain an adequate level of working knowledge and to update the three Handbooks on Environmental Management Systems, Environmental Standards and Best Practices.

The *Environmental Protection Working Group (EPWG)* as part of the NATO Standardization Agency consists of a mix of environmental policy makers, environmental experts, military engineers and logisticians from NATO and interested Partner countries. It meets once a year and is the custodian of Standardization agreements (STANAG's) on (among others), Environmental Protection and waste management during military activities. Under the EPWG plenary group a smaller Panel (the "Environmental Aspects of Military Compounds Panel") will be formed with the same mix of experts to perform the tasks mentioned above for the Handbook on Environmental Management Systems and the Handbook on Environmental Protection Standards. These Handbooks will be transformed into Allied Joint EP Publications, which have an official status within the NATO organisation. They can be used by nations on a voluntary basis. In the future these AJEPP's could possibly become STANAG's, with mandatory status.

Since March 2008, by decision of the Military Committee (MC 0560), Environmental Protection within NATO is the responsibility of the military Engineers. The existing Euro NATO Training Engineer Centre (ENTEC) will work towards accreditation as the *NATO Military Engineering Centre of Excellence*. Maintenance and update of the Best Practices Handbook, which will be based on lessons learned from actual operations, is best placed with this Centre of Excellence, which has functional relations with national operational military engineers and with the NATO Joint Allied Lessons Learned Centre.

9.1.2 Handbook on "Planning an Environmental Management System (EMS) for NATO led military activities"

The first Handbook produced during the Environmental Aspects of Military Compounds project is the planning document for an Environmental Management System (EMS) for NATO led military activities. The purpose of the EMS is explained in the following two paragraphs of the EMS document:

"INTRODUCTION

1. *EMS is a systematic management approach that can be used by NATO EP planners to identify and reduce the environmental impacts of a NATO deployment.*
2. *In meeting their military mission, NATO commanders and forces must be committed to taking all reasonably achievable measures to protect the environment. The minimum achievable benchmark is that the environmental condition of areas used by NATO infrastructures (military compounds) must be no worse than its original condition. To achieve this, commanders must know how NATO led military activities affect, and are affected by, the environment. It is the responsibility of commanders and planners to include environmental considerations into their planning processes in accordance to STANAG 7141.*
3. *The Identification of potential environmental issues as early as possible in the planning stage should ensure the effective development of interventions and control measures. Key to this process is the development of an effective EMS.*

AIM

4. *The aim of this document is to provide Environmental Protection (EP) Officers with an understanding of the NATO planning process and how to integrate an EMS into this process."*

The document further explains the NATO Operational Planning Process, key elements of a NATO EMS, environmental risks to be considered during the different stages of compound development, and the actions to be taken during draw down (force reduction), site transfer to other nations or site closure.

9.1.3 Handbook on "Environmental Protection Standards for NATO deployed compounds"

Compliance with applicable environmental laws and regulations is a necessary cost of doing business, even during military operations. Often national environmental

regulations do not specifically apply to forces engaged in military operations in another country. This is not always the case, however, and the extent to which domestic laws and regulations apply extraterritorially will vary from nation to nation. Force Commanders and their designated environmental officers and specialists therefore must make every effort to understand their legal requirements, and examine the applicability of their national law as well as international law and conventions and the regulations of multinational or supranational bodies.

Standards

Defining and quantifying standards for Environmental Protection within a NATO compound is necessary and important in defining and monitoring the potential level of environmental damage. However, the following issues complicate the establishment of any environmental standard for a deployed compound and must be taken into consideration:

- Level of compound development
- International and national regulations of participating nations
- Local environmental regulations; and
- Availability of technologies to monitor and enforce standards.

As a general rule, participating nations must adhere to the "due diligence" principle in the application of environmental measures. It is generally accepted that most national environmental regulations will be more stringent than those of the host nation and therefore participating nations must strive to meet their own national standards for environmental protection. If no national standard exists for a specific environmental concern, participating nations will ensure activities do not adversely impact on the local environment, based on agreed-upon international standards.

Disclaimer

The information contained in the Handbook on Environmental Protection Standards is meant to provide military commanders with guidelines in the application of environmental standards during the development of a NATO compound. These standards will be applied based on NATO command direction as well as applicable national and international regulations. It is not meant to replace existing regulations but offers a complementary source of information for military planners when considering environmental factors in the Operational Planning Process.

Annexes

In ten Annexes the Handbook defines reasonable standards that can be used as a guideline for the environmental management in deployed camps. The following topics are being covered:

- Wastewater
- Solid waste
- Medical (clinical) waste
- Hazardous Materials Management
- Energy

- Petroleum, Oil and Lubricants (POL)
- Soil contamination
- Natural, cultural and historical resource management
- Air pollution
- Noise pollution.

9.1.4 Appendix 3 - Environmental Protection to Annex EE for a standardised NATO *Operations Plan*

In order to accommodate military planners and environmental officers in the planning phase of an operation, an example of an Environmental Protection Appendix has been produced. The Environmental Protection Appendix is part of the Engineering Annex EE to an Operations Plan.

This Appendix covers protection of the environment during NATO-led operations and exercises. The environment is defined as the surroundings in which NATO operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation. By early consideration of the potential environmental impacts, commanders will become aware of the environmental effects of mission accomplishment while alternatives may still exist. Impact is defined as any change to the environment, whether adverse or beneficial, wholly or partially resulting from NATO's activities. Nuclear, Biological and Chemical (NBC) wastes and related issues are not addressed by this appendix; nor are force protection, targeting, or preventive medicine issues addressed, but EP advice will be required during the planning cycle of these activities.

9.1.5 Handbook on "Environmental Protection Best Practices for NATO deployed compounds"

As a tool in the planning phase of an operation the "Environmental Protection Best Practices for NATO Deployed Compounds" Handbook has been developed. It consists of a so-called Functional Planning Guide and a large number of annexes, each dealing with an environmental aspect on compounds.

Military planners can use this Functional Planning Guide (FPG) to incorporate EP standards and best management practices into applicable NATO military operation plans. This FPG focuses operational planners on the proper environmental measures for each phase of an operation.

In the Introduction of the Handbook the rationale for a Best Practices Handbook is described as follows:
"For decades there has been growing international consensus for the importance of environmental protection (EP). NATO nations have been among the world leaders in advancing the state of EP science and practice. Indeed, military and other governmental agencies are frequently among the first institutions to adopt national

EP measures. The opportunity to reduce consumption and waste on a large scale enables military forces to sustain their operations and conserve their resources, giving the commander more capability to perform the mission. Military operations, however, face challenges when austere areas of operation lack the necessary infrastructure or operating tempo does not allow time needed for comprehensive EP. Accordingly, military operations must be planned, conducted and supported to apply sound EP where adverse conditions make mission sustainment both extremely important and challenging."

The Annexes to the Best Practices Handbook deal with the following topics: Operational EMS, Environmental Baseline Survey (EBS), Wastewater and Waste Management,
Hazardous Material Management, Infrastructure Planning and Energy Conservation, Petroleum-Oils-Lubricants (POL), Soil Contamination, Natural, Cultural and Historical Resource Management, Air Pollution and Noise Pollution.

9.1.6 Recommendation regarding "Training and Education for Environmental Management in military compounds"

In order to make sure the content of the Handbooks (AJEPP's) on Environmental Management Systems, Environmental Standards and Best Practices will be used, it is essential that personnel going on a mission is aware of the AJEPP's. This has to be done through training and education. There are two possibilities for training courses: either at the NATO School Oberammergau or at national training institutes.

The Environmental Aspects of Military Compounds Project Group recommends that two training courses at the operational level (M3-77 and M3-7x) at the NATO School Oberammergau should be adapted to include the contents of the AJEPP's.
The Environmental Training Working Group (ETWG) functioning under the NATO Training Group (NTG) should develop guidance for training below the operational training level in accordance with national responsibilities. Appropriate formats should be developed to deliver such training. The proposed NATO Military Engineering Centre of Excellence would be a key element in updating and providing for the relevant training.

9.2 MAINTENANCE OF DOCUMENTS

An important aspect of introducing and implementing new Handbooks and procedures is to make sure they will be maintained and regularly updated. In the "Environmental Aspects of Military Compounds" project we have tried to find existing NATO organisations or working groups, that convene on a regular basis. The following maintenance support groups have been approached and found willing to take on that task.

9.2.1 Recommendation regarding "Fora for the exchange of information on environmental aspects in military compounds"

The *Environmental Protection Working Group (EPWG)* as part of the NATO Standardization Agency consists of a mix of environmental policy makers, environmental experts, military engineers and logisticians from NATO and interested Partner countries. Under the EPWG plenary group a smaller Panel (the "Environmental Aspects of Military Compounds Panel") will be formed where information and experience on this topic can be regularly exchanged. They will meet (at least) once a year.

Since March 2008, by decision of the Military Committee (MC 0560), Environmental Protection within NATO is the responsibility of the military Engineers. The existing Euro NATO Training Engineer Centre (ENTEC) will work towards accreditation as the NATO Military Engineering Centre of Excellence. This Centre of Excellence is a second location where information on environmental aspects of compounds can be regularly exchanged. As soon as the Centre of Excellence has been formed this issue will be discussed with them.

9.2.2 Handbook on "Planning an Environmental Management System (EMS) for NATO led military activities"

The *Environmental Protection Working Group (EPWG)* will form the "Environmental Aspects of Military Compounds Panel", which will take custodianship of the Handbook on Planning an Environmental Management System (EMS) for NATO led military activities. The Terms of Reference of this Panel will be discussed at the December 2008 EPWG meeting and (it is intended that) this Panel will meet (at least) once a year to discuss lessons learned and decide whether changes to the Handbook will be necessary.

9.2.3 Handbook on "Environmental Protection Standards for NATO deployed compounds"

The *Environmental Protection Working Group (EPWG)* will form the "Environmental Aspects of Military Compounds Panel", which will take custodianship of the Handbook on Environmental Protection Standards for NATO deployed compounds. The Terms of Reference of this Panel will be discussed at the December 2008 EPWG meeting and (it is intended that) this Panel will meet (at least) once a year to discuss lessons learned and decide whether changes to the Handbook will be necessary.

9.2.4 Appendix 3 – Environmental Protection to Annex EE for a standardised NATO Operations Plan

Maintenance and update of the "Appendix 3–Environmental Protection to Annex EE for a standardised NATO Operations Plan" will be the responsibility of SHAPE; more specifically the SHAPE CJ4 ACO EP Officer. He will get input from the Joint Forces Commands, the Environmental Protection Working Group (EPWG), the NATO Military Engineering Centre of Excellence and the NATO Joint Analysis and Lessons Learned Centre in Portugal.

9.2.5 Handbook on "Environmental Protection Best Practices for NATO deployed compounds"

Since March 2008, by decision of the Military Committee (MC 0560), Environmental Protection within NATO is the responsibility of the military Engineers. The existing Euro NATO Training Engineer Centre (ENTEC) will work towards accreditation as the *NATO Military Engineering Centre of Excellence*. Maintenance and update of the Best Practices Handbook, which will be based on lessons learned from actual operations, is best placed with this Centre of Excellence, which has functional relations with national operational military engineers and with the NATO Joint Analysis and Lessons Learned Centre in Portugal.
Headquarters SHAPE is the tasking authority for the Functional Planning Guide, which is part of the Best Practices Handbook.

For the intermediated period until formation of the NATO Military Engineering Centre of Excellence, the Environmental Protection Working Group will oversee maintenance and update of the Best Practices Handbook.

9.2.6 Recommendation regarding "Training and Education for Environmental Management in military compounds"

The *Environmental Training Working Group (ETWG)* functioning under the NATO Training Group (NTG) will oversee that the contents of the Handbooks produced in the Environmental Aspects of Military Compounds project are incorporated in the training courses at the NATO SHAPE School Oberammergau.
The proposed *NATO Military Engineering Centre of Excellence* would be a key element in providing guidance for training below the operational training level in accordance with national responsibilities. Appropriate formats should be developed and maintained to deliver such training. This will have to be discussed as soon as appropriate.

10. Communication Plan

10.1 Final reports

The final reports of the "Environmental Aspects of Military Compounds" project including the CDROM with all presentations and documentation will be made available to:

- National representatives of NATO SPS Plenary 50 reports
- National representatives of SPS/EAPC Plenary 50 reports
- National representative on the EPWG 40 reports
- National representative on the ETWG 40 reports
- All workshop participants 85 reports

10.2 Presentations

The results of the "Environmental Aspects of Military Compounds" project will be presented to the following fora:

- NATO SPS Plenary Meeting Nov 08
- NATO Environmental Protection Working Group Dec 08
- NATO Environmental Training Working Group Spring 09
- SHAPE date to be set
- JFC Brunssum date to be set
- Annual Joint Senior Engineer Conference date to be set
- Euro NATO Engineer Centre ENTEC date to be set

If ASG Public Diplomacy Division decides to send the results of the "Environmental Aspects of Military Compounds" project to the NATO Military Committee, a presentation can be held at one of the MC meetings.

10.3 NATO SPS Website

A summary report and the full text of the final report of the "Environmental Aspects of Military Compounds" project with some pictures will be made available for the NATO SPS website.

10.4 Continued attention

By making the "Environmental Aspects of military Compounds" issues part of the agenda of the Environmental Protection Working Group, of the Environmental Training Working Group and possibly the NATO Military Engineering Centre of Excellence to be formed (now ENTEC) and by giving this topic a fixed place in the curriculum of the NATO School Oberammergau, continued attention for this worthwhile effort is being guaranteed.

