

**Committee on  
the Challenges of  
Modern Society**

**Protection Of Civil Populations From The Spill Of Toxic Materials  
During The Movement Of Military Goods**

**Final Report**

**Report Number 234**

**NORTH ATLANTIC TREATY ORGANIZATION**

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## **PREFACE**

John A. Read, B.Sc., M.Sc., Ph.D.  
Pilot Study Director

I have always considered the words “pilot” and “study” to be not perfectly accurate in describing the function I had the pleasure to perform. The word “pilot” implies our meetings were to set out a route to be followed by others in examining the same topic. The word “study” gives a gentle suggestion of original research.

On the other hand, “director”, in the sense of a choir conductor coordinating a number of voices, is a very good term to use.

The explosive growth in new substances continues to be astounding. In approximately 20 years, the number of substances registered with the Chemical Abstracts Service in the United States rose from 5,000,000 to 23,000,000.

Not all substances are dangerous goods and not all dangerous goods are transported, but a significant percentage of goods in transport throughout the world do have the potential for causing immediate harm if accidentally released.

One surprising problem with dangerous goods is that there are too many safe ways of transporting these. If two neighbouring countries choose two equally safe but different systems, what happens at the border? Are containers changed, documents redrafted, warning signs changed, names changed, etc.?

Agreement on which safe system will be used is an international question, not one restricted to individual countries.

Out Pilot Study was a forum to exchange information, experience and training. It was not piloting a new path for people to follow and it was not a study of new chemical properties and methods to neutralize these. But it did develop into a group of individuals from many countries, each with their own voice, who recognized the need to act together in a harmonized system. As Director of the resulting choir I am pleased with the way it turned out.

On behalf of all participants I would like to thank NATO and the host countries of Canada, Latvia, Lithuania, the Czech Republic and Hungary. No progress could have been made without their generous and competent assistance.

## **Pilot Study Final Report**

**(Note: No copies of presentations or papers are attached.)**

### **Participation:**

The Pilot Study “Protection Of Civil Populations From The Spill Of Toxic Materials During The Movement Of Military Goods”, more accurately referred to by the informal title “Pilot Study on the Transport of Dangerous Goods”, began in Ottawa, Canada in February of 1994 and concluded in Ottawa, Canada in February of 2000.

There were six sessions of three to four days each. In the following listing of the sessions, the name of the government agency which hosted the NATO CCMS meeting follows the country name.

- Canada, Royal Society of Canada and Transport Canada, February, 1994 (eleven countries, 20 registered participants)
- Latvia, Ministry of Transport and Communications and Ministry of the Environment, August, 1994 (fourteen countries, 74 registered participants)
- Lithuania, Environmental Protection Ministry, October, 1995 (eleven countries, participants restricted to 40 due to room size)
- Czech Republic, Ministry of Defence, April, 1996 (fourteen countries, 20 participants)
- Hungary, Ministry for Environment and Regional Policy, October, 1997 (fifteen countries, 20 participants plus a public session involving perhaps 15 more)
- Canada, Transport Canada, February, 2000 (restricted to seven countries, and involving staff from various Canadian Government Departments)
- In addition, there were two informal sessions held with representatives of the Slovak Republic, one in Ottawa and one in Bratislava

The following are the countries which were represented at one or more sessions. The official delegate or a speaker for at least one session is listed in Annex 10 (unfortunately not all participants could be listed):

Albania  
Armenia  
Belarus  
Bulgaria  
Canada  
Czech Republic  
Estonia  
Finland  
Germany  
Hungary  
Kazakstan  
Latvia  
Lithuania  
Moldova  
Norway  
Poland  
Romania  
Russian Federation  
Slovak Republic  
Sweden  
Ukraine  
United States

**Background:**

The most important factor affecting this study was the political situation at the time of its commencement. Specifically, the dissolution of the Soviet Union and the conditions this created in the former Soviet Union countries. This study took place during a time of great changes. Although the study could be said to have occurred at the micro level, some glimpses of the macro scene were evident during its period of operation.

The original proposal for a Pilot Study arose out of the recognition that several military bases would be closed, resulting in the relocation of military materials. Hence the title “Protection Of Civil Populations From The Spill Of Toxic Materials During The Movement Of Military Goods”. There apparently was a belief that Russia would abandon some material, leaving certain countries with the problem of coping with these.

As it turned out, the Russian military was very efficient in removing items from military bases for relocation to Russia. One outcome of this was a diminished need to address the

movement of military materials in a Pilot Study. There were some exceptions to this, notably in the former East Germany.

In the year preceding the initiation of the Pilot Study, Dr. John Read of Canada had attended an emergency measures conference in the Czech Republic which focused on how former military units would undertake more significant roles in response to civil emergencies. It was accepted at this conference that the new role for these units would be response and would not include the establishment of legislation and regulations intended to prevent emergency situations.

This was not unusual given the nature of the emergency measures conference and the participants (military or former military personnel for the most part). In fact, given the excellent attention being paid to emergency response, one could easily assume there were others dealing with the question of preventing emergencies through the establishment of preventative measures using legislation. It was not until later that this assumption was shown to be not completely accurate.

However, one particular question was raised at the emergency measures conference in the Czech Republic which was to become a main theme of the Pilot Study.

A question was posed by one of the highest ranking Officers in attendance following a presentation on the United Nations program on the transport of dangerous goods. The presentation included reference to several international modal programs (The European Agreement Concerning the International Carriage of Dangerous Goods by Road, commonly referred to as ADR, the Central Office of International Rail Transport's Agreement on the Transport of Dangerous Goods by Rail, commonly referred to as RID, the International Maritime Organisation's International Maritime Dangerous Goods Code (IMDG Code), the International Civil Aviation Organisation's Technical Instructions on the Safe Transport of Dangerous Goods (ICAO TI's), and the European Provisions Concerning the International Carriage of Dangerous Goods by Inland Waterway (ADN).

The question asked was: "I am sure all these programs are very good programs which could give good results, but I want to know: How do you make people do these things?"

The question is excellent and invited a consideration of different forms of law, the content of the law, compliance programs, culture and resources. The question was ever present during the life of the Pilot study.

### **Meetings of the Pilot Study:**

Canada offered, in 1993, to host the initial session of the Pilot Study.

During the time between the proposal for the pilot study and its initial session, it became clear that very little materiel was being left in abandoned military bases and that most transportation of what was to be moved had already taken place. Consequently, at the

first meeting Canada, in response to an expectation that the study would be a pilot for further research, Canada arranged for the attendance of sufficient expertise in chemical and biological warfare agents in order to discuss the possibility of focusing the Pilot Study in this area.

To introduce this research concept, a general presentation on already existing international programs on the safe transport of dangerous goods was presented. The delegates then decided that instead of the pilot study being made specific to chemical and biological warfare agents, it should be general in nature, examining existing international programs and how they are established, maintained and complied with. It was also suggested that this be supplemented with information on how to provide emergency response in the event the preventative measures do not succeed.

As became immediately evident, the goals and values of participants from former Eastern Bloc and former Western Bloc countries were the same. Indeed, safety of people, property and the environment was a very high concern for all. Hence it developed that the value of the study was not in one country telling another what to do, but in all participants providing information on what appeared to work well in at least one country.

Although goals and values were the same, the cultural and legal contexts within the various countries differed. A significant change which was concluding during the period in which the Pilot Study operated was the shift from central planning to “local” government.

Please see Annex 1, for a summary report of the first Ottawa Meeting. (It is termed a “summary” as it does not include copies of presentations made nor papers submitted.)

In Latvia, host country for the second meeting, it was explained that when the Russians were in Latvia they occupied all senior posts. Further, most decisions were made in Moscow with one key principal never too far from mind, that being that the Soviet military must continue to be supported and kept strong. As a result, with the withdrawal of Russian officials, Latvia was left with no senior level experts in rail, road, marine or air, except for one airport official in Riga. This left the country with the responsibility of re-establishing its society, including how it would govern itself and how it would influence the lives of its citizens, while developing expertise which it had not been able to develop in the past.

This presented Latvia the difficult but interesting challenge of forming a new government and a complete Latvian civil service. Associated with this was a desire to see how others managed the task of a representative and responsible government. One small example of this was the direct interest in the Latvian Pilot Study session by the Minister of Transport and also by the Minister of the Environment. They each met with the Pilot Study Director plus other delegates, notably Sweden, to hear more of the experiences of others. Indeed, the Minister of the Environment officially opened the first Pilot Study session.

Please see Annex 2 for a summary report of the Latvian Meeting.

The situation in Lithuania, host country for the third meeting, was very similar to that of Latvia following the withdrawal of the Russian military and the Russian bureaucracy. An interesting anecdote, illustrating the realization in Lithuania that they no longer had to deal with central planning conducted in Moscow, was the intervention made by a Professor attending the Pilot Study concerning a recent spill of a chemical. He described how all those who would be implicated in response had the same set of instructions which decreed that to respond to such a spill they should use a particular substance as the neutralizing agent. However, as told by the Professor, the substance was only available from Russia and as none was currently in Lithuania at the time of the spill in question, the response service was paralyzed and could not act. His point was that too many in Lithuania were still frozen in the past and didn't know how to think for themselves. As he observed, there were two other chemicals in abundance in Lithuania, either of which would have been an excellent substance to use in response, and people had to begin to think on their own and not to continue to depend upon central directives.

The Lithuanian session was opened by the Minister of the Environmental Protection Ministry of Lithuania. Please see Annex 3 for a summary report of the Lithuanian Meeting.

The fourth meeting took place in Prague, Czech Republic. There was a focus on international recommendations and the necessity for international harmonization. Please see Annex 4 for a summary report of the Czech Republic Meeting.

The fifth meeting was held in Hungary in October of 1997. A new concept was tried in Budapest. In addition to the meetings of delegates, a public session was opened to anyone interested in the topic of transporting dangerous goods. This was a good example of direct access to government by the public. Please see Annex 5 for a summary report of the Hungarian Meeting.

The final session in the series was held in Canada in February, 2000. As a primary focus of the final session was to develop a report and recommendations on the conduct of Pilot Studies, there was an attempt by Canada to restrict the session to a small number of delegates from countries who had attended most of the meetings. The four hosting countries of Latvia, Lithuania, Czech Republic and Hungary attended, as well as Bulgaria and the Ukraine, two countries which had offered to host additional sessions if these were required.

An emphasis was put on compliance and emergency response and included several lab visits as well as sessions with Canadian Government Departments. Please see Annex 6 for a summary report of the second Canadian Meeting.

## **Content of the Pilot Study:**

Although some delegates began their participation by focusing on response operations, all recognized, as the series of meetings progressed, that prevention is the most successful route to follow. This requires the establishment of requirements and the implementation of methods to achieve compliance with the requirements.

The sessions developed the ideas of:

- how one can express values as a policy,
- how policy can be turned into legislation,
- how legislation can be supported by regulations and international standards, and
- how compliance with these can be attained.

The point was made repeatedly during the sessions that prevention was more effective than response in protecting people, property and the environment.

Some topics covered were:

- The United Nations Recommendations on the Transport of Dangerous Goods, presented in varying degrees at all sessions. (The presentation was focused on how these regulations remain current even though the number of substances registered with the Chemical Abstract Service rose from 5,000,000 to 23,000,000 in twenty years. The number of distinct CAS Numbers can be taken as an indication of the number of distinct chemicals.)
- The ADR program, presented at the Czech Republic session by the Chairman of the ADR Committee, Mr. Arne Johansen, Norway
- The implementation of ADR in Sweden, presented by Bjorn Sandborgh, Gundega Muchks and Roland Nilson of Sweden, at both the Latvian and Lithuanian sessions.
- The international programs (UNCETDG, IMO, ICAO, RID, ADR, IAEA) presented in varying degrees at all sessions.
- Clearing military waste in the former East Germany, presented by Hemult Rein of Germany at the Lithuanian session.
- The medical side of Emergencies, presented by Dr. Makku of Finland at the Latvian session.

- The necessity for harmonization, the usefulness of enabling legislation and the meaning of 'International' law, presented by Jeremy Hill of Canada, in varying degrees, at several sessions.
- Compliance inspectors, presented in varying degrees at all sessions.
- An appreciation of the study of Risk, presented in varying degrees at all sessions.
- How to interact with a free press, with the kind participation of the press in Latvia and in Lithuania.
- Response information, presented in varying degrees at all sessions.
- The operation of a response information centre for dangerous goods, presented by Michel Cloutier, Director of Canada's response information centre CANUTEC.
- Response information centres for medical emergencies, and dealing in general with emergencies, presented in varying degrees at most sessions by Kent Gray of the Centres for Disease Control of Atlanta, Georgia, United States.
- Practical experience in Canada, comprising one day visiting research labs and one day accompanying Bill Studdard, a federal dangerous goods inspector of Transport Canada while he inspected a major propane supplier and a major gasoline supplier.
- Exchange of problems and solutions, presented by delegates, at all sessions.

[Note: Where the presenter is not identified it was either one of the delegates or the Pilot Study Director.]

## **Pilot Study Director Activities:**

Note: This section was added in case a new Pilot Study Director became curious about how we proceeded.

Tasks undertaken include:

- Seek out a host country for a meeting. The basic duties of a host country are to provide a meeting place, assist with transport for out of country delegates on arrival and departure and assist with hotel bookings. Optional duties would be to provide for coffee breaks, arrange an internal visit connected in some way with dangerous goods, arrange a dinner, and invite additional participants from the host country to attend some or all portions of the three day session. Please refer to Annex 7 for an example.
- Determine agenda and seek out assistance from other countries who have extensive experience with the international programs supporting the agenda. The countries providing assistance were Sweden, the United States, Norway, Germany and Finland. Special mention must be made of Sweden's extensive and continuing cooperation with the Baltic countries.
- Issue announcement to CCMS coordinators or known delegates and advise of how to request financial assistance (can be difficult, definitely is time consuming). Please refer to Annex 7 for a copy of an announcement.
- Assess requests for financial assistance in light of total assistance available for financial aid. Delegates were supported for travel by the least expensive means and for a portion of their hotel expenses. The objective was to make the sessions as equally accessible as possible to all countries regardless of distance to travel. In practice, the number of countries routinely attending could have been increased significantly if increased support funds had been available.
- Issue letters of invitation to those delegates requiring these (often involved the host country).
- Submit requests to country delegates on presentations they could make.
- As the only certain way to disburse funds was in US currency, there was the problem of bringing cash or of obtaining it on site. This was also time consuming. (See anecdotes section.)
- Meet with Government officials of host country.
- Provide supporting material such as:
  - material safety data sheets on CD-ROM (see Annex 8),

- copies of the Emergency Response Guide Book (which can be used interactively by selecting *NARERG On-Line*, or downloaded by selecting ERGO, from the menu at the web location [www.canutec.gc.ca](http://www.canutec.gc.ca)), and
- CAMEO and ALOHA sessions.

-And most important of all, we avoided telling people what to do. Instead we tried to provide a variety of ideas which they could accept, modify or reject based on their situations.

### **Some Benefits of the Pilot Study**

- Many ideas on achieving an acceptable level of safety were presented
- Host countries were able to include many of their officials in the meetings
- Legislation in two countries was partially reviewed and minor suggestions were offered
- The Pilot Study Director became one of the thesis advisors for a Lithuania Ph.D. student studying the transport of dangerous goods at the University of Montreal in Canada
- Sweden provided, and continues to provide, outstanding support to Baltic countries
- The Year 2000 Emergency Response Guide Book has been translated into Russian. This is the eighth language for the Guide. (A request for this was made of the NATO Pilot Study by the Minister of the Belarus Ministry for Emergencies and Population Protection, Minister Iwan Kenik.)
- Financial assistance for countries within the former Eastern Europe and Asia allowed for a larger and more consistent attendance. Naturally, a larger pool of funds would have allowed more countries to participate.
- Meetings in former Eastern European countries were all very well organized and were very reasonable in cost. The host country was also able to have as many of its officials attend as it liked.
- See also Annex 11 for assessments of two participants.

## **Improvements to Consider for the Pilot Study Process:**

Two practical problems were present for all sessions. These problems, which may continue to be a burden for future Pilot Study Directors, are communications between countries and the designation of delegates.

The initial session in Ottawa, as well as a few subsequent meetings, had to be rescheduled because of these problems. In fact, one delegate could not be contacted concerning the first postponement and arrived in Canada to find the meeting would be several months in the future.

The communications process is a very big time consumer for the Pilot Study Director.

A great advance would be to establish AND MAINTAIN an “easy access” CCMS address book on the CCMS Internet site, or any internet site for that matter. Easy access would mean a hot-link direct to the address book from the home page of the chosen site.

The address book could be structured like an electronic phone book of an organization. It would be searchable two ways. One way would be by the name of an individual and the second way would be by organization (country).

The address associated with the name of an individual could have fields for e-mail address, fax number, phone number, mailing address and, optionally, pilot studies for which that person is a delegate.

What a search by name should entail is clear. For search by organization, the name of the organization would actually be the name of a country and the associated person’s name would be the national CCMS coordinator. The sub-headings of an organization (i.e., sub-headings of a country) would be the existing, planned, in progress or recently completed pilot studies. The name for each pilot study would be blank or would show the name of the country’s delegate.

Software for such a simple application exists and there would be two clear benefits for a pilot study. First, the Pilot Study Director could communicate effectively with national CCMS coordinators and with delegates and secondly, the delegates from a country would not change from meeting to meeting, which has been known to happen.

To illustrate the problem, in establishing the Pilot Study it was difficult to find the name, fax number or proper mailing address for all CCMS coordinators. Further, over \$2,500 was spent sending faxes to incorrect numbers or ‘new’ numbers for each of the first two sessions.