11. Points of Contact

The points of contact for the second phase of the project are the three co-directors:

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Annexes

A. Workshop Agenda's

B. Participants

C. Project results

C.1 Recommendation regarding "Fora for the exchange of information on environmental aspects in military compounds"

C.2 Handbook on "Planning an Environmental Management System (EMS) for NATO led military activities"

C.3 Handbook on "Environmental Protection Standards for NATO deployed compounds"

C.4 Appendix 3 - Environmental Protection to Annex EE for a standardised NATO Operations Plan

C.5 Handbook on "Environmental Protection Best Practices for NATO deployed compounds"

C.6 Recommendation regarding "Training and Education for Environmental Management in military compounds"

D. Index of CD ROM with documents and presentations

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Annex A

Workshop Agenda's

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AGENDA Workshop "ENVIRONMENTAL ASPECTS of MILITARY COMPOUNDS IIA" 29-31 May, 2007

Bad Neuenahr, Germany

	Monday 28 May	Tuesday 29 May	Wednesday 30 May	Thursday 31 May	Friday 1 June
9:00		**Opening Session**	***FRA Gilles Crehange***	***Next workshops***	
		1. DEU Ms. Christiane Gericke	7. Quality of the air in military compound in Kabul	12. Preview Gebze workshop	
9:30		2. USA DoD representative tbd		13. Preview Amsterdam workshop	
	Travel	3. NLD Col. Tjeerd de Vries	***GBR James Fletcher***	***Syndicate Reports***	Travel
10:00			8. Measurement of Environmental Performance	14A. Syndicate A report	
	Check in hotel	***NLD Maarten Gijsbers***	***UKR Volodymyr Kuznyetsov***	14B. Syndicate B report	
10:30		4. Compounds project Objectives & Organisation	9. Environmental monitoring in Ukraine	14C. Syndicate C report	
		Coffee	**Coffee**	**Coffee**	
11:00					
		USA Craig Rettie	***AUT Günther Povoden***		
11:30		5. Force Provider Footprint and burden reduction	10 Environmental status report Camp Eaglebase		
				Field trip	
12:00		***EU Michele Righi***	***TUR Hakan Seyirden***		
		6. EU methods of EP in the Balkans	11, EMS in Turkish military factories		
12:30		**Lunch**	**Lunch**	**Lunch**	
13:00					
13:30					
14:00	(Logistical meeting)	Syndicate work	Syndicate work		
14:30					
15:00		**Coffee**	**Coffee**	Field trip	
15:30					
16:00		Syndicate work	Syndicate work		
16:30					
17:00	(Meeting of co-directors, chairs and scribes)		(Meeting of co-directors, chairs and scribes)		
18:00	Registration	19:30 Official Dinner		Dinner	
Evening	Welcome function	Group picture	Free		

AGENDA Workshop "ENVIRONMENTAL ASPECTS of MILITARY COMPOUNDS II B" 16 – 18 October 2007

Gebze, Turkey

	Monday 15 Oct	Tuesday 16 Oct	Wednesday 17 Oct	Thursday 18 Oct	Friday 19 Oct
9:00		**Opening Session**	***JOR Mutaz Al Alawi***	**Syndicate Reports**	
		1. Tubitak Ass. Prof. Mustafa Tiris, TUR	6. Env. aspects of the Jordan Military		
9:30		***FIN Hanna Uusitalo***	***SWE Annica Waleij***	9A. Syndicate A report	
	Travel	2. Environmental Officer's Guidebook	7. Env. Considerations in UN Field Missions	9B. Syndicate B report	Travel
10:00		for military operations	***FRA Gilles Crèhange***	9C. Syndicate C report	
	Check in hotel	***NLD Maarten Gijsbers***	8. Lead in Kosovo		
10:30		3. EAMC Objectives and organisation			
		Coffee	**Coffee**	**Coffee**	
11:00					
		NATO School Rudol Duerr			
11:30		4. Environamental Protection Training		**Plenary Conclusions**	
		at the NATO School	**Syndicate work**		
12:00		***USA Kurt Kinnevan***			
		5. Web portal for Env. Support to Military Operations		**Lunch**	
12:30		**Lunch**	**Lunch**		
13:00					
13:30					
14:00	(Logistical meeting)	**Syndicate work**	**Syndicate work**		
14:30					
15:00		**Coffee**	**Coffee**	**Field trip**	
15:30					
16:00		**Syndicate work**	**Syndicate work**		
16:30					
17:00	Meeting of co-directors, chairs and scribes	Coordination meeting of co-directors, chairs and scribes	Coordination meeting of co-directors, chairs and scribes		
18:00	Registration	**19:30 Official Dinner**	**Free**	21:00	
Evening	**Welcome function**	Group picture	Possibility to go to Tuzla	return to Tusside	

AGENDA Workshop "ENVIRONMENTAL ASPECTS of MILITARY COMPOUNDS II C" 13 – 15 May 2008

AMSTERDAM, THE NETHERLANDS

Date: 08 May 2008

	Monday 12 May	Tuesday 13 May	Wednesday 14 May	Thursday 15 May	Friday 16 May
9:00		**Opening Session**	***NATO SPSC Deniz Beten***	Conclusions Syndicate A	
		NLD bgen René Veger	***NOR Per Amt Olsen***	Conclusions Syndicate B	
9:30		***DEU Harald Kilias / USA Bill Mackie***	How Norway manages waste in ISAF ops.	Conclusions Syndicate C	
		NLD Maarten Gijsbers	***SHAPE David Lloyd***	Plenary Conclusions	
10:00		The Compound Project, where do we stand?	ENTEC Involvement	**Closing Session**	
		CAN Lloyd Chubbs	***NLD Michael de Kock***		
10:30		Canadian Compounds Experiences in Afghanistan	EPWG Forum	***NLD Maarten Gijsbers***	
		Coffee	**Coffee**	Presentation on field trip	
11:00				**Coffee**	
		GBR Barry Whitehead	***SWE Annica Waleij*** Env. Security seminar		
11:30		Environmental equipment for compounds	***CAN Michael Dawson*** SPS Env Expert Panel		
			Syndicate work		
12:00		***USA Craig Rettie***	(Depending on progress 2 reserve Presentations)	**Field trip**	
		Materiel Enablers for Military Compounds			
12:30	Travel	**Lunch**	**Lunch**		Travel
13:00	Check in hotel			**Lunch**	
13:30					
14:00		**Syndicate work**	**Syndicate work**		
14:30					
15:00		**Coffee**	**Coffee**	**Field trip**	
15:30					
16:00		**Syndicate work**	**Syndicate work**		
16:30		Group picture			
				17:00 End of program	
17:00		City tour	Coordination meeting of co-directors, chairs and scribes		
18:00	**Registration**				
Evening	**Welcome function**	18:30 **Official Dinner**	**Free**		
	Arcam Building				

Annex B

Participants

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PARTICIPANTS NATO/SPS WORKSHOPS "ENVIRONMENTAL ASPECTS OF MILITARY COMPOUNDS Phase II" Annex B

							Bad Neuenahr			Gebze			Amsterdam			Participation frequency		
Nr.	Country	Titel	Name	Prename	Institution	Position	NATO	EAPC	INT ORG	NATO	EAPC	INT ORG	NATO	EAPC	INT ORG	3x	2x	1x
1	ALBANIEN	Mrs	MECA	Amila	University Central Military Hospital			1			1			1		1		
2	ALBANIEN	Mr	PROSEKU	Kujtim	Institute of research and design for MoD			1			1			1		1		
3	AUSTRIA	Mr.	ECKER	Georg	NBC School									1				1
4	AUSTRIA	Mr.	OBERSCHMIDLEITNER	Roland	Ministry of Defence			1										1
5	AUSTRIA	Mr.	POVODEN	Günther	NBC School			1			1						1	
6	BELGIUM	Maj	BRAIBANT	Joel	MoD		1											1
7	BELGIUM	Mr	LAIRE	Johan	Defence Environmental Education Centre	Head Environmental Education Centre BEL Forces	1			1			1			1		
8	BELGIUM	Maj	MARTENS	Marcel	MoD Directorate General Material Resources	Chief Material Manager Field Accommodation	1											1
9	CANADA	Maj	CHUBBS	Lloyd		Environmental Officer	1			1			1			1		
10	CANADA	Maj	DAMUDE	Darryl	1 Esu Moncton Nb	J4 International Plans	1			1			1			1		
11	CANADA	Mr	DAWSON	Michael		General Engineering Support Staff Officer	1			1			1			1		
12	CANADA	Ms.	PERRON	Genevieve	Environmental officer					1			1				1	
13	CZECH REPUBLIC	Ms.	ADAMKOVA	Marie	Ministry of Environment								1					1
14	ESTONIA	Ms.	LOORENTS	Nele	MoD, Department of Infrastructure	Advisor Env. Economy and Health MoD	1			1							1	
15	EU	Ltc	SEMERLE	Yannick	EU Military Staff				1									1
16	EU	Mr	RIGHI	Michele	HQ EUFOR				1			1			1	1		
17	FINLAND	Ms.	KAJANDER	Sara	MoD, Construction Establishment			1			1						1	
18	FINLAND	Ms.	UUSITALO	Hanna	Ministry of Defence	Senior advisor		1			1			1		1		
19	FRANCE	Mr.	CRÈHANGE	Gilles	Etat Major des Armees	Chief of Section Environmental Prevention & Security	1			1			1			1		
20	FYROM	Mrs	TASKOVSKA	Elizabeta	Ministry of Defence	Advisor Env., Economy and Health		1			1			1		1		
21	FYROM	Mr	KAROVSKI	Branko	MoD, Military Hospital	Specialist Hygiene and Health Ecology		1			1			1		1		
22	GEORGIA	Mr.	KUPREISHVILI	Malkhaz	MoD						1							1
23	GEORGIA	Ms.	METOPISHVILI	Eliza	Ministry of Defence	Senior Specialist NBC and Environment		1			1			1		1		
24	GERMANY	Col	BEHRINGER	Karl Ernst	MoD		1											1
25	GERMANY	Mr	DRAUT	Willie	MoD		1											1
26	GERMANY	Mrs	GERICKE	Christiane	MoD		1											1
27	GERMANY	Dipl.Geo	HUEMER	Thomas	Federal Office of Defence Administration	Branch Chief IUG	1			1			1			1		
28	GERMANY	Dr.	KILIAS	Harald	Bundesministerium der Verteidigung	Assistant Branch Chief	1			1			1			1		
29	GERMANY	Lcol	LANGHAMMER	Thomas Helmut	MoD		1			1			1			1		
30	GERMANY	Mr	MÜHLENBROCK	Siegmar	TRAR					1			1				1	
31	GERMANY	Mr	PFEIFFER	Hans Dieter	MoD		1											1
32	HUNGARY	Ms.	BALOGH	Rita			1											1
33	HUNGARY	Mr	MURANYVARI	Gyozo			1											1
34	JORDAN	Mr	AL-ADAILEH	Haithem	Ministry of Environment									1				1
35	JORDAN	Mr	AL-ALAWI	Mu'taz	Jordan Environment Society						1			1			1	
36	LATVIA	2Lnt	KOCOTE	Inese	Logistics Command	Staff officer	1			1			1			1		
37	LATVIA	Ms.	KRAUSE	Agnese						1			1				1	
38	LITHUANIA	Ms.	BARYSIENE	Rita	Land Force Command	Environment Protection Specialist	1			1			1			1		
39	LITHUANIA	Ms.	JAKIMAVICIUTE	Irma	MoD		1			1			1			1		
40	MOLDOVA	Mr	STRATULAT	Alexander				1			1			1		1		
41	NATO Joint Forces Command	Mr	HAYNIE	Timothy	Environmental Engineer				1			1					1	
42	NATO SCHOOL	Ltc	DUERR	Rudolf	NATO School Oberammergau	Course Director Environmental courses			1			1			1	1		
43	NATO SHAPE	maj	GRWNOW						1									1
44	NATO SHAPE	Mr	LLOYD	David											1			1
45	NATO SPSC	Ms.	BETEN	Deniz											1			1
46	NETHERLANDS	Mr	GIJSBERS	Maarten	MoD Directorate Spatial Planning, Environment&Real Estate Policy	Environmental Policy Advisor	1			1			1			1		
47	NETHERLANDS	Maj	KOCK, DE	Michael			1			1			1			1		
48	NETHERLANDS	Lcol	LINSEN	Bart		Commander (Engineer) Plant School	1			1							1	
49	NETHERLANDS	1LT	LOZEMAN	Egbert		Advisor Env. Management	1											1
50	NETHERLANDS	Maj	MONTEBAN	Michel	CLAS OTCGenie								1					1
51	NETHERLANDS	Ms.	OORD, VAN	Jantien	MoD DRMV	--							1					1
52	NETHERLANDS	Mr	TAMIS	Martinus	OTC Log	Development policy&doctrine operational logistics facilities	1			1			1			1		
53	NETHERLANDS	bgen	VEGER	Rene	CLAS								1					1
54	NORWAY	Mr.	BOLSTAD	Magne	Norwegian Defence Estates Agency	Senior Engineer	1						1				1	
55	NORWAY	Cpt	OLSEN	Finn Terje	TEF Ing		1											1
56	NORWAY	Mr	OLSEN	Per Amt									1					1
57	PORTUGAL	Lcol	REIS	Jorge									1					1
58	ROMANIA	Ltcol	BADESCU	Vasile	MOD Control and Inspection Corps	Environmental Specialist	1			1							1	
59	SWEDEN	Lcol	EBBHAGEN	Carl Gustav	SAF Project leader			1										1
60	SWEDEN	Lcdr	MOE	Lars				1										1
61	SWEDEN	Mr.	OLSSON	Svante				1										1
62	SWEDEN	Mc	PAZ	Nadja	Swedish Armed Forces HQ									1				1
63	SWEDEN	Ms.	WALEIJ	Annila	Sweidish Defence Research Agency						1			1			1	