Such start-up problems were almost enough to prevent the establishment of the pilot study and certainly absorbed a great deal of time and energy which could have been used in the study itself. These problems continued with each meeting, and were so severe at

some times that several meetings were postponed and a meeting to be held in one country could not be arranged at all.

As these difficulties appear to still exist, the establishment of an easy access address book should be a priority. I cannot emphasize too strongly that time and energy wasted in the absence of a useful tool such as an easy access address book is a very serious impediment to the smooth functioning of a broad based Pilot study.

Secondly, as the Pilot study was intended to be a sequence of meetings, it would have been preferable to have the same delegate each time from a country.

On a different matter, I attended a meeting of Nordic countries during the life of the Pilot Study where I met Professor Alhimenko from the St. Petersburg State Technical University. We discussed response to accidental releases of dangerous goods, with some attention paid to fuel oil, and he set out his concerns over the best way to allocate scarce resources for response and clean up. It is clear that at some point in a clean up operation, spending one more dollar does not return one dollar of value. Furthermore, if we try to make a site too clean we risk more environmental damage than if we stopped our efforts at the correct point. Professor Alhimenko has proposed work on a topic which has been of interest to several countries but to my knowledge no consistent work has been carried out. Professor Alhimenko proposes finding, if they exist, biological indicators which could readily show if the presence of a given substance required remedial action.

Currently, we are familiar with such indicators in considering human health in relation to substances which are poisonous by inhalation or through dermal contact. We use the  $LC_{50}$  and  $LD_{50}$ . Professor Alhimenko's project would be to find other indicators for other situations.

I note that before gas detection instruments were available it was common to have a canary in a coal mine to detect methane gas.

It is possible that for a release of a product into a lake there may be a parallel biological indicator which can be used. I think the subject should be explored. Perhaps Russia could propose the topic as a Pilot Study. The title could perhaps be "Identification of biological and other indicators of the severity of released oil and other dangerous goods in local environments." It may be that biological indicators could provide better guidance in determining how much of a country's resources should be devoted to particular spills than some of the expensive sampling instruments which are currently available for purchase. I leave this topic for someone new to take on.

**The Anhydrous Ammonia Connection and other Anecdotes: (This section is confined to ramblings of the Pilot Study Director.)**

*Anhydrous Ammonia 1:* At the Emergency Measures Conference in the Czech Republic prior to the start of the Pilot Study two Officers from Lithuania described a problem they had with leaking transports of anhydrous ammonia crossing their territory from Russia to Kalingrad. They asked what they could do about it. The advice given was that as Russia provided an expert to the United Nations Committee of Experts on the Transport of Dangerous Goods, they should not be surprised if they were denied entry of leaking transports. Later, the Lithuanian officers advised they had put the prohibition in place and it worked. We were all impressed.

*Anhydrous Ammonia 2:* At the meeting in Latvia, there was a tour of an exceptional rail museum which was a labour of love for a former rail employee, following which we were to visit a rail yard. Unfortunately, we could not get very close to the rail cars as they were leaking anhydrous ammonia, which I was told was common.

*Anhydrous Ammonia 3:* At the meeting in Lithuania, it was reported that the prohibition on leaking transport units continued to be imposed as the problem of leaking transport units arriving at the border continued.

*Anhydrous Ammonia 4:* At the meeting in the Czech Republic we were taken to the site of a break of a pipe line used to transport anhydrous ammonia. Once we arrived at the site we insisted that we had to remain on the scene for an extended period of time to discuss the leak and to verify first hand that the product of the plant (beer) had not suffered.

*Anhydrous Ammonia 5:* In Hungary we visited a plant where the only major release had been from a train using the wrong line resulting in damage to tank cars of anhydrous ammonia as the train attempted to pass under a low over-pass. Anhydrous ammonia was released.

*Anhydrous Ammonia 6:* Given the problems with anhydrous ammonia in Canada a booklet had been prepared dedicated to problems with anhydrous ammonia. Copies were provided to delegates.

*Weather:* The weather for the first meeting in Canada was minus thirty degrees Celsius. All delegates had been advised it was possible. But, it was also the week of our winter celebrations in Canada complete with ice sculptures, snow carvings, ice skating and several other winter sports. It was a different outlook on winter for some delegates.

*Clean Water:* The next meeting was in Latvia, at a hotel on a beautiful sand beach. However, it was recommended we not swim. As an exercise we tried to decide, if we were to start with a clean Baltic, how expensive it would be to purchase the required chemicals to mix in the Baltic to produce its present state. We didn't finish the

calculations, preferring instead to be pleased by the views of the Baltic country representatives who have the intention of cleaning up the problem.

*Equality:* In Latvia all our rooms cost the same. The delegate from Poland was joking about the size of his room. I was impressed. If he would normally have more than the suite of four rooms I had he must come from a very select part of Poland. Someone later explained it to me. Under Communism everyone paid the same price for their room. But also under Communism, important people (or believed to be important) received the better of the same price rooms.

*Special Class Travel:* One delegate traveled a long distance to get to Latvia, prompting me to ask how much of his expenses the grant covered. To my surprise he replied that it covered them all. Seeing my look of astonishment, since he had to spend the night in Moscow due to the distance traveled, he explained that it does not cost as much if you pay the air crew directly, or the night duty staff in certain hotels in Moscow.

*Black Balsam:* Latvia has a special drink known as Riga Black Balsam. If you have a problem with digestion it will cure it. If you don't, rumor is that it will create one. But I'm very pleased to have tried it in an open air museum displaying the architecture of rural Latvia.

*The Press:* In Latvia and Lithuania we invited the Press to interview us as part of training on interacting with a free press. It was interesting, but didn't work all that well because the reporters were much too polite.

*Converting Money:* I took several thousand dollars in traveler's checks to Hungary. The bank wanted 10% to cash them. After some discussion I asked if they charge all their customers so much, and if so why do the customers stay. So they agreed to make me a regular customer and then charged 1%. To do so I signed a several page document, which was in Hungarian. I occasionally wonder what it said.

*Clean Bills:* I had to be sure all money was clean (no pencil marks), crisp (no folded down corners or creases) and the latest version. Otherwise it was not accepted by the banks. I would have offered to buy all the soiled bills at half price but there was that banking document in Hungarian which I signed.

*Traditional Baltic Smoke Beer:* In Lithuania the meeting room was overflowing. Later we went to the head office for the Ministry of Transport. It was very near the anniversary of the recent founding of the Ministry. My host had a keg of traditional smoke beer under her desk which was to be used the following day for the celebration. With the assistance of Bjorn Sanbourne from Sweden we prevailed on her to tap it for us. It was made in the traditional way and this keg was from the first run. Once poured it had to be drunk while it was still foam. We should have gone back the next day for more!

*Forgotten, or, Not Forgotten:* In Lithuania I was fascinated while two armed forces officers discussed the clean up of a former military base of the Soviet Union. There was

a video of the site playing while they talked. They pointed out that when there was a large stain on the ground they had to determine what it could have been. They used a video to show that the departing forces had taken away everything which was portable, or which could be made portable such as wiring and pipes from inside the walls. At that point in the presentation the video showed a single drum in the centre of a small storage room. As they told the story, their first thought was “Why did they forget this drum, leaving us with a problem?”. Their second thought was “Maybe the drum was not forgotten, meaning we have a much bigger problem!”.

*You are not present unless the bureaucracy agrees:* One delegate arrived by train to a session without a visa. The border guard agreed to ignore the problem, for fifty dollars US (the cost of the visa). But since the border guard explained how he had to be present at departure, we convinced the delegate to ‘confess’ and fix things up. Unfortunately, the delegate could not make an appointment with the appropriate office as she was “not in the country”. Eventually, with the intercession of the host department, it was cleared up.

*GPS Tracking of Trucks:* The most modern approach to tracking trucking was being attempted in the Slovak Republic. It was set up for several reasons, but the originality was very impressive.

*How is the lion?:* On my first visit to Prague I was astonished. The young people had stars in their eyes and were determined to make things better. But I wondered about the lion at the foot of the hill and the statues on the Charles Bridge. On my second visit I saw that things were better but the statues on the Charles Bridge had been abused by tourists (I assume) and I didn’t get to check on the lion. And outside the down town core people were as wonderful as ever.

*No Sing-Along:* At the last meeting in Canada we all went to a restaurant after which as we walked back to our transport we were followed by a man singing loudly off-key in Russian. No-one joined in.

## **Annex 1: Summary Report on the First Ottawa Meeting**

The organizational meeting for the Pilot Study "Protection of Civil Populations from Toxic Spills During Movements of Military Materials" (referred to in this report as the Pilot Study) took place in Ottawa, Canada on February 8, 9, 1994. The Pilot Study was conducted under the direction of the NATO Committee on the Challenges of Modern Society. The meeting was organized by the Royal Society of Canada. The meeting was conducted by Dr. H. Alper, CCMS Coordinator for Canada, and Dr. J. Read, Canada, Project Study Director.

Notices of the organizational meeting were sent to all CCMS National Coordinators and to all Central and Eastern European (CEE) countries which could be contacted. The replies to the notice highlighted three points which are being accommodated during the Pilot Study.