PARTICIPANTS NATO/SPS WORKSHOPS "ENVIRONMENTAL ASPECTS OF MILITARY COMPOUNDS Phase II" Annex B

							Bad Neuenahr			Gebze			Amsterdam			Participation frequency		
Nr.	Country	Titel	Name	Prename	Institution	Position	NATO	EAPC	INT ORG	NATO	EAPC	INT ORG	NATO	EAPC	INT ORG	3x	2x	1x
64	TURKEY	Ms.	BASAR	Merve	Tübitak					1								1
65	TURKEY	Mr.	CANLI	Oltan	Tübitak					1								1
66	TURKEY	Mr.	DAGLI	Sönmez	Tubitak MRC CEI		1			1			1			1		
67	TURKEY	Col	DIZER	Ufuk	General Staff					1								1
68	TURKEY	Mr.	KARAASLAN	Yakup						1								1
69	TURKEY	Ms.	KUYUK	Ozlem						1								1
70	TURKEY	Mr.	SENER	Gülsevim						1								1
71	TURKEY	Mr.	SERKANT	Fidan	MoE/Waste management department					1								1
72	TURKEY	Maj	SEYIRDEN	Hakan	Engineers		1						1				1	
73	UKRAINE	Ms.	AMJADEEN	Lidia	Ministry of Environment									1				1
74	UKRAINE	Mr.	KUZNYETSOV	Volodimyr	Ukrain Scientific Institute of Ecological Problems	Head of Department/Leading researcher		1			1			1		1		
75	UKRAINE	Ms.	MARUSHEVSKA	Olga	Ministry of Environment						1							1
76	UNITED KINGDOM	Maj	FLETCHER	James	Army Medical Directorate	SO2 Environmental Health (Policy)	1			1			1			1		
77	UNITED KINGDOM	Mr	HODKINSON	Brendan	Defence Logistic Organization	Head Env. Science							1					1
78	UNITED KINGDOM	Mr	TOLLERVEY	Roger	Defence Logistic Organization	Head Env. Science	1			1							1	
79	UNITED KINGDOM	Mr	WHITEHEAD	Barry									1					1
80	USA	Mr	BOSETTI	Timothy	USACHPPMEUR					1			1				1	
81	USA	Mr	BUSH	Thomas	Hughes Associates Inc.	Director Env & Pollution Prevention Planning	1			1			1			1		
82	USA	Cap	HORNER	Allen			1			1			1			1		
83	USA	Mr.	KINNIVAN	Kurt			1			1							1	
84	USA	Mr	MACKIE	Bill			1			1			1			1		
85	USA	Ltcol	RETTIE	Craig			1						1				1	
						Total	37	14	5	35	14	3	34	14	4	29	17	39
							NATO	EAPC	INT ORG	NATO	EAPC	INT ORG	NATO	EAPC	INT ORG			
																34	20	46

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Annex C

Project Results

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Annex C.1

Recommendation regarding

"Fora for the exchange of information on

Environmental Aspects in military compounds"

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May 2008

RECOMMENDATION REGARDING FORA FOR THE EXCHANGE OF INFORMATION ON ENVIRONMENTAL ASPECTS IN MILITARY COMPOUNDS

An Environmental Aspects in Military Compounds Panel is believed to be the most appropriate approach to developing an information exchange forum. The Panel could present the following characteristics:

- This panel would report to the EPWG and support the EPWG mandate.
- It would serve as a system for a regular exchange of information and co-operation in the field of environmental aspects of military compounds to enhance interoperability.
- The panel's mandate would include acting on behalf of the EPWG to maintain the flow of information and approvals for amendments to the Allied Joint Environmental Protection Publications (AJEPP) on **standards** and **EMS**.
- It will ensure that the relevant publications are maintained and updated as required and ensure that new issues and lessons learned are dealt with in a timely fashion.
- The Panel would meet a number of times per year as required. This process would reduce pressures on the EPWG in the maintenance of the AJEPP publications on standards and EMS.
- The Panel structure and processes would be in accordance with the Terms of Reference of the EPWG and relevant guidance.

To ensure the regular update of the **Best Practices** document, a forum created under the Centre of Excellence would best meet the functional needs of the updating process. The forum's structure and membership would be determined at a later date. An EP Centre of Excellence based in the Engineer Centre of Excellence would be best to engage in updating the AJEPP Best Practices document in cooperation with other relevant members. To ensure that the document can be efficiently updated, in the long term, the EP Centre of Excellence will require input from the operational commands, the NATO Joint Analysis and Lessons Learned Centre and ideally national EP lessons learned.

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Annex C.2

Handbook on

"Planning an Environmental Management System (EMS)

for NATO led military activities"

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AJEPP xx

PLANNING AN

ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

FOR

NATO LED MILITARY ACTIVITIES

Final version 3 – 13 May 08

CONTENTS

PLANNING AN ENVIRONMENTAL MANAGEMENT SYSTEM (EMS) FOR NATO-LED MILITARY ACTIVITIES

INTRODUCTION

1. EMS is a systematic management approach that can be used by NATO EP planners to identify and reduce the environmental impacts of a NATO deployment.

2. In meeting their military mission, NATO commanders and forces must be committed to taking all reasonably achievable measures to protect the environment. The minimum achievable benchmark is that the environmental condition of areas used by NATO infrastructures (military compounds) must be no worse than its original condition. To achieve this, commanders must know how NATO led military activities affect, and are affected by, the environment. It is the responsibility of commanders and planners to include environmental considerations into their planning processes in accordance to STANAG 7141.

3. The Identification of potential environmental issues as early as possible in the planning stage should ensure the effective development of interventions and control measures. Key to this process is the development of an effective EMS.

AIM

4. The aim of this document is to provide Environmental Protection (EP) Officers with an understanding of the NATO planning process and how to integrate an EMS into this process.

RELATED DOCUMENTATION

5. The Planning an Environmental Management System (EMS) for NATO Led Military Activities document is part of a family of documents of the Allied Joint Environmental Protection Publications (AJEPP). It is accompanied by a set of Environmental Protection Standards for Deployed Compounds (AJEPP XX) and the Environmental Protection Best Practices (AJEPP XX). These documents can be used to obtain more information when developing an EMS for a compound.

NATO OPERATIONAL PLANNING PROCESS

6. To understand how the EMS is to be integrated into the NATO planning cycle, the EP Officer must first have a clear understanding of the NATO Operational Planning Process. The NATO Operational Planning Process is a logical military problem solving process, which draws together all factors to enable the development of a feasible Courses of Action (CoA), and the subsequent development of the OPLAN. It is essentially a practical and flexible tool to make sense of large amounts of intelligence data (the Intelligence Preparation of Battlespace (IPB) process – see Annex A) to enable the development of a coherent plan for action. The NATO Operational Planning Process is central to the formulation of the OPLAN and accompanying Directives, such as environmental protection directives.

7. The components of the NATO Operational Planning Process are found in Figure 1 below.

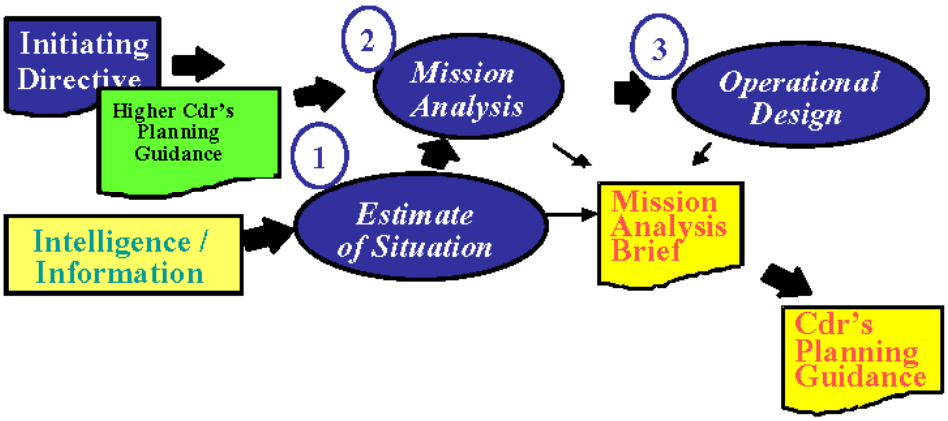

Figure 1: NATO Operational Planning Process

8. The responsibilities of the EP Officer at each stage of the NATO Operational Planning Process will vary, but clearly his main effort will be in Steps 1 to 3 of the process. Table 1 provides additional likely responsibilities of the EP Officer.

	NATO Operational Planning Process					
	Appointment	**Receipt**	**Planning Estimate**	**Preliminary Orders**	**Subsequent Activity**	**Execution**
Likely EP Officer Responsibilities	EP Officer	Member of planning team. Develops Battlefield Area Evaluation (BAE) overlay in conjunction with other Subject Matter Experts (SMEs).	Provides Planners with advice on EP issues. Member of Combat Service Support (CSS) planning team and act as EP officer. Support to J2/J3 in the continued development of the IPB.	Production of EP Annex to OPLAN. Production of BAE overlays.	Preparation of EP products in support of OPLAN. Communication plan to Bde/unit EP Focal Points.	Establish/Review and Monitor EMS in operational area.

Table 1: Additional Likely EP Officer Responsibilities

9. There are many similarities between the NATO Operational Planning Process and Safety Management Systems, which will be familiar to the EP Officer. To enable informed CoAs to be determined, staff officers across a wide range of disciplines, including EP, will participate in the Joint Intelligence Preparation of the Battlespace (JIPB). It is important to understand that the JIPB process is fundamental to gathering the information required to begin the development of the EMS, which in turn will input into the NATO Operational Planning Process and ultimately the operational plan (OPLAN).

KEY ELEMENTS OF THE NATO EMS SYSTEM

10. The key features of the NATO EMS are described below. Significant considerations should be given to the roles, implications and consequences of contracting activities in regards to environmental management. The proposed NATO EMS structure is shown in Figure 2.

Figure 2: NATO EMS Structure

Planning

11. **Information Gathering**. The gathering of environmental data at the earliest feasible opportunity is critical and will reduce the effort required to manage the other stages in the EMS process, and will ensure that environmental aspects and associated impacts are identified and addressed early in the planning process. A preliminary list of potential environmental aspects and related impacts that could be found in military compounds is offered in Annex B. Documents listed in Annex D can provide further guidance. It is therefore crucial that EP Officers engage fully in the NATO Operational Planning Process, and develop close working relationships with other SMEs such as Engr and Log staffs.

12. **Environmental Management Board (EMB).** It is likely that an Environmental Management Board (EMB) will be formed to manage and coordinate the EP management effort. The EMB usually comprises:

Chairman	**J4/Jeng**
Members/Reps from	J1/J1 (Med)
	J2
	J3
	J5
	J4/J Eng
	J9
Special Members – As required	J 8 Budgets
	J 8 Contracting
	Civil Affairs
Generic Terms of Reference	
To: Identify environmental aspects.	
Identify environmental impacts.	
Identify control measures.	
Set performance standards.	
Set performance measurement.	
Set key environmental decision points for duration of operation	

Table 2: Additional Likely EP Officer Responsibilities

13. **Environmental Baseline Studies (EBS).** During the information gathering process, a stage will be reached where it will be necessary to carry out an EBS. The EBS determines the extent of any environmental aspects that may be present. The scope of the EBS will vary depending on the nature and duration of the operation and the purpose of the study. Regardless of the documentation required, documentation is essential. A report must be produced and include at the minimum the aim, scope, findings, and recommendations of the EBS. Note that there are activities, which can be undertaken before (both strategic and tactical) and after (closing and handover) the EBS process, which can assist in obtaining the necessary information for the EBS and EMS. An example of a basic EBS can be found in the Environmental Protection Best Practices (AJEPP XX).

14. **Screening.** Once sufficient information has been gathered to make informed decisions on the environmental threats, aspects, and impacts, these can be screened by risk assessing in order to prioritize threats and target resources. Figure 3 offers an example of a risk assessment matrix.

Hazard Severity	Hazard Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	Extremely High	Extremely High	High	High	Moderate
Critical	Extremely High	High	High	Moderate	Low
Marginal	High	Moderate	Moderate	Low	Low
Negligible	Moderate	Low	Low	Low	Low
Risk Estimate					

Table 3: Risk Assessment Matrix

Commander's Intent

15. The environmental policy is fixed in the Force Commander's Intent. If he includes considerations on how to perform EP during the mission in Commander's Planning Guidance, officers will realize that there is an over-arching document as an Annex of the OPLAN and details how the EMS is to be managed during the deployment. It also sets out the Commander's commitment to EP and Sustainable Development from which the EP Officer will derive his authority to enforce the EMS.

Organisation

16. Management of EP on deployments entails a range of responsibilities distributed through the Chain of Command from EP Officers in the JTF HQ to unit commanders and down to the individual soldier. This structure will be contained in the Commander's Intent. Proper consideration and effort should be made to ensure that the appropriate training and qualifications are provided to the personnel managing the EMS at the site.

Control Measures

17. Many control measures can be integrated into the design of temporary field accommodation, such as water treatment plants and field incinerators. This will require close liaison with the Engr Field Infrastructure specialists. When advising camp design staff and quantifying control measures, the EP Officer should take account of the related Environmental Protection Best Practices (AJEPP XX) in developing control measures. As can be seen in Figure 1, control measures for an EMS include: physical control, monitoring, record keeping, procedures.

18. The responsibility for in-theatre control measures lies at several levels, from HQ JTF down to the sound environmental awareness training of individual soldiers (see Annex C).

Setting Objectives

19. The process of setting objectives and targets supported by Performance Indicators (PIs), is a way of improving environmental performance and achieving continuous improvement. An objective is an overall goal, which may be made up of smaller targets. A target is a more detailed performance requirement that needs to be met in order to achieve the objective. For example, if a reduction of water consumption is the objective, the target is by "how much" over set time frames. Environmental objectives and Decision Points (DPs) should follow the SMART process detailed below:

a. **Specific** Well defined and clear to those responsible for meeting and monitoring objectives.
b. **Measurable** To determine whether Objectives and DPs have been attained they must be measurable. This also applies when setting PIs to determine Continuing Improvement/Sustainable Development of environmental standards.
c. **Agreed Upon** Agreement with all the stakeholders on what the goals are to be achieved is vital.
d. **Realistic** Objectives must be within the availability of resources, knowledge and capability of the force.
e. **Time Based** Environmental objectives and targets must be appropriate to the Stage of the Operation – see paragraph 25. It is unrealistic to set strict environmental objectives at Early Entry when sites and environmental procedures are at early stages of development.

Measuring Performance

20. **Environmental performance**. Environmental performance evaluation is a process designed to provide the Force Commander with assurance that the Force is meeting its environmental responsibilities effectively, and that the Environmental Annex in the OPLAN is being followed. This is a requirement of STANAG 7141.

21. The performance evaluation itself comprises a structured, documented, periodic and objective evaluation of the effectiveness of the EMS. It will provide the performance benchmarks that allow both unit commanders and the EP Officer to identify areas of improvement and to ensure that environmental systems are working optimally.

22. There are a number of evaluation options:
a. Strategic EP evaluation carried out by national EP experts.
b. Tactical EP evaluations carried out by the Force EP Officer.
c. Unit EP evaluations which are self-assessment unit evaluations carried by the unit EP focal point.
d. Targeted EP evaluations, which are assessments of performance of specific areas, measured against, for example, Host Nation (HN) EP standards such as air pollution, water pollution, and waste disposal.

23. Key to the evaluation process is consistency. Therefore Force Commander's HQ is responsible for developing a set of questions/protocol to facilitate a mission-wide EP performance evaluation. TCNs are responsible for consistent application of the questions/protocol without changing them. The data gathered as a result of the questions has to be forwarded to the Force Commander's HQ. TCNs are required to evaluate and review their national EP performance and take necessary action accordingly.

24. **Review**. The EMS is a "living" system and throughout the Operation it will require reviewing and developing as conditions change or mature. Much of this will be based on the results of the EP Evaluations.

ENVIRONMENTAL RISKS – STAGES OF COMPOUND DEVELOPMENT

25. **Initial to Interim Stage (austere with little support structures)**. A compound in an initial to interim stage may present little opportunity to implement all stages of the Force EMS system. During this early stage, good health defence and Medical Force Protection measures, such as good soldiering and camp hygiene, is all that is likely to be achievable.

26. Potential sources of aspects for an EMS for initial to interim stage compounds are:
   a. Sources of water (supplied or local).
   b. Waste management (sanitary, packaging, etc.).
   c. Source of re-supply (mode of transport, routes & distance).
   d. Vehicle maintenance.
   e. Storage and disposal of hazardous substances.
   f. Geological and topographical characteristics of the site (impacts on drinking water, run off, etc.).
   g. Sources of energy (oil, fossil fuel electricity, hydroelectricity, gas).
   h. Effect of local sourcing on local population (economy and remaining availability for local population.

27. **Long-term Stage (increased control over infrastructure)**. When the operational theatre becomes more settled and a greater deal of control is afforded to the Commander on the ground, the Theatre HQ can begin to integrate EMS fully into its core business. The decision to adopt a full EMS process is taken by the Theatre Commander and should be based on environmental risk, taking into account the size of force, tactical situation and nature of operation, environmental sensitivity and host nation policy and laws. A comprehensive documented EMS similar to one expected at the home base is the aim, but may not be achievable due to the operational situation. In most cases the key requirement will be continual improvement to meet agreed- upon standards in a robust but balanced, practical way that recognizes the operational imperatives.

28. Potential sources of aspects for an EMS for initial to interim stage compounds are:
   a. Active management of Theatre EP Plan, which must adequately cover Sustainable Development (SD) objectives and aims.
   b. Monitoring environmental performance and instigating remedial action where necessary.
   c. Consider environmental and social impacts of new policies and contracts.
   d. Investigate and quantify previously logged environmental incidents.
   e. Utilize environmental support from participating nations.
   f. Actively promote the prevention of Petroleum Oil and Lubricant (POL) spills.
   g. External evaluation by National SMEs.
   h. Site advisory visits by Force EP Officer.
   i. Identify possible areas where SD performance can be improved.
   j. Use of building materials, design of build, energy efficiency, type of drainage i.e. soak away and location of build).

DRAW DOWN ("FORCE REDUCTION")/SITE TRANSFER/CLOSURE

29. The period from Draw Down to Site Closure presents an increased risk for an environmental incident. Factors such as a reduced and weary workforce, site vacation, movement of POL and HAZMAT, bulk storage, abandoned equipment, vehicle preparation for air/sea transportation and

inappropriate ad hoc waste disposal. Consequently, it is important that the EMS Plan take into account the issues related to Draw Down, Site Transfer and Site Closure.

30. Troup Contributing Nation (TCN) will be expected to complete a Site Closure process prior to handing back the site to the HN. The aim of the process is to return the area occupied by NATO forces to an environmental state no worse than prior to occupation. If this is not possible, the aim will be to document all events leading to any environmental degradation. As a minimum the process will gather all information relating to the site management of environmental issues over the length of the operation and will include a site plan detailing all environmental sensitive processes, for example, fuel storage areas, the results of any environmental sampling, and records of any meetings where environmental issues were discussed. This process is also to be followed when handing over a site to another TCN. In the event of concerns between the outgoing and incoming TCNs over the contents and details in the hand-over documents, the Force HQ environmental officer is to arbitrate.

31. The collection and collation of historic data is important, not only to identify the correct lessons from the deployment, but also to serve as part of the evaluation trail in protecting NATO and national interests.

32. Documentation relating to environmental decisions, details and location of incidents and environmental management shall initially be held according to national requirements. Copies of all documentation, particularly the Lessons Identified, must be forwarded through the national Chain of Command to the appropriate NATO HQ. Such records are required to assist in the process of apportioning the responsibility of post-operation clean-up.

List of Annexes

ANNEX A - INTEGRATING ENVIRONMENTAL ASPECTS/IMPACTS INTO THE IPB PROCESS
ANNEX B - ENVIRONMENTAL ASPECTS AND POTENTIAL IMPACTS AT EARLY OPERATIONAL STAGE
ANNEX C - ENVIRONMENTAL INPUTS AND OUTPUTS ON OPERATIONS
ANNEX D - USEFUL REFERENCE DOCUMENTS
ANNEX E - LIST OF ABBREVIATIONS

Note

In order to keep this report within reasonable size the Annexes have not been printed out. The total "Planning an Environmental Management System (EMS) for NATO-led Military Activities" Handbook including all Annexes can be found on the CD ROM.

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Annex C.3

Environmental Protection Standards

for NATO deployed compounds

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AJEPP xx

ENVIRONMENTAL PROTECTION STANDARDS

FOR NATO DEPLOYED COMPOUNDS

Draft Version 5.0 – June 08

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1. Overview

Military operations present unique challenges that are not typically associated with peacetime domestic operations or training activities. Although operational requirements are paramount, the integration of environmental considerations into all aspects of operational planning, training, and execution is essential for maintaining the health and well-being of the deployed troops and the local population. In addition, early environmental planning and continuous risk management is critical for preventing irreparable damage to sites with natural, cultural, and historic significance which degrade or complicate the overall achievement of mission objectives. Most military operations are characterized by generally recognized phases of varying duration, depending on their nature, intensity, and complexity. In broad terms these phases may be defined as **planning, pre-deployment, deployment (execution and force rotation), redeployment, and post-deployment.** The importance of the different phases of an operation is the applicable environmental standards that may be applied to the military compound. Commanders must be aware of how the level of a compound's development will affect what can and cannot be achieved for environmental standards and how to plan accordingly. The level of compound development, as outlined in AJEPP Best Practices, will have a direct impact on applicable environmental standards. The compound will evolve from an initial to an interim to a long-term phase and the applicability of environmental standards will evolve along with the compound.

Environmental damage, although a consequence of military operations, may be minimized by adapting practises and procedures that mitigate the damage and facilitate the restoration of peace.

Military **Environmental Protection** is the application and integration of all aspects of environmental considerations as they apply to the conduct of military operations. Military Environmental Protection is not another system or a separate process, but rather an integrated portion of the existing process for contingency operations. Linking environmental considerations with standard operating procedures reinforces issues of force protection. Risk management is part of the template that consists of all means, methods and procedures taken to conserve the fighting potential of the Task Force. A risk management framework is also used for environmental protection.

When there is conflict between operational imperatives and the practice of Military Environmental Protection, operational imperatives will have priority. Factors such as mission success, security considerations, reduced preparation time and the possible limitations of environmental expertise and equipment may limit the application of Military Environmental Protection principles and policies, particularly during the initial stages of military operations.

Stewardship is the responsibility to take care of property while also caring about the rights of others. Good environmental stewardship can be challenging when deployed in countries with low or non-existent standards of environmental protection. This does not preclude the task force from establishing the minimum standards that should be met by the force, nor does it preclude the task force from adhering to higher standards as required by national and international law. Some standards should be set at the highest possible levels to avoid contamination of the military and non-combatant populations. In other cases, waste management practices could be adapted to national and/or host nation policies or the ability of the host nation infrastructure to deal with waste management. Risk management decisions will have to be made in these cases and this aide-memoire should facilitate the decision making by providing the best practices.

2. Commander's Responsibilities

Force commanders are ultimately responsible for the integration of environmental considerations during the training and planning for a military mission, and during the conduct of operations within

the area of responsibility (AOR). Commanders must demonstrate leadership and promote environmental awareness throughout their chain of command, and ensure that environmental experts within the military staff are involved in every aspect of the operational planning and pre-deployment reconnaissance as well as the mission execution. Commanders must also ensure that the forces under their command receive the appropriate levels of environmental awareness and technical training. This involves the identification and assignment of clear responsibilities and resources to provide effective and proactive environmental management. An officer with sufficient knowledge and experience in environmental protection should be designated by the commander as the primary point of contact for environmental issues. This individual's focus should ultimately be the development and implementation of an Environmental Management Plan, with the overall purpose of institutionalizing policy, standards, and procedures throughout the deployed force. It is particularly important to conduct a training needs analysis during the pre-deployment planning timeframe so that pre-deployment training may be modified or adjusted to address any identified shortfalls or deficiencies.

Commanders are required to promote and adhere to the appropriate levels of due diligence in all aspects of military planning and execution. Due diligence is the reasonable standard of care for the environment and for the health and safety of others that individuals shall exercise in the course of their actions and duties. As a minimum, due diligence requires individuals to:

- know and obey environmental laws and regulations to the best of their capacity;
- exercise caution;
- prepare for risks that a thoughtful and reasonable person would foresee; and
- respond to risks and incidents as soon as practicable.

3. Legal Considerations

Compliance with applicable environmental laws and regulations is a necessary cost of doing business, even during military operations. Often national environmental regulations do not specifically apply to forces engaged in military operations in another country. This is not always the case, however, and the extent to which domestic laws and regulations apply extraterritorially will vary from nation to nation. Force Commanders and their designated environmental officers and specialists therefore must make every effort to understand their legal requirements, and examine the applicability of their national law as well as international law and conventions and the regulations of multinational or supranational bodies.

International agreement has been reached on a number of underlying principles that govern environmental regulations. These principles outlined below should be taken into consideration in development of an environmental strategy for deployed operations:

- Polluter pays principle. Implies that producers of waste are legally and financially responsible for the safe and environmentally sound disposal of waste they produce.
- Precautionary principle. Key principle governing health and safety. When the magnitude of a particular risk is uncertain, it should be assumed that this risk is significant, and measures to protect human health and safety should be designed accordingly.
- Duty of care principle. Stipulates that any person handling or managing waste is ethically responsible for using the utmost care in that task, including contracted services.
- Proximity principle. Recommends that treatment and disposal of environmental hazards take place at the closest possible location to its source in order to minimize risks involved in transport.

4. Standards

Defining and quantifying standards for Environmental Protection within a NATO compound is necessary and important in defining and monitoring the potential level of environmental damage. However, the following issues complicate the establishment of any environmental standard for a deployed compound and must be taken into consideration:

4.1 Level of compound development;
4.2 International and national regulations of participating nations;
4.3 Local environmental regulations; and
4.4 Availability of technologies to monitor and enforce standards.

As a general rule, participating nations must adhere to the DUE DILIGENCE principle in the application of environmental measures. It is generally accepted that most national environmental regulations will be more stringent than those of the host nation and therefore participating nations must strive to meet own national standards for environmental protection. If no national standard exists for a specific environmental concern, participating nations will ensure activities do not adversely impact on the local environment, based on agreed-upon international standards.

5. Disclaimer

The information contained in this AJEPP is meant to provide military commanders with guidelines in the application of environmental standards during the development of a NATO compound. These standards will be applied based on NATO command direction as well as applicable national and international regulations. It is not meant to replace existing regulations but offers a complementary source of information for military planners when considering environmental factors in the Operational Planning Process.

LIST OF ANNEXES

ANNEX A- WASTEWATER
ANNEX B- SOLID WASTE
ANNEX C- MEDICAL (CLINICAL) WASTE
ANNEX D- HAZARDOUS MATERİALS MANAGEMENT
ANNEX E- ENERGY
ANNEX F- PETROLEUM, OIL AND LUBRICANTS (POL)
ANNEX G- SOIL CONTAMINATION
ANNEX H- NATURAL, CULTURAL AND HISTORICAL RESOURCE MANAGEMENT
ANNEX I- AIR POLLUTION
ANNEX J- NOISE POLLUTION

Note

In order to keep this report within reasonable size the Annexes have not been printed out. The total "Environmental Protection Standards for NATO deployed compounds" including all Annexes can be found on the CD ROM.