1) Almost all NATO countries observed that the transport of dangerous goods has been fully researched and there exist mature programs to guide this, such as the Recommendations of the UN Committee of Experts on the Transportation of Dangerous Goods; the International Maritime Dangerous Goods Code; the International Civil Aviation Organization's Technical Instructions; RID; ADR; ADN; ADNR; and others. In the view of these NATO countries the Pilot Study did not need to be oriented in the direction of redesigning these programs.

2) A very small number of NATO countries did recognize that the programs referred to in the preceding paragraph may not adequately address the transportation of special military materials, notably chemical or biological warfare agents.

3) Most CEE countries who replied are aware of the programs referred to in the numbered paragraph 1) above, but face problems in identifying unknown goods, researching the properties of dangerous goods, and implementing the programs due to their complexities, resource requirements and needed prerequisites such as detailed databases of dangerous goods or fully trained and equipped response personnel.

## The Meeting Day One

The first day of the meeting of the Pilot Study was taken up with presentations as follows:

- a) Presentation on the international transportation of dangerous goods program (ref. UN Committee of Experts on the Transportation of Dangerous Goods)  
John Read, Transport Canada
- b) Presentation on the International Atomic Energy Agency's program of the safe transport of radioactive material. The focus was on their system for selecting the means of containment according to the potential threat.  
Blair Johnson, Atomic Energy Control Board, Canada
- c) Emergency Response Overview, a Canadian Perspective.  
Alain Lévesque, Transport Canada
- d) APELL (Awareness and Preparedness for Emergencies at the Local Level) ... an International Perspective on response to Emergencies.  
Brian Mansfield, Environment Canada
- e) Presentation on Chemical Detection Equipment.  
Martine Bissonnette, Environment Canada
- f) Decontamination of a contaminated quarantine site.  
Dr. Ken Rozee Center for Clinical Research/Victoria General Hospital, Canada
- g) Introduction to chemical and biological agents.  
Dr. Michael Noble, University Hospital, Vancouver, Canada

The purpose of the first day was to illustrate how the various international programs are implemented in Canada, and to provide a basis for presentations on the second day from the participants.

## The Meeting, Day Two

Short presentations were provided by most participants and summaries of each are attached as appendix 2.

### The Meeting, Day Three

Those participants who were able to stay for all or part of the third day were able to spend time at Canada's emergency response information center CANUTEC, and to discuss emergency response planning and implementation with response personnel at Transport Canada.

Interim Conclusions: (Note that not all potential conclusions could be addressed immediately.)

(a) It was observed that a safe transportation program has two main objectives. These are to prevent an accidental release, and to ensure an appropriate response takes place should an accidental release occur.

(b) Some CEE countries observed that in effect, several accidental releases have already occurred in their countries. They showed considerable interest in correct response, both in the short term and in the long term. It was noted that the initial questions to ask either during an accidental release, or after one has occurred, are the same.

- 1) What product(s) are involved?
- 2) What characteristics of the product should we be concerned about given the situation it is in during/after the release?
- 3) What would be an affordable appropriate response to the situation?

(c) The fundamental issue to address in each country concerning past releases is to identify the involved dangerous goods and determine what must be done or what can be done to improve the situation. This was clearly a major issue in several countries.

Two ideas to follow in pursuing this were discussed. The first was to acquire through training, technical exchange programs, and the acquisition of appropriate detection and analysis equipment, the ability to detect and identify chemicals. The second was to establish or collaborate in the establishment of a database on the properties and potentials of dangerous goods.

(d) With respect to chemical weapons, it was clear that the convention on chemical weapons lays out the most appropriate approach to this subject. No conclusions of a similar nature could be drawn with respect to biological weapons.

## Proposal for the Second of the Planned Three Meetings

The country of Latvia has offered facilities for the second meeting of the Pilot Study Group and the Project Study Director has accepted the kind offer. It was noted that NATO would once again accept applications for Study Grants. The dates for the second meeting have been initially chosen as August 23 and 24 (with a possibility of extending this to include August 25). The length will depend upon the number of papers proposed.

For the second meeting each participant will be expected to present a paper. Again the focus should be on identifying shortcomings in any international programs, needs within any specific country, and specifying possible forms of mutual assistance.

Topics proposed for papers could also be taken from the following list:

1. The operation of a central information centre to provide information on chemical hazards and advice to emergency responders.
2. How to detect and identify chemicals at a contaminated site.
3. What to require in a system of mandatory emergency response planning.
4. Identification of problems not yet resolved in specific countries.
5. The suitability of low tech response for chemical releases.
6. A comparison of the North American Emergency Response Guide Book and the European Tremcard system.
7. A centralized clearing house for response information on contaminated sites in CEE countries.
8. How to compile a list of the chemicals of most immediate concern in CEE countries; showing tolerable exposure limits in the short term and in the long term; and what reasonable mitigation actions can be taken. (Many problems tentatively identified are common to two or more countries.)
9. Comments on a Biological Weapons Convention.
10. The elements of a complete national program for the protection of public safety (people, property and the environment) from dangerous goods in our modern societies.

Should one country wish to present several papers on various topics this would be most welcome. One paragraph abstracts of papers would be expected by August 1. Fully prepared papers would be expected at the meeting.

The final portion of the second meeting would be devoted to discussing items of concern, how these could be addressed, and in preparing for the final meeting in Brussels.

## **Annex 2: Summary Report on the Latvian Meeting**

Record of 2nd Meeting Held in Jurmala, Latvia  
August 23-25, 1994

This report is of the 2nd meeting of the CCMS Pilot Study “Protection of Public Safety in the Transportation of Dangerous Goods, including Military Materials”. The Pilot Study was originally titled “Protection of Civil Populations from Toxic Material Spills During Movements of Military Goods”.

This report begins with a short comment on the organization of the Latvian Conference, provides general background notes to the study, and then provides a summary of the conference itself.

### **Latvian Conference Organization**

Sincere thanks are extended to the Minister and staff of the Latvian Ministry of Transport for their outstanding work in conducting the conference. The facilities were of the highest caliber and the warm and generous support of the Latvian hosts was greatly appreciated by all participants.

The Republic of Latvia offered in early 1994 to host the 2nd meeting of the pilot study in Jurmala, which is a coastal town located adjacent to Riga. The Republic of Latvia graciously provided most of the resources necessary for the conduct of the conference. Additionally, through pilot study grants, NATO provided funds to assist with living expenses for several of the delegates. These study grants were restricted to one per country and essentially allocated based upon the order in which applications were received.

An announcement of the conference and registration forms were sent to all CCMS Coordinators of both NATO and CEE countries. Attached is a list of conference participants. Fourteen countries were represented and approximately 60 people attended the full conference.

Canada, the U.S., Latvia, Sweden, Russia and Finland provided speakers.

### **Background**

The original proposal for a pilot study reflected a strong interest in the transportation of military material, particularly in light of the major transportation of armaments to be undertaken in the former Soviet Union. In addition, it was felt that chemical and biological agents had not been given the same careful attention with respect to transportation risks as had been given to ordinary industrial and commercial chemicals such as chlorine or propane.

At the first meeting of the pilot study in February of 1994, held in Ottawa, Canada, CCMS Coordinators who attended were provided presentations on the international transportation regulations with respect to dangerous goods. In addition, presentations were made on chemical and biological agents. There was as well a presentation from the Russian delegate with respect to the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Chemical Weapons Convention). Appended to this report is an English translation of that presentation as well as of a second presentation made in Latvia.

The conclusions of the first meeting were that the CEE countries would like to first examine the existing international recommendations on the transportation of dangerous goods, to be followed at a later time by research towards developing material safety data sheets and transportation protocols for special military chemical and biological agents as required. Nevertheless, at all stages, the pilot study would maintain a strong link, through the Russian pilot study delegate Professor Sergei Grigoriev, with work being undertaken arising from the Chemical Weapons Convention. In particular, should information, advice or research be required with respect to transportation, the pilot study would undertake to provide this, requesting counsel as needed from the United Nations Committee of Experts on the Transportation of Dangerous Goods.

In integrating this pilot study with the NACC Canada-Czech Conference in the Czech Republic in March of 1994, it became evident from discussions at that session that several CEE countries had an even more basic interest in the international regulations than understanding their philosophy and general intent. Their concerns were not to question the content of these, but to determine how to best establish these as requirements in their own countries. This raised the question of the need for a presentation on the many possible structures of national law.

In light of the Canadian meeting of February 1994 and the Canada-Czech Conference of March 1994 the agenda for the 2nd meeting of the pilot study in the Republic of Latvia contained four central elements:

1. The international recommendations on transporting dangerous goods;
2. National law and its relation to international recommendations;
3. Response information centres (including CAMEO, ALOHA, sources of MSDS, case study of a major accident); and
4. The chemical chlorine in an accident as an example of the kind of information required and how this may be obtained. (This was changed at the Latvian Conference to anhydrous ammonia.)