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Annex C.4

Appendix 3 - Environmental Protection to Annex EE

for a standardised NATO Operations Plan

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AJEPP xx

APPENDIX 3 - ENVIRONMENTAL PROTECTION

TO ANNEX EE TO OPLAN

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APPENDIX 3 TO
ANNEX EE TO
OPLAN 12345 OP XXXXX
DATED ____

APPENDIX 3 - ENVIRONMENTAL PROTECTION

References: A. MC 469 - NATO Military Principles And Policies For Environmental Protection (EP)
B. STANAG 7141 - Joint NATO Doctrine For Environmental Protection During NATO Led Operations And Exercises
C. STANAG 2510 (Study Draft 4 15 Aug 2005) Joint NATO Waste Management Requirements During NATO Led Military Activities

1. SITUATION

a. General. During expeditionary operations, in addition to its forces, NATO brings international values, which it seeks to impart on all communities. One of these values is respect for the environment and for the people who live in it.
Environmental considerations are the spectrum of environmental media, resources, or programs that may impact on, or are affected by, the planning and executing of military operations. Planning factors include: environmental compliance; pollution prevention; waste management; conservation; heritage protection (natural and man-made); and protection of flora and fauna.
Environmental Protection (EP) is the application and integration of all aspects of environmental considerations as they apply to the conduct of military operations. Environmental damage may be an inevitable consequence of operations; however, environmental planning should minimise these effects without compromising either operational or training requirements. With an understanding of applicable environmental legislation and regulations, commanders will be able to plan efficiently and act accordingly. By taking proper steps to assess, plan, train and execute the deployment and execution of the mission, the commander will: protect human health and essential environmental resources; reduce the occurrence of environmental accidents; mitigate any damage that may be caused to the environment; and limit NATO's potential long-term liability.

b. Scope. This Appendix covers protection of the environment during NATO-led operations and exercises. The environment is defined as the surroundings in which NATO operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation. By early consideration of the potential environmental impacts, commanders will become aware of the environmental effects of mission accomplishment while alternatives may still exist. Impact is defined as any change to the environment, whether adverse or beneficial, wholly or partially resulting from NATO's activities. Nuclear, Biological and Chemical (NBC) wastes and related issues are not addressed by this appendix; nor are force protection, targeting, or preventive medicine issues addressed, but EP advise will be required during the planning cycle of these activities.

c. Assumptions

(1) Host Nation Support. Due to the political situation and probable lack of government stability, there will probably be little likelihood of significant Host Nation (HN) support initially; thus, government environmental protection agencies will not be able to provide much

assistance or advice and NATO Forces will be required to be self-sufficient. This may require a harmonization of the Sending Nations (SNs) environmental principles and policies.

(2) Environmental Situation. The environmental situation will probably be poor due to the near breakdown in government and possible ongoing terrorist activities. Industrial and municipal facilities will probably be poorly maintained and administered and there could be force protection incidents of Toxic Industrial Hazards (TIH) requiring support from NBC and medical experts. The hydrogeological conditions may make protection of fresh water sources a particularly important task. Conversely, the Area of Operations (AOO) may be environmentally pristine, but the infrastructure may be underdeveloped and Host Nation environmental legislation may not exist. This situation will necessitate first-principles planning, specifically with respect to waste management.

d. Limiting Factors

(1) Existing security conditions, preparation time (e.g., for transit and other agreements supporting environmental contracts), and availability of environmental personnel, especially during the initial phase of deployment may be limiting factors.
(2) Operational imperatives will have priority over EP principles and policies. Factors such as mission success, force protection requirements, security considerations, and the non-availability of required logistic support may limit the ability of deployed forces to comply with the directed environmental protection requirements, especially during the employment phase.
(3) Fiscal restraints to expend funds under contingency operation conditions may be a limiting factor.
(4) Delays in implementing international agreements and contracting actions could result in additional requirements for waste storage facilities at the point of generation.
(5) Environmental actions or projects (e.g., on-site treatment of soil contaminated with petroleum, oil, or lubricants) that are required after redeployment of units and transfer of facilities (sites and base camps) may become limiting factors.

2. AIM The aim is minimise environmental impacts without compromising NATO's operational requirements.

3. EXECUTION

a. Commanders EP Intent. A sound environmental policy is a key aspect of Information Operations, and a requirement for NATO to retain its international reputation. Deployed NATO forces must follow NATO's EP Policy as outlined in Reference A which define the responsibilities of NATO Commanders and Commanders of units from SNs, and the expected responsibilities of cooperating HNs for EP during the preparation for and execution of military activities. Although operational imperatives will have priority, NATO-led forces must strive to respect the environment. EP principles and policies will have to be balanced against the risk to forces and mission accomplishment. The HN's environmental laws will be respected unless specific exceptions have been agreed to. International environmental legislation, rules and regulations and conventions will also be applied. National standards may be used if they are more stringent than the HN's standards. NATO and the SNs have a collective responsibility for the protection of the environment; however, each nation bears ultimate responsibility for the actions of its forces. NATO will take a proactive EP approach and any significant adverse environmental impacts or threats must be immediately reported to appropriate NATO and national authorities.

b. Concept of Operations. Operations will be planned and conducted with appropriate consideration of their effect on the environment as detailed in Reference B. The effect of operations, both on the environment and from the environment, must be weighed against the military requirements of the mission. While the NATO mission will take precedence, the potential dangers and high media profile of environmental issues requires thorough consideration and awareness of the potential environmental impacts of NATO operations. An environmental incident at the tactical level may have the potential to have a strategic effect. This translates into specific duties and responsibilities during all phases of an operation.

(1) Warning and Preparation Phases. During these phases, a country study is completed and a strategic reconnaissance is done. Existing site conditions and the impact on operations will have to be determined. (See Tab A for Guidelines For Environmental Assessment for NATO-Led Military Activities and Tab A1 for Theatre Level Checklist).

(2) Deployment Phase. During this phase, any problematic areas must be investigated. An environmental detailed reconnaissance may be initiated based on identified concerns.

(3) Employment Phase. It is critical to ensure that environmental conditions are properly quantified / qualified at the outset for health and legal purposes, as well as to ensure that the proper level of continuous monitoring is performed to ensure protection of the environment and human health. The two major activities in this phase of the operation are the detailed environmental baseline study of the selected location(s) (Tab B Environmental Baseline Study and Tab B1 – Environmental Baseline Study Elaboration) and the set-up of an Environmental Management System (EMS) and subordinate Environmental Management Plans (EMPs) for the duration of the occupation. Changes in the environmental situation are to be continuously monitored (See Tab B2 – Environmental Conditions Report).

(4) Redeployment Phase. Upon completion of a mission or the operation, the SNs will return all sites to their original state, aside from any damage that may have been caused by natural disasters or outside influences (Tab B & B3). The SN may also have the option to handover the site to another organisation. The SN will then have the responsibility to conduct remedial actions prior to handover or as negotiated.

c. Responsibilities.

(1) Sending Nations

(a) SNs should provide appropriate EP education and training to their forces (Joint Functional Area Training Requirements – Environmental Protection refers).

(b) SNs may advise and assist with the conduct of pre- and post occupation surveys, environmental documentation, and site clean up.

(c) SNs should provide appropriate environmental expertise in their contingents. Deploying forces should appoint an officer or senior NCO to co-ordinate and control unit level environmental procedures (See Tab D for Performance Requirements). A summary list of these appointments shall be provided to the Combined Joint Task Force (CJTF) Environmental Protection Officer before deployment.

(d) SNs should ensure that their contingents comply with the CJTF directive for EP, specifically due to liability implications.

(2) HN Responsibilities. The HN should co-operate with the designated NATO Commander in order to permit the conduct of military activities with due regard for EP. This will include:

(a) the provision of available and appropriate environmental expertise, information and resources.
(b) advice to the designated NATO CJTF Commander and SNs on the HN EP standards.

(3) CJTF Environmental Management Board (EMB). An EMB will be established at the CJTF HQ under the J4 to integrate the environmental protection efforts of all participating components under a single authority, ensuring unity of effort for environmental protection activities. The EMB should include representatives from each service component and joint force staff representative, as necessary (legal, occupational health, preventive medicine, safety, comptroller, planning, operations, and logistics). The EMB assists the JFC in establishing the joint force environmental policies, practices, procedures, and priorities and in providing oversight of environmental protection standards and compliance. Establishing a dedicated and appropriately staffed environmental engineering staff, supported by experts from other joint force staff members (legal and medical), may obviate the need for a EMB in smaller operations (See Tab C1 – Environmental Management Board).

d. Tasks.

(1) CJTF Chief Joint Engineer (CJENG) (See Tab C for elaboration).
(a) Provide advice to the Commander CJTF on environmental issues.
(b) The CJTF CJENG is responsible for the development and coordination of environmental policy within the AOO.
(c) Develop reporting procedures with the Forces and National Support Elements (NSEs).
(d) Coordinate environmental remediation measures for CJTF HQ and related NATO-facilities with Component Command (CC) HQs.
(e) Establish and maintain AOO-wide archive on all environmental incidents during the operation coordinated with environmental CCs HQ databases.

(2) Component Commands Chief Engineer.
(a) Provide environmental support to NATO Operations within means and capabilities.
(b) Identify contractors for hazardous waste and/or contaminated soil disposal within the AOR.
(c) Establish and maintain AOR-wide archive on all environmental incidents during the operation.

e. Coordinating Instructions.

(1) Risk Assessment. CJTF units and detachments should undertake risk assessment (Ref B) to determine the level of risk to the environment when planning military actions. The complexity of these risk assessments will vary with the size of the operation/activity and the personnel, equipment and materials involved.

(2) Base Camps and Detachment Facilities. CJTF units will occupy sites with a view to returning and/or vacating property at least in the same physical/environmental condition as when first occupied. The environmental baseline studies or pre- occupation surveys (See Tab B & B-1) will provide the basis of a CJTF environmental protection database established at the HQ CCs Chief Engineer and coordinated with HQ CJTF CJENG. The database will be updated with any

environmental incident caused by CJTF forces inside the AOR (See Tab B2). As a minimum, site photos/video will be taken before any NATO-led forces move into a site. Units may be supported by the HQ EP Officer, J4 Real Estate and Advisory Team (REAT), Legal, Medical and other specialists
as required. As SNs depart, the condition of occupied real estate may become a financial issue for the SN, as well as a public relations issue for CJTF/NATO.

(3) Damage Remediation Actions. SNs are responsible to clean up any damage their troops cause. NSEs should plan ahead and take the right precautions prior to, and during, their occupation of a site and prior to their eventual redeployment from that site. HQ CCs ENG represents the first level for further action of remediation.

(4) Site remediation which is suspended due to military operations, redeployment or force protection shall be documented. This documentation shall include, but not be limited to, an interim report with narrative, sampling analysis, and photographic documentation. Site remediation shall address the following areas:

(a) Fuel and lubricant storage and dispensing.
(b) Ammunition and explosive storage.
(c) Vehicle parking and maintenance areas.
(d) Waste (includes also medical waste) storage or disposal (clean up).
(e) Hazardous material storage.
(f) Medical waste storage or disposal.
(g) Human waste problem areas, i.e., visible sewage, smell of sewage, latrines.
(h) Closure of grease or soakage pits (latrine or dining facility).
(i) Stagnant or standing water removal complete with photographic documentation.

4. SERVICE SUPPORT

a. Identify those environmental planning factors which, although not mandated as law or regulation, will support successful execution of the plan in all phases and protect the health and NATO Force and noncombatants. As a minimum, address certification of local water sources by medical field units, solid and liquid waste management, hazardous material (HM) and hazardous waste (HW) management, flora and fauna protection, archaeological and historical preservation, and spill response. Disposal of solid and liquid waste will depend upon the location and surrounding environment of the disposal area. The intent is to minimize the environmental impact and to limit potential contamination to the holding site. NATO Forces will, at a minimum, comply with the following mitigation measures.

(1) Potable Water. CJTF preventive medicine personnel will accomplish approval of potable water sources, including bottled water. CJTF CJENG will ensure that water sources are free from contamination by suitable placement and construction of wells and surface treatment systems. Consideration should be given to the siting and maintenance of septic systems, on-site treatment units, hazardous material and hazardous waste accumulation points, solid waste disposal sites, and other activities that may threaten the integrity of the potable water supply. The CJTF will provide bottled drinking water until such time as approved potable water sources are located.

(2) Grey Water. Mess, bath, and laundry operations will use existing sewage lines where available or constructed soakage pits and ponds. Location of soakage pits will be co-ordinated with preventive

medicine personnel. They will be constructed to prevent pooling and the creation of new insect breeding areas. Where practical grey water and black water waste treatment systems will be combined.

(3) Wastewater/Human Waste (Sanitary Sewage - Black Water). Sanitary sewage will be disposed by using the method that maximises protection of human health and the environment under existing operational conditions. The following disposal alternatives are presented in general order of preference; however, site-specific considerations and operational duration and intensity may take precedence:
   (a) Existing systems (e.g., latrines, sanitary sewers, and treatment facilities).
   (b) Constructed or packaged wastewater treatment units or contracted services.
   (c) Field expedient procedures (e.g., cat-holes or straddle trench latrines).

(4) Solid Waste. Solid waste will be managed by using the method that maximises the protection of human health and the environment under existing operational conditions. Management of solid waste will be IAW applicable procedures determined by the HQ CJTF J4, in consultation with preventive medicine personnel. The following disposal alternatives are presented in general order of preference; however, site-specific considerations and operational duration and intensity may take precedence:
   (a) Existing solid waste disposal systems.
   (b) Construction of solid waste disposal facilities or contracted services.
   (c) Field expedient procedures (e.g., garbage pit).

(5) Infectious Waste (Medical Waste Management). Infectious waste will be segregated at the point of origin. Mixtures of solid waste and infectious waste will be minimised and will be handled as infectious waste.
   (a) Definition. Infectious waste: Waste produced by medical and dental treatment activities, with the potential for causing disease, and may pose a risk to both individual or community health if not managed properly (e.g., pathological waste such as; human tissues and body parts, human blood and blood products, sharps-hypodermic needles and syringes).
   (b) Management. Infectious waste will be segregated, transported and stored IAW preventive medicine procedures approved through medical channels and the HQ CJTF Medical Advisor.
   (c) Treatment and Disposal. In-country contract disposal will be used where feasible. Methods of disposal (typically high temperature incineration) shall be approved through medical channels and the HQ CJTF Medical Advisor. If contract disposal is not feasible, approved field expedient procedures will be used.

(6) Hazardous Materials. Minimise use of hazardous materials whenever possible to minimise the production of hazardous waste. All excess hazardous material should be reissued by the supply support activity in theatre, if possible. Excess hazardous material not reissued shall in general be returned to home station as hazardous material. Hazardous material that cannot be returned to home station shall be disposed of as hazardous waste. The owner of the hazardous material shall be responsible for co-ordinating the disposition of the hazardous material with the HQ CJTF J4, in accordance with guidance provided by the HQ CJTF Environmental Officer.
   (a) Definition. A hazardous material is every material that, based on either chemical or physical characteristics, is capable of posing a risk to health, safety, or the environment if improperly handled, stored, issued, transported, labelled, or disposed. Examples include: carcinogens, corrosive materials, irritants, toxic materials, combustible liquids, compressed gases, explosives, flammable materials, oxidisers, unstable (reactive) materials, pesticides, water-reactive materials, batteries.

(b) Shipment. Shipments of hazardous material will be accompanied throughout by shipping documents that clearly describe the quantity and identity of the material and will include Material Safety Data Sheets (MSDS). HQ CJTF J4 or contracted vehicle operators will be provided information on the hazardous material contained in the shipment including health risks of exposure, the physical hazards of the material, and the potential for fire, explosion, and reactivity. HQ CJTF J4 or contracted vehicles transporting hazardous materials will be appropriately marked, subject to security and operational considerations, and their contents appropriately labelled. International air shipments will follow appropriate instructions.

(c) Storage. Hazardous material will be segregated from non-hazardous materials and separated from incompatible hazardous material. Hazardous material storage sites and containers will be checked on a regular basis to assure they are secure. Hazardous material storage containers will be locked unless being filled or emptied.

(d) Pesticide Usage. A certified pesticide applicator must apply all pesticides, herbicides and fungicides, excluding arthropod skin and clothing repellents, and record these applications.

(7) Hazardous Waste. Minimise use of hazardous material whenever possible to minimise the production of hazardous waste. The generator of the hazardous waste shall be responsible for co-ordinating the disposition of the waste with the HQ CJTF J4, in accordance with guidance provided by the HQ CJTF Environmental Officer.

(a) Definition. Waste which contains dangerous substances and which due to its nature, composition or quantity presents particular risks to human health or the environment. This particular waste category may explode, burn or may contain or release germs, which transmit diseases (this does not include radioactive waste).

(b) Collection Points. Each base and unit shall establish individual or shared hazardous waste collection points. Waste shall be properly segregated and labelled (e.g., waste oil, contaminated fuel, solvents, and chemical compounds) to ensure proper packaging for handling and final disposal.

(c) Transportation/Shipment. Service components are responsible for arranging the transportation of hazardous waste from collection points to centralised hazardous waste collection areas in accordance with procedures established by the HQ CJTF J4.

(d) Final Disposal. Hazardous waste will be disposed by using a method that maximises the protection of human health and the environment with consideration of existing operational conditions. The following disposal alternatives are presented in general order of preference:

i Contractor-Managed Disposal. Local contracting for disposal is allowed if done in a manner that is as protective of human health and safety and the environment as practicable under existing operational conditions. Following turn-in, contractor shall be responsible for ensuring proper disposal of hazardous waste.

ii Return to the Unit's Home Station. International agreements (e.g. Status of Forces Agreements, transit and disposal agreements) and laws of involved nations (countries of origin, transit, and destination) must be considered before this alternative is used. This alternative requires the prior approval of HQ CJTF Legal Advisor and approval of the HQ CJTF J4 Environmental Officer.

iii Local Recycling. Local recycling of select hazardous waste as a fuel (e.g., recovered POL) is an alternative disposal option if consistent with local practices and if the appropriate medical officer determines that no significant risk to human health and safety is associated with burning the particular waste as a fuel. Prior approval of the HQ CJTF J4 Environmental Officer is required.

iv Abandonment. Hazardous waste may be abandoned only if it is determined by the Commander CJTF to be necessary under combat or other hostile conditions. Quantity,

type, and location of waste abandoned must be reported to the HQ CJTF J4 Environmental Officer, as soon as practicable upon cessation of combat or hostile conditions. Abandonment does not necessarily imply dumping; it could consist of securing the waste for subsequent disposal as conditions allow.

(8) Air Quality. Equipment and facilities will be operated such that adverse health and environmental impacts are minimised. The quality of ambient air will be considered in siting activities of NATO Forces. Problems arising from air quality will be referred to the CJTF Medical Advisor and the Environmental Officer.

(9) Air and noise emissions. Give special consideration to preventing air and noise emissions—normally confined to theater rear areas or to security, support, or humanitarian missions. (e.g. there may be a restriction on generator use to state that they will be operated only in the reduced sound signature mode during a certain time period; or there may be a restriction on movement of tracked vehicles outside of designated assembly areas).

(10) Petroleum, Oil, and Lubricants (POL). POL facilities must be designed and installed with attention to leak detection and spill containment requirements as threat conditions allow. Efforts should be made to ensure good housekeeping, adequate equipment maintenance, and adherence to proper procedures to avoid or minimise operational spills of POL. Spill response and cleanup is a unit responsibility. Waste POL shall be disposed of IAW alternatives identified above for hazardous waste. Selection of POL bulk storage system shall consider site-specific conditions and operational duration, i.e. at what point will the force change from fuel bladders to hardened storage tanks in order to prevent spillage.

(11) Spill Prevention and Control. Main base and satellite camps will develop a spill prevention/control plan. Special care will be taken to protect surface water and groundwater from contamination. Trained spill response teams will be identified to respond to spills. Spills will be cleaned up as soon as possible. Low cost equipment (e.g., drip pans) will be used to catch leaking POL and hazardous material. Units are to ensure that adequate types and quantities of containment and cleanup equipment (e.g., dry sweep and over packs) are available at hazardous material storage locations, designated overnight resting areas, and on all appropriate transports (e.g., fuel transports and hazardous material transports). The CJTF Environmental Officer will co-ordinate spill response plans with civilian fire departments and other host nation authorities, where practicable.

(12) Natural Resources (Ecosystem Protection). The CJTF Environmental Officer will pursue available documentation and intelligence assets to identify environmentally sensitive areas. To the extent practicable and consistent with operational conditions, Unit Commanders should avoid or minimise adverse impacts to natural resources including all plants and animals and, in particular, any endangered or threatened species. Liaison with Host Nation environmental authorities and local experts should occur during the strategic recce or EBS, and planning for the construction and/or leasing of major base camps or sites to be occupied by NATO Forces. The Commander will ensure appropriate guidance and practices are established to minimise unnecessary clearing, soil erosion, degradation of air and water quality, and habitat destruction to protect identified environmentally sensitive areas. Significant clearing in excess of 100 acres, soil erosion fissures greater than 30 cm in depth, and suspect drinking water quality will be reported promptly up the chain of command.

(13) Historic and Cultural Resources. The CJTF Environmental Officer will pursue available documentation and intelligence assets to identify historic and cultural areas during the conduct of the EBS. To the extent practicable and consistent with operational conditions, Unit Commanders will avoid or minimise adverse impacts on historic and cultural resources. Liaison with host nation environmental authorities and local experts should occur during the planning for the construction and/or leasing of major base camps or sites to be occupied by NATO Forces. The Commander will ensure appropriate guidance and practices are established to minimise unnecessary disturbance to historically and culturally significant areas.

b. Logistics. Address any necessary guidance for administering the environmental effort. Provide guidance for logistic support to environmental support and compliance.
   (1) Hazardous Material, Hazardous Waste and Waste Management. Specify unique control measures used in supply, storage, transportation and retrograde to reduce and regulate.
   (2) Environmental considerations and service locations. Provide, when appropriate the locations of landfills, incinerators, HW collection facilities, water and wastewater treatment facilities, watershed protection areas, ecologically-sensitive areas, contaminated areas, potentially dangerous industrial facilities, and other points of environmental sensitivity or interest to the force.

5. COMMAND AND SIGNAL

a. Environmental Technical Network. The designated unit or detachment environmental protection officer may be provided information, advice and assistance direct from the EP specialist at the next higher HQ. There may also be national EP technical assistance available. Direction and orders from a superior formation will follow the normal chain of command.

b. EP Points of Contact
   (1) CJTF EP Officer.
   (2) JF EP Officer.
   (3) SHAPE EP Officer LTC David Lloyd (CA A) contact at (32) 44 4550 or IVSN 254-4550, FAX 254-3049 or Internet Email: David.Lloyd@nato.shape.int

c. Incident Reporting. Environmental incident/ accident or hazardous material or POL spill will be reported to the HQ CJTF CJENG. Initial reports shall be made not later than 2 (two) hours after their occurrence.

d. Format of Reports. Initial environmental incident reports will be made using the standard INCSPOTREP as detailed in AP 80-3 Vol III and be followed up in the ENGSITREP. Formats for detailed reporting of environmental incidents may be promulgated at a later date (See Tab B2 – Environmental Conditions Report).

e. Archiving. A copy of all environment related reports must be submitted to the CJTF EP Officer.

f. Lessons Learned. Lessons Learned will be forwarded as detailed in Annex LL.

Signature (An appendix can be signed by the commander or the primary staff officer)

TAB A - Guidelines for Environmental Assessment For NATO-Led Military Activities
Tab A1 - Strategic Level Theatre Environmental Checklist
Tab B - Environmental Baseline Study
Tab B1 - Environmental Baseline Study Elaboration
Tab B2 - Environmental Conditions Report
Tab B3 - Environmental Out-processing Checklist
Tab C - CJTF CJENG Environmental Responsibilities
Tab C1 - Environmental Management Board
Tab C2 - Environmental Policy Statement
Tab D - Performance Requirements of SN Unit Env O

Note

In order to keep this report within reasonable size the Tabs have not been printed out. The total "Appendix 3 – Environmental Protection to Annex EE to Opplan" including all Tabs can be found on the CD ROM.

Annex C.5

Handbook on

Environmental Protection Best Practises

for NATO deployed compounds

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AJEPP xx

ENVIRONMENTAL PROTECTION

BEST PRACTICES

FOR NATO DEPLOYED COMPOUNDS

Final version 2 Apr 2008

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ENVIRONMENTAL PROTECTION BEST PRACTICES

INTRODUCTION

1. For decades there has been growing international consensus for the importance of environmental protection (EP). NATO nations have been among the world leaders in advancing the state of EP science and practice. Indeed, military and other governmental agencies are frequently among the first institutions to adopt national EP measures. The opportunity to reduce consumption and waste on a large scale enables military forces to sustain their operations and conserve their resources, giving the commander more capability to perform the mission. Military operations, however, face challenges when austere areas of operation lack the necessary infrastructure or operating tempo does not allow time needed for comprehensive EP. Accordingly, military operations must be planned, conducted and supported to apply sound EP where adverse conditions make mission sustainment both extremely important and challenging.

2. EP is protection of the environment, not protection from the environment. See related guidance on safety and medical operational planning.

3. Headquarters SHAPE is the tasking authority for this functional planning guide (FPG). Headquarters SHAPE J4 LEX periodically reviews this FPG. Suggestions for improvement should be directed to this office.

INITIATION

4. Military planners shall use this FPG to incorporate EP standards and best management practices into applicable NATO military operation plans. This FPG focuses operational planners on the proper environmental measures for each phase of an operation. To maximize mission effectiveness and conformance to NATO's EP policies, the EP planner should gather the following information as a basis for further consideration:

a. Political requirements. Guidance from higher NATO command may be required.
b. Regional environmental standards. This includes applicable environmental laws, significant natural and cultural resources as well as sensitive species and habitat. If regional standards are not known, coordinate the required research. Applicable environmental standards must be part of the intelligence preparation of the battlefield.
c. Current situation report. If there is no current situation report, prepare one.
d. Location and contact information of nearest EP staff officer. In most NATO operations, this officer will reside at strategic command or regional command headquarters.
e. EP reporting chain. Environmental baseline surveys, incident reports, and condition reports are important documents for planning and executing EP in a NATO operation. If there is no formal chain, one will need to be established. In a similar way, the reporting chain should also disseminate timely and useful EP information. The use of automated data processing for EP information has to be considered to allow fastest transfer of information from source level to highest command echelon.
f. EP resources available. The operating location, conditions, and duration will largely determine the sources of material and energy supply and options for reuse, treatment, or disposal of waste streams. Operational plans must be designed to protect the environment on contingency operations beyond NATO member territory and also be formulated to protect the territory and population of NATO member nations.