## Summary of the Conference

The conference was opened by Dr. Andris Gutmanis, Minister of Transport of the Latvian Republic, and Dr. Indulis Emsis, Minister of Environmental Protection, Republic of Latvia. Both speakers strongly supported the conference and expressed a strong desire to ensure Latvia would benefit from a sound public and environmental safety program.

The conference was chaired by Dr. John Read, Transport Canada, who began by advising participants that the conference would be a presentation of practical ideas and information, based on experience. It would be directed toward developing, implementing and operating national transportation schemes. The delegates were invited to decide for themselves if the material and ideas presented would be useful for their own particular situations.

Dr. Read observed that the regulatory presentations would be based primarily on existing international recommendations and how these have been adopted in Canada and Sweden. In addition, there would be discussion of how Canada and Sweden respond should there be a failure in preventing accidents. Dr. Read warmly welcomed the team from Sweden who had already been in discussions with Latvian Officials and who would certainly carry on once the Conference had ended.

The first topic covered principles behind the recommendations of the United Nations Committee of Experts on the Transportation of Dangerous Goods. This body is seen as the grandparent of all transportation of dangerous goods programs.

The first step in any transportation program is to decide if a product is a dangerous goods. This step is complicated by the very large number of chemicals and the much larger number of trade names. It was observed that the United States Chemical Abstracts Service provides a unique registration number to each new chemical which it determines to be distinct from those previously registered. Of interest to the conference is that the Chemical Abstracts Service has issued over 13 million registrations.

The United Nations recommendations provide test procedures and instructions which would allow one to determine which of the 13 million should be classified as dangerous goods.

The United Nations program then provides a classification scheme which divides all dangerous goods into nine classes and further sub-divides these into approximately 3,000 shipping categories.

The dangerous goods program is designed to prevent an accidental release during transportation and secondarily to provide the information necessary should an accidental release actually take place. The division of dangerous goods into 3,000 shipping categories is a fine enough division to allow the establishment of suitable packaging and handling requirements. In addition, should an accidental release occur the sub-division is again detailed enough to provide sufficient information for first responders to base

decisions on for the first hour or so of response activities. (Later in the conference there was a much more detailed discussion of how response to an accident occurs and how required information is obtained.)

The most important international recommendations are:

Recommendations of the United Nations Committee of Experts on the Transportation of Dangerous Goods (the “Orange Book”);

the International Maritime Dangerous Goods Code of the International Maritime Organization (the IMDG Code);

the International Civil Aviation Organization’s Technical Instructions on the Transportation of Dangerous Goods, as produced by the International Civil Aviation Organization (the ICAO Technical Instructions);

the Safety Series produced by the International Atomic Energy Agency;

the RID program which provides for a regulatory program for the transportation of dangerous goods by rail in Europe;

the ADR program which provides for a regulatory program for the transportation of dangerous goods by road in Europe;

the ADN which provides for a regulatory program for the transportation of dangerous goods on European inland waterways; and

the AND-R, which is similar to the ADN but restricted to the Rhine.

The second speaker at the conference was Mr. Jeremy Hill from the Department of Justice of the Government of Canada. In his presentation he observed that the International Recommendations as listed above provide an excellent basis for a transportation of dangerous goods program and can be adopted by any country. They would certainly be sufficient for all activities required to take place prior to an accidental release.

His presentation focused on the meaning of national law, how international recommendations could be imported into national law and he discussed the very important topic of how to achieve compliance. His presentation could be viewed as the first step in answering the question of “How do you make people do these things?” (This question was asked during the Canada-Czech conference earlier in 1994 and has almost become the theme of the Pilot Study. Delegates at the Canada-Czech conference willingly accepted the international programs. What they continually asked is how to implement them.)

Mr. Hill pointed out that a country begins by first establishing a legal requirement clearly setting out who is responsible to take or not take specific actions. Further, the national law setting this out must also indicate how penalties can be imposed to ensure that the required actions are taken. The more “personal” these penalties, the more effective they are. For example, a fine assessed against a business has an impact, but a fine against a director of the business, or a very short jail term can be much more effective. Naturally, in a well run enforcement program one begins with the lightest penalties and progresses in severity only to the point at which compliance is attained.

Mr. Hill described the Canadian Law related to the transportation of dangerous goods. It is very straight forward in its concept. It provides that before offering, handling or transporting dangerous goods certain things must occur. It also clearly states that if these things do not take place it is an offense against the law.

The law provides a procedure for bringing to the attention of a court the fact that an offense against the law has occurred and it specifies the penalties which may be assessed.

Mr. Hill briefly described another important aspect of the Canadian law which was to create a class of individuals known as dangerous goods inspectors and to assign to these inspectors certain powers.

The relevant Canadian law is titled the “Transportation of Dangerous Goods Act, 1992” (it was revised in 1992). Each delegate to the Latvian meeting was provided with a copy of the information book “Behind the Words” which contains a copy of the Act and provides detailed commentary of what each section means.

The topic of inspectors was of such great interest to many delegates that it was agreed that the next Pilot Study meeting will focus considerable attention on how to establish an inspector force and conduct compliance and enforcement activities. In addition, there will be work on the establishment of an international network of dangerous goods inspectors such that contacts between countries can be facilitated. This matter idea is significant as the most important items in a transportation program occur at the shipping location when it is first determined if the shipment contains dangerous goods, what means of containment are needed, what documents are required, and how the shipment will be marked (i.e., placards and labels). If a problem is found during transportation there may be a need to refer back to the shipper. When the shipper is in another country it is helpful to know which officials to contact.

Dr. Read introduced the next topic of response to accidents by first describing the preventive aspects of a dangerous goods program. Probably the best known example to delegates would be the packaging requirements for the transportation of radioactive materials. A package containing radioactive materials must at least prevent the release of ionizing radiation, and in addition, must be robust enough to withstand the type of abuse to which it may be subjected during transportation, including reasonably anticipated accidents. In fact, the radioactive packaging requirements take many items into account

including criticality issues, heat generated, the nature and form of the radioactive material and the possibility of exposure to individuals which could result from certain kinds of severe accidents. The point of the remarks on packaging was to highlight the fact that the first goal of the transportation of dangerous goods program is to prevent accidental releases.

Not only must dangerous goods be transported in correct means of containment, but such shipments must be identified through placards, labels and documentation. The principle behind this is to provide immediate information to the exact level of detail which is useful for immediate response to those responding to dangerous goods accidents.

This poses the challenge of providing only the most critical pieces of information and not creating a situation of information overload for possibly unsophisticated responders. As time passes, more information can be acquired as needed from shipping documents, response guides such as the CANUTEC Response Guide (distributed at the conference to all participants) or from Emergency Response Centres such as those operated by Canada and by Sweden.

The Canadian response information centre, CANUTEC, handles approximately 30,000 calls annually, of which two per day are classified as serious emergencies. There is no requirement that these calls be made (although there is a requirement that accidental releases be reported to local police). Most calls are from fire departments or police officers, and advisors at CANUTEC are trained to provide information to the depth of detail which can be understood. The trained chemists hold on file about 500,000 MSDS, an extensive library, a thorough knowledge of response activities and will contact the manufacturers of chemicals as needed. (e.g., to determine the compatibility of a product with a pump, or with gloves made of various materials.)

Dr. Read delivered a slide presentation on a major train derailment which occurred in Oakville, Canada and which required a significant response.

The delegates to the conference appeared to be impressed with the link between the preventative nature of the dangerous goods program and the manner in which information on means of containment and on the dangerous goods themselves becomes readily available to response personnel to enable appropriate response to take place.

The second day of the conference began with a continuation of the discussion on response to dangerous goods accidents. The Oakville train derailment was again used as the accident in question and a presentation was made of how information was gathered and of how decisions were made. Dr. Read set up a display of the ALOHA plume modeling dispersion program which is contained in the CAMEO program which has been developed by the United States Environmental Protection Agency. Dr. Read emphasized that the Canadian Response Information Centre, CANUTEC uses the ALOHA program only once or twice a month, and only as an assist in making decisions on how to respond to actual or imminent accidental releases. In the Oakville train derailment ALOHA was

used to obtain an indication of the areas which could be affected should certain of the tank cars which contained compressed gasses rupture during the accident or during the operations required to clean up the accident site. In addition to this, ALOHA was used to determine potential areas of risk during transfer operations based upon the rupture of a hose or the breakage of a hose connection. (Several damaged tank cars had to be emptied of their contents before being moved by pumping the contents into safer tank cars which were brought to the accident site.)

The original intention to illustrate the use of ALOHA using the chemical chlorine was altered in favor of the chemical anhydrous ammonia. This change was made based on the high volume of anhydrous ammonia which is transported by rail across Latvia. The ALOHA model was run at the conference and each step of its implementation was explained to delegates. The model is very easy to use and is very logical in the order in which various factors are entered into the computer. It is also clear why each of the items entered is necessary for the computation. The model was extremely well received by delegates and also led to a further discussion on anhydrous ammonia itself and how it would behave in an accident. Several delegates at the conference asked if they could obtain a copy of the full CAMEO program and they were referred to the delegate in attendance who worked with the US Environmental Protection Agency. Some copies of the program were provided on site to certain countries.

The next tool described for use in emergency response situations was the Canadian Centre for Occupational Health and Safety's computer CD-ROM disk which contains information on approximately 100,000 chemicals. This disk was loaded into a CD-ROM player and the delegates were shown the ease with which one could acquire considerable information on any of the covered chemicals.

It was pointed out that for a major derailment several hours will pass before sufficient equipment or specialized knowledge is available at the site to deal with a releasing product or a released product. It is during this time that a response information centre can be extremely helpful in describing the properties and characteristics of the chemical in question. The type of response to make naturally varies according to the properties of the chemical. It was noted that response to a major train derailment may take from one to four weeks. This does not include the additional time which should be spent in cleaning the environment from the effects of any released product.

The next presentation addressed the rail situation in Latvia and focused on the transportation of anhydrous ammonia through Latvia. Some delegates who arrived early for the conference, including the Canadian delegation, had been taken on an excursion to a major rail yard in Jelgava and observed first hand a unit train transporting anhydrous ammonia. The presentation made on behalf of Latvia was extremely well received and contained considerable information on quantities shipped and the associated necessary activities.

A second presentation made by another delegate from Latvia addressed the removal of military material of the former Soviet Union which was withdrawn from

Latvia by the Government of Russia. Delegates were impressed with the magnitude of the activity, the products involved and the serious attention which was paid to transportation. The operation had been conducted successfully and considerable experience gained. The speaker did provide, as lessons learned, the observation that more information on the properties of the products in question and how they might behave in an accident would have been welcome. Without a full understanding of the effects of an accidental release it may be that the emphasis is placed on the wrong products. Such an operation should be based on a very sound knowledge base.

The speaker was very successful in making his primary point that those who live within a country must become knowledgeable concerning the dangerous goods in their country, their possible effects and the best way to deal with these. His proposal that there must be a basic level of understanding within each country met with agreement and he proposed that an essential activity should be to ensure that during their school years children were encouraged to understand the environment. No country should surrender its environmental conscience. Now that Latvia was directly involved in decision making it must also become aware of the responsibilities which are attached to decision making, particularly with respect to environmental concerns.

The third Latvian speaker, Mr. Snikersproghis provided a very interesting case study on the town of Ventpils and in particular the Ventpils Port. He set out how the Port had rapidly developed to become one of the most significant ports in Europe. However, this had occurred without the proper measures being taken to sustain the environment. He set out how Ventpils progressed from a low point of considering closing the port in order to contain the environmental problem to the current situation in which the port is in the process of modernisation. The present focus is not only on providing an economic return, but on developing a safe port for people and the environment. Mr. Snikersproghis' presentation is attached to this report.

The next presentation was by Mr. Bjorn Sandborgh of the Swedish National Rescue Services Board. His presentation was also of a very practical nature, making the point that although it is easy for a country to decide to adopt the various international programs it can be difficult to introduce these new requirements into a domestic transportation system. One must balance the disruption costs against the benefit in safety to people, property and the environment. Mr. Sandborgh also described the activities of the Swedish National Rescue Services Board as these relate to responding to accidents involving dangerous goods.

Professor Grigoriev of the Russian Federation made the next presentation. His paper was titled "Establishment of the Emergency Response System in the Process of Chemical Weapons Destruction." The paper addressed the main principles. A copy of his paper is attached to this report. In addition, a copy of the main points of his address at the first meeting of the Pilot Study which was held in Canada in February of 1994 is also attached.

Mr. Kent Gray from the Center for Disease Control and Prevention of Atlanta, Georgia made a presentation on Prevention, Preparedness and Response. The time allocated for his comments was very short, but he did manage to emphasize that we should work first to be successful in prevention. This would then be followed by preparedness and only if we have failed in prevention would we be involved in response.

Dr. Markku Murtomaa of the Ministry of Social Affairs and Health of Finland provided a short but informative presentation. Dr. Murtomaa was given very little time to prepare his comments but nevertheless provided an excellent summary of the NATO-CCMS Pilot Study titled "Disaster Preparedness Plans Responding to Chemical Accidents (Health and Medical Aspects)". One of the major points he made was that all medical and health problems which can occur in an accident have not been solved. Further, during an accident is not the time to expect research to be undertaken to understand and solve these issues. Considerable education and planning is needed before an accident in order to ensure appropriate response will take place.

Three topics which gathered importance as the Conference proceeded were how to organize and train an inspector force; understanding public perception; and, dealing with the press.

Some of the best questions were asked during coffee breaks or over meals. When possible these were later provided to the plenary session along with the responses.

A popular topic was the organization of the inspector force in Canada and how inspectors themselves are chosen and trained.

One question focused the discussion on making laws and enforcing laws.

A common procedure is that there is one agency which establishes the law and a different agency, usually a police force, which undertakes to administer and enforce the law. In Canada the Transportation of Dangerous Goods Act and associated regulations are developed by one organization unit within the Federal government. With respect to compliance activities there are many individuals located in other departments and as well officials who are not federal employees but rather provincial (there are ten provinces and two territories which form Canada). It was agreed that given the high level of interest in compliance activities, enforcement activities, and how to train and run an inspector force that this topic would be addressed in detail at the next Pilot Study Meeting.

Arising from the discussion on risk being expressed as the product of the probability of an event times the consequences of the event was the concept of public perception. When dealing with a tank car of chlorine one could conceivably compute the probability of an accidental release, presumably with some accuracy. With respect to the consequences this becomes more difficult as it depends upon how people value the consequences. For example, a scientist may decide that a person being killed has exactly one value. However in some societies, for example in the older caste system in India, it would be extremely important for someone to know he would be dying at the hand of

someone of his own caste and not at the hand of someone of a lower caste. In Canada, people are much more adverse to having school children involved in a dangerous goods accident than they are to the number of accidental deaths which occur in traffic accidents. Similarly, an attempt to place an acceptable value on environmental damage is extremely difficult and can change very rapidly depending upon what the public feels. In a situation where a particular wooded area is seen as nothing more than a small wood lot its destruction may not receive much notice. However, should the city have expanded such that this wood lot is close enough to be considered a park land there may be very strong feelings opposing its destruction.

The fundamental principle of a democratic system is that the government of the state makes decision on behalf of its citizens in order to improve the lot of its citizens. The will of the people is expressed through the individuals they elect to their government who then put into place laws or restrictions to achieve that which the general public would like to have. As a result, public perception is extremely important in dealing with environmental matters. If the public does not want to have a particular event take place, then if the democracy is working correctly, that event will not occur.

However, the situation can be that the scientist may determine there is no risk associated with a particular activity whereas the population may feel from their point of view that they would not like to have the event occur. This raises the problem which people in the transportation of dangerous goods deal with, possibly differently in each country, which is usually called the “public perception” problem.

With respect to public perception there is at least the need to take it into account. Some people go so far as to declare that public perception is reality. Others argue that the general public does not have the technical knowledge to know if a situation is truly safe or if an accidental release is truly a threat to people or the environment, and therefore in decision making one should not consider public perception. There was insufficient time to complete a satisfactory discussion on the topic.

However, the discussion on public perception did lead to a discussion of how to deal with the press. The Latvian coordinator, Dr. Marianna Heisler provided an excellent opportunity to present this first hand by establishing a press conference for the morning of the third day.

In preparing for the press conference, Dr. Read and Mr. Hill provided a short course in media relations. This dealt with the basic principles of:

1) **Press Release:**

Determine the message which you wish to deliver to the press. It should be in a printed form and is usually referred to as the “press release.”

2) **Prepared Answers to Hard Question:**

To prepare to answer questions some creative individual on your staff should provide a list of very difficult questions for which you would work out replies. The exercise only works correctly if you do not argue over the nature of the questions or suggest that no one would really asked that kind of a question but accept the questions as posed and then develop answers.

3) **One Spokesperson for an Incident:**

The third point was the principle that there should be one spokesperson on a particular subject and all media questions should be handled through that one spokesperson. One tip for that spokesperson was again to have the press release or media line at his or her fingertips. When the first question is asked the answer should be the press line in addition to a response to the question which was posed.

4) **Department Media Contact:**

Each organization or department should have a media contact known to the press. For the press, the first person to call in your department would be the media contact who in turn would find the right person to answer any questions.

5) **Backgrounder:**

It's also extremely useful on a technical matter or on a subject which is not well understood by the press to develop a couple of pages of notes describing the subject matter and technical concerns which may be present. This is normally referred to as a backgrounder.

6) **Caution:**

It was observed that there are different types of press with whom one would come into contact ranging from the honest professional, to the dishonest immature.

The press conference began with the chairman interviewing the press prior to allowing the press to interview the chairman. The press who came to the conference cooperated very well with this and were quite pleased to explain what they would normally expect from a government official and what kind of deadlines, etc. they had. The way an interview would unfold would be different between the print media and television and with respect to television would be quite different if the story was being taped for later distribution or if it was to be distributed live or without editing. Several of the delegates found it to be quite interesting to discover that government officials and the press actually could communicate honestly with each other and that not every press encounter needed to be like an experience of placing one's hand into a fire.