6. When considering environmental protection activities, the first task for an operational planner is to assess the scale and scope of the risk and impact of an incident. Once these have been assessed, a theatre strategy should be formulated to meet these risks by considering the following measures:

a. Environmental Planning: A mission task to determine and mitigate the effects of operations that may impact the environment.
b. Environmental Compliance: A mission task to control discharges and other environmental impact within applicable standards.
c. Environmental Security: A mission task to sustain NATO access to environmental resources or limit OPFOR's ability to intentionally harm the environment.

CONDUCT MISSION ANALYSIS

7. Determine potential for the mission tasks described above. Focus on tasks appropriate to the location and phase-by-phase conditions of the operation. Under-emphasis on EP may limit the sustainability of the force and over-emphasis on EP may limit the operational tempo of the force. As shown in Figure 1, operational phases can be characterized as "initial" operations, "interim" operations, and "long term" operations. Environmental protection planning, like most planning, must be adapted to the phase of the operation. Measures put in place during early phases of operation must be adapted or improved upon in later phases.

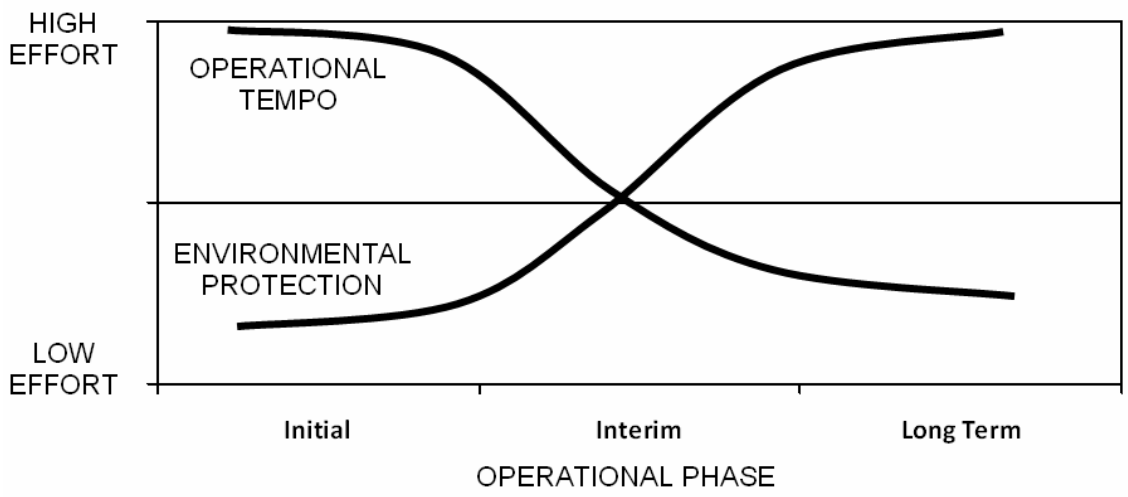

Figure 1 - Operational Phases and Environmental Protection

a. Generally speaking, the initial phase is characterized by high tempo operations under austere conditions where few EP resources exist. Early decisions such as basing friendly forces should take the environment into account to ensure the forces can sustain operations. Decisions that unintentionally impact significant natural resources or create excessive waste streams are bad decisions for mission sustainment. Environmental planning and material conservation are essential tasks to sustain initial operations.
b. As operations mature, forces benefit from more robust logistics chains and service support. EP resources and staff expertise also reach a point where more comprehensive EP is possible. There are more options for recycling and reuse of waste streams, higher awareness of environmental impacts, and better infrastructure in place to reduce or prevent adverse impact.

Environmental compliance and pollution prevention grow as force multipliers during interim operations.

c. Long term operations reach a stable operational tempo that allows military forces to model many home station EP practices. Environmental management systems and even the elimination of some waste streams become possible as infrastructure, logistics, and planning matures in long term operations.

8. Identify the political and/or military objectives and capabilities of OPFOR. OPFOR ability and intent to harm the environment may place key political, economic and military assets at risk (including cities, major waterways, significant natural and cultural resources, lines of communication, large concentrations of forces and CIS networks) and thereby adversely affect NATO plans, decision-making, and mission effectiveness.

CONCEPT DEVELOPMENT

9. Consider Courses of Action. Environmental planning, compliance, security or combination of these tasks based on the mission.

10. Flexibility in Planning. Operational planning to meet potential risks of environmental impact must be proactive and flexible. Plans should take into account the following:

a. The possibility for significant environmental impact early in an operation, especially when operating with incomplete information on the environment.
b. Deployment of NATO forces to a theatre of significant environmental resources or known environmental risks.
c. Ability of the host nation (HN) to support EP efforts of NATO forces. Sources of EP expertise and information and capacity to treat or dispose of waste streams will influence NATO's EP planning.
d. Deployment planning must address effective response, control and remediation efforts in the event of specific high-threat environmental impact, regardless of whether caused by OPFOR or unintentionally by friendly forces.
e. Operational measures available to prevent or limit OPFOR ability to cause environmental harm which would have a significant impact on NATO operations or mission effectiveness.

11. Operational Consideration.

a. Risk Levels. Risk of significant environmental impact must be kept under constant review to provide commanders with updated risk assessments and optional courses of action as the situation develops.
b. Reporting. Procedures should be established for environmental baseline surveys, incident reports and condition reports. See Annex B for example guidance.
c. Ground Operations. Mobile military forces must be advised of "no go" areas where there is an imminent risk to significant natural or cultural resources. Religious sites, cemeteries and national parks are all examples where military forces should either not operate at all or only under the strictest scrutiny. Fixed facilities such as forward support bases, logistics depots, static headquarters, CIS nodes and main operating bases must recognize and mitigate the risks of significant environmental impact. For example, a bulk fuel storage area must have proper spill prevention and response measures in place.
d. Air Operations. Most operations will require a limited number of air ports of debarkation and main operating bases. Accordingly, air assets are a critical part of EP planning to ensure these large, static, highly industrial activities can be sustained.

e. Maritime Operations. Maritime forces, particularly those operating in a littoral environment such as amphibious operations or maritime interdiction, must be familiar with the EP conditions and risks associated with their mission. Prevention and response to a significant fuel spill or similar environmental impact at sea must be factored into planning maritime operations.

f. Logistic Support Vulnerabilities. OPFOR may pose a risk of environmental impact to disrupt NATO access to land, air, or sea lines of communication or deny NATO nations access to significant natural resources or energy supplies to hamper NATO operations. Planning should consider measures to prevent or respond to such an impact and to use alternative lines of communication or sources of supply to maximize NATO's flexibility and minimize effects on the environment and NATO's operation.

g. Host Nation Considerations. HN may request deployment of EP capabilities to support their environmental security. Like other command decisions, the application of such capabilities by NATO should be governed by the military necessity of the operation. For example, by securing a safe source of drinking water for the HN population NATO forces may prevent a mass displacement of the population which would further complicate military operations. Conversely, NATO forces will inevitably depend to some degree on HN support and should strike a balance between providing and receiving HN EP capabilities that best sustains the mission.

PLAN DEVELOPMENT

NOTE: Use this section as the framework for concepts, plans and orders.

12. Situation: Precise information. If the situation is not precisely known, the most likely mission tasks should be environmental planning to ensure the environment can sustain operations and material conservation to ensure logistic stocks can sustain operations.

13. Mission: State mission clearly and concisely in terms of primary mission tasks.

14. Execution:
    a. Intent. Enable deployed forces to perform and sustain their assigned mission with a high regard for protecting the environment in which they are tasked to operate. Forces will be formed from several Troop Contributing Nations (TCN) and may be employed along national lines, functional lines, or as a combination, as required.
    b. Concept of Operations.
        (1) Initial Phase.
            (a) Environmental Management System. Full environmental management systems will likely not exist during the initial phase of an operation, but at a minimum the operational plan must state the environmental protection policy of the military force and designate responsible parties with initial environmental protection tasks.
            (b) Environmental Compliance Standards. Military operations must be planned to comply with environmental standards. Host nation laws must be compared with international standards such as European Union or similar North American standards. In the absence of more detailed guidance from military authorities these laws form the basis for initial environmental protection performance.
            (c) Spill Prevention and Response. Fuel management will be an important part of initial operations. Spill prevention is as much a measure to conserve fuel as it is to preserve

the environment. Initial operations require infrastructure constructed for and troops trained in spill prevention.

(d) Waste Management. In an austere environment, initial waste management may rely on burning or burying waste as an emergency measure. Even under primitive conditions, operational plans must direct the responsibilities for supervision, documentation, and eventual remediation of emergency waste disposal.

(e) Environmental Plans, Studies and Reports. Initial planning should account for the operating environment to ensure there is no adverse relationship between the mission and the environment. Initial operations must also document conditions through an environmental baseline study and designate "go/no-go" areas or procedures as required to prevent adverse impact.

(f) Environmental Protection Standards in Contracts. Pre-existing contracts in support of initial operations must include expected environmental protection standards. Operational plans must specify any difference in environmental protection responsibilities between contractors and military forces if such a difference exists.

(g) Protection of Cultural and Natural Resources. Initial operation plans must at a minimum identify important cultural and natural resources in the area of operation and place strict measures to prevent adverse impact. For example, marking burial grounds so that military forces can avoid them. Close coordination with civil affairs (CJ9) is required for this planning.

(2) Interim Phase.

(a) Environmental Management System. Responsible parties must understand the aspects of their mission and associated impact on the environment. Significant impacts must be treated as a priority for interim resources as the infrastructure and other support for the mission matures. Each level of command must assess and coordinate environmental protection efforts across its span of control.

(b) Environmental Compliance Standards. Military authorities will frequently serve as the enforcing authority for environmental compliance. Interim operations must have a method to ensure compliance with standards. This compliance authority should be assigned along national lines of command because responsibility for non-compliance is a national responsibility and in many cases the nation will be enforcing its own environmental standards.

(c) Spill Prevention and Response. As the type and quantity of fuel and other materials grows so does the potential for unintended release and potential impact on operations, human health, and the environment. Military authorities must plan that each new level of support be accompanied by the appropriate spill prevention and response infrastructure, training, and operating procedures.

(d) Waste Management. Poor waste management yields obvious adverse and acute environmental and health impacts. Plans should include pollution prevention measures ranging from source reduction to on-site waste treatment to ensure operations remain sustainable.

(e) Environmental Plans, Studies and Reports. Interim operations must document environmental incidents to guide further planning and protection efforts. As required, this phase of operation must also adopt more deliberate environmental impact assessment methods such as considering impact of sustained operations and degradation of natural resources.

(f) Environmental Protection Standards in Contracts. As the number and quantity of support contracts grows, operational planners must ensure contracts have enforceable

environmental protection standards and that the contract supervision is properly trained to monitor contractor performance.

(g) Protection of Cultural and Natural Resources. Interim plans must account for protected or sensitive sites as well as protected species and habitat. As a minimum, operations should be planned to prevent impact upon officially-designated resources. Preferably, such protection can be extended to sensitive resources regardless of whether they are officially designated.

(3) Long Term Phase.

(a) Environmental Management System. An environmental management system is a sign of mature environmental protection and must exist in a mature military operation. The structure, policy, objectives, and performance controls should be planned and well established for the long term phase of operations.

(b) Environmental Compliance Standards. As operations develop so should the infrastructure and logistic support. Planners must account for this as a greater opportunity to comply with more environmental protection standards. Each level of command must broaden access to the treatment technologies and disposal methods available for more comprehensive compliance.

(c) Spill Prevention and Response. Long term operations must have a spill reporting system by which to improve spill prevention and assess long-term impact and potential liability.

(d) Waste Management. Longer term operations increase the negative effects of poor waste management and require planning to remediate previous disposal practices and minimize harmful waste streams.

(e) Environmental Plans, Studies and Reports. As forces leave one location for another they must produce an environmental condition report showing the post-operation environmental conditions. This is used with the baseline study and incident reports to show actual environmental impact.

(f) Environmental Protection Standards in Contracts. Contracts and contractors that perform environmental protection well should be expanded and those that do not should be drawn down.

(g) Protection of Cultural and Natural Resources. Long term operations can benefit by the early adoption of protective measures. By returning these resources intact at the end of an operation NATO upholds the high standards of the nations it is chartered to defend.

c. Logistic Considerations. Operational plans must take account of the EP tasks assigned to military forces. The following requirements must be considered as a minimum:

(1) EP training provided by TCN to their own forces.

(2) EP-related equipment and materials such as spill prevention kits and potable water production units with which TCN forces deploy.

(3) Waste treatment and disposal capabilities.

(4) Reserves of spill response equipment and potable water supplies in the event of a large-scale environmental incident.

(5) HN support facilities and provisions.

(6) Provisions for the transport of hazardous waste in situations where local disposal or treatment is not possible.

d. Coordinating Instructions.

(1) Collect information on regional environmental laws and conditions in conjunction with intelligence and civil-military affairs staffs.

(2) Establish EP reporting procedures in conjunction with staff battle rhythm and other guidance from the command group and operational staffs.
(3) Share relevant EP information with safety and medical staffs to reinforce the mutual protection of the forces from the environment and the environment from the forces.
(4) Determine legal considerations for EP in conjunction with the legal advisory staff.
(5) Provide guidance for prevention and response to an environmental incident with civil-military affairs staff and civil defence authorities.
(6) Collect information on EP-related equipment and support resources in conjunction with logistics and contracting staffs.

PLAN REVIEW

15. The practices contained in this FPG are not mandatory for NATO military operations except when specifically directed by NATO military command authority. Planners should review EP courses of action periodically against the results achieved. EP capabilities may vary from nation to nation and environmental impact is normally a local phenomenon. The practices directed in the OPLAN should be adapted depending on the situation, location and force composition. As with all aspects of operation planning implementation of environmental protection practices must be considered in the context of the overall military operation.