The first day of the conference ended with a wonderful get together party at the hotel which featured Latvian food, wine, music and a dance demonstration.

On the second evening of the conference, the delegates were treated to a tour of the city of Riga. This consisted of both a tour by bus and as well several walking tours through various parts of the city. For these walking tours we were extremely fortunate to have as one of the guides an architect from Riga who had an extensive knowledge of the history of Riga and of the many historic locations and buildings contained therein.

The conference concluded with a reception at the hotel which overlooked the magnificent beach which stretched as far as one could see in both directions. The sun was shining, the temperature was warm, the company was amiable, and the conference was declared to be a success.

### **Annex 3: Summary Report on the Lithuanian Meeting**

The Pilot Study on “The Protection of Civil Populations From Toxic Spills During Movements of Military Goods” held its recent meeting in Vilnius, Lithuania, in the form of a three day workshop on October 17, 18 and 19, 1995. Attendance was restricted to 38 delegates. Represented were Belarus, Canada, the Czech Republic, Estonia, Germany, Latvia, Lithuania, Poland, Romania and Sweden. Unfortunately, the delegate from the Russian Federation who was to speak on the Chemical Weapons Convention was unable to attend.

Topics addressed were an overview of the international recommendations on the transport of dangerous goods, specific comments on ADR/RID, Sweden’s Baltic Neighbours Program, information sources on chemicals such as CAMEO and CCINFO, plume dispersion modeling using ALOHA, response to major accidental releases, the law, legal structures in Lithuania, inspectors and their duties, inspector network, the Chemical Weapons Convention, Material Safety Data Sheets for chemical weapons, detection instruments and reports from each country on transport in their countries with an emphasis on military materials.

Throughout the conference the need for harmonization in requirements and also in enforcement was stressed. The Conference agreed to the proposal to establish a network of inspectors to enable easy contacts across boundaries on dangerous goods enforcement or compliance issues.

The major success of the conference was in the attention paid to understanding the nature of law.

The date of the next meeting will be set in cooperation with the next host country. Possible hosts are Belarus or the Czech Republic, with a lesser possibility of Estonia or Romania.

## **Annex 4: Summary Report on the Czech Republic Meeting**

The 1996 meeting of the pilot study on the safe transport of dangerous goods took place in Prague on April 16, 17 and 18. Attending were delegates from fifteen countries. Their names and addresses are attached. The meeting was a follow on to earlier meetings held in Ottawa, Canada; Riga, Latvia; and Vilnius, Lithuania. The two main objectives of the Prague meeting were to present to the delegates the principles behind the various international recommendations dealing with the safe transport of dangerous goods, including military materials, and to illustrate, based on these, some of the response information sources which are used in the event of an incident involving dangerous goods.

The first presentations were by Dr. John Read of Canada and addressed the basic problem generated by the large number of chemical products, the international recommendations which were devised to deal with these, a description of risk, and the basic elements recommended to be included in domestic dangerous goods legislation. A significant portion of time was devoted to a discussion on the need for harmonization from one jurisdiction to another, from one mode to another, and with other programs such as the United Nations Environment Program. The text of the transparencies used is attached. Copies of the video BLEVE were provided to representatives of five countries and copies are being mailed to the remaining countries.

Delegates asked if they could be added as subscribers to Canada's Dangerous Goods Newsletter which was distributed during the morning session. They were advised to complete the registration form contained in the copy they had been given, mail it in, and they would be added as subscribers. Those wishing to see a copy of Canada's draft regulations which have been rewritten into clear language were asked to advise either J. Read or J. Hill.

The next presentation was made by Mr. Jeremy Hill. Its main purpose was to describe how policy is made and how policy can be converted into law. This included comments on how to achieve compliance with requirements, supplemented by a discussion of two cases. The text of the transparencies used are attached.

On the evening of the first day the Director-General of Military Policy (plus several other disciplines) invited the delegates to dinner which was highly appreciated by all who attended.

Day two began with two papers presented by Dr. Bedrich Uchytíl. Copies of the papers are available.

Following morning coffee Mr. Kent Gray led a discussion on determining what information demands should be expected as a result of an accidental release of dangerous goods.

The afternoon was taken up with a visit to a Civil Defense Laboratory near Prague followed by a visit to an industrial plant which recently experienced a serious release of ammonia from a supply line. The details of the accident were discussed and reference made to these on the next morning during the demonstration of the information program ALOHA.

Day three began with an examination of six information sources on chemicals and their potential for damage following a release. The first source was the Initial Emergency Response Guide Book (soon to be published jointly by Canada, the United States and Mexico as the North American Initial Emergency Response Guide Book). This was followed by a description and demonstration of four computer bases sources:

- CAMEO;
- ChemInfo;
- CCOHS's MSDS's on CD-ROM; and,
- ALOHA

A description of Emergency Response Information Cards (ERIC Cards), was also covered during the presentation made by Mr. Hemult Rain. His presentation was generally directed at providing a summary of the major changes being made to the ADR program. A copy of the summarizing transparencies made during his talk are attached. Mr. Rain also took the time to describe the decision making process which drives the ADR agreement and set out how those countries attending the Prague conference could influence such decisions.

Mr. Rain was followed by presentations made by other delegates.

Some general remarks:

The hosts in the Czech Republic were excellent in providing support to the conference and in assisting delegates. The "snacks" provided with the coffee and tea were also very substantial.

The restaurant chosen for lunch on the first day was not able to match the military precision followed by the bus driver.

Prague really is a beautiful city in which one felt welcome. The sunshine during the conference was warm and allowed delegates to set aside the lunch time buses for short walks instead.

The field trip to the laboratory followed by the visit to the site of the ammonia release was enhanced by a close inspection of the product produced at the second site.

## **Annex 5: Summary Report on the Hungarian Meeting**

The fifth meeting was held in Budapest, Hungary. Its main topic was the response activities needed in the event that all regulations and compliance actions failed and there was an accidental release of dangerous goods. The focus was on how to obtain information relating to chemicals, how to interpret this and what information should be provided to responders. The Canadian Centre for Occupational Health and Safety made available to each country attending a CD-ROM containing 100,000 Material Safety Data Sheets which together with the North American Initial Response Guide Book and other sources such as CAMEO and ALOHA were used to establish a mock response information centre (See Annex 9 on Response Information Centres).

A series of over 100 slides of a major train derailment involving five different dangerous goods which were released and four others which threatened to release guided this meeting of the Pilot Study through two days of instruction on dealing with releases of all forms of dangerous goods. The third day was devoted to reports from participating countries on their capabilities and needs. The idea of coordinated action among countries in establishing national response information centres was discussed.

## **Annex 6: Summary Report on the Second Ottawa Meeting**

The determination of which substances and articles are dangerous goods is made using the United Nations Recommendations on the Transport of Dangerous Goods. Other systems based on these include the International Maritime Dangerous Goods Code, the International Civil Aviation Organization's Technical Instructions on the Transport of Dangerous Goods and the European agreements on the transport of dangerous goods by road or rail known as RID and ADR.

In the event of an accidental release of dangerous goods there are three questions which could be posed:

What dangerous goods are involved?

What could the released dangerous goods do ? (What are its dangerous properties?)

What should the responders do?

In previous meetings international programs designed to protect public safety (i.e., protect people, property and the environment) during the transport of dangerous goods were reviewed. The first emphasis of these was on avoiding releases by, for example, using proper means of containment. The second emphasis was on identifying the goods being shipped by using, for example, the internationally recognized placards (on large containment vessels) and labels (on small containment vessels such as packages) as well as shipping documents. The third emphasis was on determining what harm could be caused by the release of a specific dangerous goods using sources such as the North American Initial Emergency Response Guidebook, Material Safety Data Sheets (CCOHS CD-ROM), and advisors in national emergency response information centres.

The Ottawa meeting focused on the final key element which is the actions which responders should take. Associated with this was visits to several labs as well as time spent in CANUTEC. In addition, there was an emphasis on achieving compliance with the regulations through inspections.

## **ANNEX 7:**

This annex contains samples as shown:

Item A	Letter to CCMS Coordinators
Item B	ANNOUNCEMENT
Item C	REGISTRATION FORM
Item D	REQUEST FOR FINANCIAL ASSISTANCE FORM
Item E	INFORMATION NOTE ON THE VILNIUS CONFERENCE

**ITEM A:**

August 21, 1995

To: CCMS Coordinator

Please accept my apologies for the very informal way this message is being sent. Given the number of people I would like to reach and the shortness of time, it is much more convenient to fax the attached material directly from a computer as the program will monitor the sending of the faxes.

I am very pleased to announce on behalf of Mr. Bronius Bradauskas, Minister of the Environmental Protection Ministry of the Republic of Lithuania, and the NATO CCMS, that the Vilnius Conference on the Protection of Public Safety in the Transportation of Dangerous Goods will be held in Vilnius, Republic of Lithuania, October 17 to 19 inclusive, 1995.