REFERENCE LIST

MC 299/5 MC Guidance for Defence Planning
MCC 133/3 NATO Operational Planning System
Bi-SC Guidance for Operational Planning (GOP)

LIST OF ABBREVIATIONS

CIS Communication and Information Systems
EBS Environmental Baseline Survey
ECR Environmental Conditions Report
EIR Environmental Incident Report
EP Environmental Protection
FPG Functional Planning Guide
HN Host Nation
MC Military Committee (Headquarters NATO)
OPFOR Opposing Forces
OPLAN Operations Plan
TCN Troop Contributing Nation

LIST OF ANNEXES

ANNEX A - Operational EMS
ANNEX B - Environmental Baseline Survey (EBS) for NATO Led Military Activities
ANNEX C - Wastewater
ANNEX D - Waste Management
A. Waste Segregation and Recycling
B. Solid Wastes (Including Liquid Wastes Other than Wastewater)
C. Industrial Type Wastes and Hazardous Wastes - General

C.1 Waste Engine/Gear Oils (Mixed) and other Lubricants
C.2 Batteries and Battery Acid
C.3 Used Tires
C.4 Scrap Metals (Damaged Vehicles, Used Vehicle Parts, etc)
C.5 Old Office, Clinic and Other Equipments
C.6 Construction Wastes (Including Asbestos)
C.7 Obsolete Stocks of Chemicals
D. Medical (Clinical) Wastes

ANNEX E – Hazardous Material Management
A. Pesticides for Vector and Pest Control (Malaria, etc)
B. Fuels, Oils, Other Lubricants and Other Industrial Chemicals
C. Lead, Mercury and Other Heavy Metals
D. Gases and Ozone Depleting Substances (ODS)

ANNEX F – Infrastructure Planning and Energy Conservation
A. Infrastructure Planning
B. Energy Conservation

ANNEX G – Petroleum, Oils, Lubricants (POL)
ANNEX H – Soil Contamination
ANNEX I – Spill Prevention
ANNEX J – Cultural and Historical Resource Management
ANNEX K – Natural Resource Management
A. Timber for Construction
B. Fuelwood
C. Soil Erosion
D. Wild Animals and Plants
E. Water Conservation

ANNEX L – Air Pollution
ANNEX M – Noise Pollution

Note

In order to keep this report within reasonable size the Annexes have not been printed out. The total "Environmental Protection Best Practices for NATO deployed Compounds" including all Annexes can be found on the CD ROM.

Annex C.6

Recommendation regarding

"Training and Education

for Environmental Management in military compounds"

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RECOMMENDATION REGARDING TRAINING AND EDUCATION FOR ENVIRONMENTAL MANAGEMENT IN MILITARY COMPOUNDS

To ensure that training and education in this field at NATO level are being organized to achieve interoperability and provide guidance in setting up this training and education, the NATO/SPSC Environmental Aspects of Military Compounds Project Group recommends the following:

- There is a clear need to continue with the NATO *Environmental Management for Military Forces (M3-77)* course (provided by the NATO School) aimed at NATO staff at the operational and senior tactical level (e.g. ISAF). This course is integral to maintaining interoperability and providing guidance on the issues of environmental management within NATO military activities as it aims at familiarizing NATO/PfP/MD officers, operational planners, and civilian equivalents involved with environmental protection, environmental laws, policies, regulations, procedures, and practices at the operational level in order to assess, control, and/or mitigate environmental risks and to enable them to integrate environmental considerations into operational planning.
- The NATO *Unit Environmental Compliance for Sending Nations (M3-7X)* course (provided by the NATO School) being developed for officers, NCOs, and civilian equivalents who will interface with NATO is aimed at familiarizing participants with the essential knowledge and developing skills to enable their national unit to be compliant with NATO environmental protection requirements during NATO-led military activities. This course could be reviewed and adapted to cover issues relating to the environmental management process with special attention to NATO expectations for environmental reporting procedures.
- The ETWG should develop guidance for training at the level below the operational training level in accordance with national responsibilities. This training would be aimed at assisting the Sending Nations with recommended NATO environmental protection methods and procedures. Appropriate formats should be developed to deliver such training. The proposed engineering Centre of Excellence would be a key element in systematically updating and providing for the relevant training.

The Functional Planning Guidance for Environmental Aspects of Military Compounds should be an integral part of these training packages.

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Annex D

Index of CD ROM

with documents and presentations

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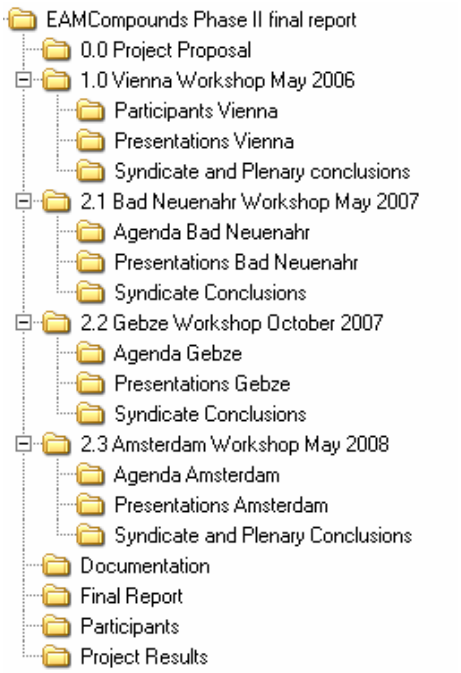
Index of CD ROM with documents and presentations



0.0 Project Proposal

- 01 Summary Final Report Vienna Workshop Aug 06.pdf
- 02 Proposal Military Compounds Phase II Jan 07.pdf
- 03 Presentation to SPS Proposal 2nd phase Compounds Mar 07.doc
- 03 Presentation to SPS Proposal 2nd phase Compounds Mar 07.ppt
- 04 Letter to SPSC by MCJSB Mar 07.pdf

1.0 Vienna Workshop May 2006

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Presentations Vienna

- 00 NATO CCMS adresses.ppt
- 00 NATO CCMS Deniz Beten Vienna 9-11 May 06.ppt
- 00 NLD Opening address briggen Veger text.doc
- 00 NLD Opening address briggen Veger.ppt
- 00 Survey results.ppt
- 02 NATO SHAPE Environmental Doctrine.ppt
- 03 USA Colin Video.mpg
- 03 USA NanoClay_320x240_IV5-1.avi
- 03 USA PRISM Video.mpg
- 03 USA Zero Footprint Camp.ppt
- 08 ROM Lessons learned ROMEX 2005.ppt
- 09 GBR EP When it Goes Wrong.ppt
- 11 NATO NAMSA Env aspects of a CJTF camp.ppt
- 12 USA The Environment Sustainablity Link.ppt
- 14 GEO Melange and Samin Project.ppt
- 14 GEO Senaki project.ppt
- 15 MAC Army structures and Environment.ppt
- 16 UKR Monitoring env regulations compliance.ppt

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- 01 Policy and Procedures Syndicate.ppt
- 02 Soil Protection and Storage Syndicate.ppt
- 03 Waste and Energy Syndicate.ppt
- 04 Water and Waste Water Syndicate.doc
- 04 Water and Waste Water Syndicate.ppt
- 05 Plenary conclusions.doc

2.1 Bad Neuenahr Workshop May 2007

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- 01 Opening address Gericke DEU.ppt
- 01 Opening address text Gericke DEU.doc
- 04 EAMC IIA Objectives & Organisation Gijsbers NLD.ppt
- 04 EAMC IIA Objectives & Organisation text Gijsbers NLD.doc
- 05 Force sustainment systems Rettie USA.ppt
- 06 EUFOR EMS & ESA Righi EU.ppt
- 07 Quality of air at compound Kaboul Crehange FRA.ppt
- 08 Measuring performance Fletcher GBR.ppt
- 09 Environmental monitoring Kuznyetsov UKR.ppt
- 10 Env Status Assessment Camp Eaglebase Povoden AUT.ppt
- 11 EMS in Turkish military factories Syirden TUR.ppt
- 12 Preview Gebze workshop Dagli TUR.ppt
- 13 Preview Amsterdam workshop Gijsbers NLD.ppt

Syndicate Conclusions

- Syndicate A Report Bad Neuenahr.ppt
- Syndicate B Report Bad Neuenahr.ppt
- Syndicate C Report Bad Neuenahr.ppt

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- 01 Opening address Tubitak Tiris TUR.ppt
- 02 Env Officers Guidebook Uusitalo FIN.ppt
- 03 EAMC IIB Objectives & Organisation Gijsbers NLD.ppt
- 03 EAMC IIB Objectives & Organisation text Gijsbers NLD.doc
- 04 EPTraining at NATO School Duerr NATO.ppt
- 05 USA Web Portal Site Kinnevan USA.ppt
- 06 Environmental Aspects of Jordanian Military Al Alawi JOR.ppt
- 07 Env Considerations in UN Field Missions Waleij SWE.ppt
- 08 Lead in Kosovo Crehange FRA.ppt

Syndicate Conclusions

- Syndicate A Report Gebze.ppt
- Syndicate B Report Gebze.ppt
- Syndicate C Report Gebze.ppt

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- 01 Opening address text bgen Veger NLD.doc
- 02 EAMC Objectives & Organisation Gijsbers NLD.ppt
- 03 Canadian Compound experiences Chubbs CAN.ppt
- 04 Pyrolysis Animation Whitehead GBR.mpg
- 04 Waste Management in Maritime and Land Env Whitehead GBR.ppt
- 05 Env Technology Initiatives Rettie USA.ppt
- 06 Defence related activities NATO SPS Beten NATO.ppt
- 07 Env and waste management in ISAF Olsen NOR.ppt
- 08 ENTEC Transition to NATO Engineer CoE Lloyd SHAPE.ppt
- 09 Proposal EAMC panel under EPWG.ppt
- 10 Workshop on Env Security Waleij SWE.ppt
- 11 Options for Defence and Env Agenda.ppt
- 12 Fieldtrip Amsterdam Gijsbers NLD.ppt

Syndicate and Plenary Conclusions

- Plenary Conclusions Amsterdam.ppt
- Syndicate A Report Amsterdam.ppt
- Syndicate B Report Amsterdam.ppt
- Syndicate C Report Amsterdam.ppt

Documentation

- AUT ESA_Report_final_191006.pdf
- AUT Richtlinien_55741_55742.doc
- CAN Aide Memoire waste- Version (E) 6 June 06.doc
- CAN B-GL-361-012-FP-001.pdf
- CAN DDIO- Environment.doc
- DAN Danish Environmental Handbook for Units in International Operations (Template).doc_050_200508114547.doc
- EU 2005 09 05-SOP 6292-ENVIRONMENTAL STATUS ASSESSMENT GUIDELINES.doc
- EU 2006 03 31 - Policy - HQ EUFOR & NHQ Sa ENVIRONMENTAL MANAGEMENT SYSTEM.doc
- EU 2005 05 30 EUFOR Environmental Protection Policy.doc
- EU Policy - HQ EUFOR & NHQ Sa ENVIRONMENTAL MANAGEMENT SYSTEM.zip
- EU SOP 6292-ENVIRONMENTAL STATUS ASSESSMENT GUIDELINES.zip
- FI-SW-US-Guidebook-Nov 15 2007 draft.pdf
- GBR Site Risk Assessment.pdf
- GBR Sustainable Development and Environment Manual JSP418.pdf
- NATO 0173E-8TH MCJSB EP WG MTG 6-7DEC07 DRAFT TOR.pdf
- NATO 0381E-07EP SOP.pdf
- NATO 2007_04_02_MC 0560 Rev 21 Jun 07 v4.doc_022_20070621181948.doc
- NATO 191740 ANNEX EE APP 3 ENVIRONMENTAL ENGINEERING.doc
- NATO AJP-3.1 SD4.pdf
- NATO AJP-3[1].12.pdf
- NATO AJP-4.7.pdf
- NATO ATP-52(A)c01.pdf
- NATO EPWG Liaision report dec07.doc
- NATO EPWG Liaison report ENTEC dec07.doc
- NATO MC 0560 second draft.pdf_022_20070801143925.pdf
- NATO ME COE.pdf
- NATO Opplan Environmental Appendix Oct 05.pdf

NATO STANAG 2136e.pdf
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NATO STANAG 2473eed02.pdf
NATO STANAG 2474eed01.pdf
NATO STANAG 2510e.pdf
NATO STANAG 2545 1st draft of EP Glossary.doc
NATO STANAG 7102e.pdf
NATO STANAG 7141Eed04.pdf
NLD Chief of Defence A-410 Environmental Planning Manual.doc
NLD Out of area pakket concept.xls
NLD Dutch Performance indicators Formats 1998 (english translation).doc
NLD Instructions for the design of Compounds.doc
NOR Environmental Regulations Card CR-06.pdf
NOR Safety Regulations UD 2-1 Sikkerhetsbestemmelser for Hæren.pdf
UN Environmental Guidelines- Draft Dec 05.doc
UN draft environmental guidelines - Mar 07.pdf
UN draft environmental policy Mar 07.pdf
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USA OVERSEAS_ENV_BASELINE GUIDANCE_DOC.pdf
USA AEP%20200-2%2020050624.pdf
USA afh10-222v4.pdf
USA FIN SWE Environmental Guidebook.doc
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USA JP%203-34%2020000705.pdf
USA JP%204-04%2020010927.pdf
USA ZAF eiaguidebook5-May04.pdf

Final Report

Participants

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Project results

01 Recommandation on Fora - May 08.doc
02 Handbook on NATO EMS - May 08.doc
03 Handbook on EP Standards - Jun 08.doc
04 Appendix 3 EP to NATO Ops Plan.doc
05 Handbook on EP Best Practices - Apr 08.doc
06 Recommendation on Training & Education - May 08.doc