Attached you will find a general announcement, registration form, request for financial assistance form, information note on the Conference and Associated Pilot Study, and an agenda.

May I ask that you bring this Conference to the attention of those in your country who could add to the conference or who would benefit from attendance? This would include environmental protection officers, emergency response officers and those involved with the transportation of dangerous goods by any mode.

I apologize for the short notice and ask that you distribute this information as soon as possible to allow potential participants sufficient time to consider the announcement.

Should you have any questions you may contact me in Canada by fax at 613-993-5925 or by phone at 613-990-1147.

Again please excuse me for my impersonal form of communications.

Sincerely,

John A. Read  
Pilot Study Director

P.S. May I remind you of the NATO/CCMS Study Visit Grants, for citizens of NATO countries, which are intended to cover travel and/or living expenses for those having difficulty in obtaining the necessary credits to attend CCMS Pilot Study meetings? If you wish further information on these please let me know and I will fax further information. My fax is 613-990-1147.

**ITEM B:**

ANNOUNCEMENT

VILNIUS CONFERENCE ON THE PROTECTION OF PUBLIC SAFETY IN THE  
TRANSPORTATION OF DANGEROUS GOODS

Conference Title: Protection of Public Safety in the  
Transportation of Dangerous Goods.

(Please note this title includes the protection of civil population from toxic spills during  
movements of military materials.)

Sponsors: The Environmental Protection Ministry of  
the Republic of Lithuania and NATO  
through its Committee on the Challenges of  
Modern Society.

Language of Conference: English and Russian (simultaneous  
translation)

Location: Environmental Protection Ministry,  
Juozapaviciaus st. 9  
2600 Vilnius  
Lithuania  
Fax: 370-2-72-8020 or 370-2-35-8020

Dates: October 17, 18 and 19, 1995.

Content of Conference: Please refer to the attached notes.

Registration Form: See attached REGISTRATION FORM.

Expenses: Delegates are responsible for their own  
travel, accommodation and meal expenses.  
There is no conference fee.

CEE Delegates Assistance : Limited funds are available to assist with (CEE=Central  
and expenses for ten CEE delegates. Maximum Eastern  
European) grant of up to \$500 U.S. Please use the attached  
FINANCIAL ASSISTANCE FORM to request this  
assistance.

**ITEM C:**

REGISTRATION FORM: TO BE SENT TO THE LITHUANIAN CONTACT, DR. A. SURVILA, AT THE FAX NUMBER SHOWN AT ITEM 7.

CONFERENCE ON THE PROTECTION OF PUBLIC SAFETY IN THE  
TRANSPORTATION OF DANGEROUS GOODS

Sponsors:                   The Environmental Protection Ministry of  
                                  the Republic of Lithuania and NATO  
                                  through its Committee on the Challenges of  
                                  Modern Society.

- 1. Delegate's Name: \_\_\_\_\_
- 2. Telephone number: \_\_\_\_\_
- 3. Fax number: \_\_\_\_\_
- 4. Position: \_\_\_\_\_
- 5. Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- 6. Arrival:     Date and Time of day: \_\_\_\_\_  
                  Flight number \_\_\_\_\_ or, Train number \_\_\_\_\_

7. Lithuania Contact:

Dr. A. Survila  
Environmental Protection Department Science Board  
Juozapaviciaus st. 9  
2600 Vilnius  
LITHUANIA  
FAX: 370-2-72-8020 or 370-2-35-8020

8. Delegates will be responsible for obtaining visas in their home countries. If you need a letter of invitation to the conference for this purpose please request this from the Lithuanian Contact.

PLEASE FAX A COPY OF THIS COMPLETED REGISTRATION FORM TO DR. A. SURVILA AT THE NUMBER GIVEN ABOVE. DR. A. SURVILA WILL SEND YOU AN ACKNOWLEDGMENT. IF YOU DO NOT RECEIVE AN ACKNOWLEDGMENT, PLEASE RESUBMIT YOUR REGISTRATION FORM.

**ITEM D:**

**DELEGATES REQUEST FOR FINANCIAL ASSISTANCE FORM**

**CONFERENCE ON THE PROTECTION OF PUBLIC SAFETY IN THE  
TRANSPORTATION OF DANGEROUS GOODS**

Sponsors:                   The Environmental Protection Ministry of  
                                  the Republic of Lithuania and NATO  
                                  through its Committee on the Challenges of  
                                  Modern Society.

THIS APPLICATION FORM IS TO BE USED BY CENTRAL OR EASTERN EUROPEAN  
DELEGATES TO REQUEST FINANCIAL ASSISTANCE. GRANTS OF UP TO \$500 U.S. ARE  
AVAILABLE TO OFFSET EXPENSES. HOWEVER, GRANTS ARE LIMITED TO ONE DELEGATE  
PER COUNTRY.

- 1. Delegate's Name: \_\_\_\_\_
- 2. Telephone number: \_\_\_\_\_
- 3. Fax number: \_\_\_\_\_
- 4. Position: \_\_\_\_\_
- 5. Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- 6. Total estimated expenses: \_\_\_\_\_
- 7. Signature of CCMS Coordinator \_\_\_\_\_

THIS FORM, SIGNED BY YOUR CCMS COORDINATOR, SHOULD BE SENT TO:

DR. JOHN A READ  
CCMS PILOT STUDY DIRECTOR  
TRANSPORT CANADA  
FAX: 613-993-5925

PLEASE BE SURE TO INCLUDE YOUR FAX NUMBER. IF YOU DO NOT  
RECEIVE A REPLY WITHIN THREE DAYS PLEASE SEND YOUR FAX AGAIN.

## **ITEM E:**

### **INFORMATION NOTE ON THE VILNIUS CONFERENCE ON THE PROTECTION OF PUBLIC SAFETY IN THE TRANSPORTATION OF DANGEROUS GOODS TO BE HELD OCTOBER 17-19, 1995 IN VILNIUS, LITHUANIA.**

The NATO CCMS Pilot Study titled "Protection of Civil Populations from Toxic Material Spills During Movements of Military Goods", was originally to examine military materials to see if the current regulatory regimes and international recommendations which have been adopted by several countries are sufficient to ensure the safety of civilian populations during the transportation of these military materials. The second major objective was to involve Central and Eastern European (NACC) countries in an extensive manner during the program.

Given Canada and Western Europe's experience in regulations relating to dangerous goods, the initial thoughts of the organizers of the pilot study were to identify special military goods which may not be currently included in the general international regulatory scheme in an adequate fashion. The products which came to mind related to chemical or biological warfare agents, such as those contained in schedules 1 and 2 to the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Chemical Weapons Convention). These are automatically "covered" by the international programs such as the United Nations Committee of Experts Recommendations on the Transportation of Dangerous Goods, but not to the degree required should these items be transported by normal carriers in populated areas.

At the first meeting of the pilot study, held early in 1994, the representatives from nine NACC countries stated their preference for the pilot study to focus on transferring knowledge currently existing on the transportation of dangerous goods to the NACC countries, with some attention still paid to the review of military goods. The Pilot Study was to progress by assisting countries to hold one or more conferences on the general theme of "The protection of Public Safety in the Transportation of Dangerous Goods."

At the August 1994 conference in Latvia, discussions were devoted to developing for the participants an understanding of the need for regulations, methods of putting regulations into place and a description of some tools used in understanding accidents involving dangerous goods. One tool explained in detail was the plume modeling program ALOHA, which is a part of the CAMEO program developed by the U.S. Environmental Protection Agency.

The 1995 conference will be held in Vilnius, Lithuania, from October 17 to 19, 1995, sponsored by the Environmental Protection Ministry of the Republic of Lithuania and supported by the NATO Committee on the Challenges of Modern Society and Sweden. The major focus will again be on practical aspects of implementing international recommendations, particularly the identification, training and activities to be conducted by dangerous goods inspectors. At the conclusion of this information note is

the current tentative agenda for the Vilnius conference. This agenda will be modified to accommodate requests for changes from participating countries.

While this major activity of sharing knowledge and experience with respect to the current international programs is taking place, there still remains the task of identifying chemical or biological agents which may be transported near civilian populations and for which the safety provisions already established through one or more of the various international programs may be insufficient. This topic will be discussed in Vilnius.

The welcoming address will be provided by Mr. Bronius Bradauskas, Minister of the Environmental Protection Ministry of Lithuania. Speakers include Dr. Read, Director General, Transport Dangerous Goods Directorate, Canada; Mr. Zuev Alexander, Deputy Head, Ministry of Emergencies, Belarus; Dr. Heislere, Ministry of Transport, Latvia; Mr. J. Hill, Department of Justice, Canada; Ms. S. Chiriac, Institute for Environment, Romania; Dr. Survila, Environmental Protection Ministry of Lithuania; Dr. S. Grigoriev, Chemical Weapons Reduction Program, Russia ; Dr. B. Uchytíl, Senior Scientific Expert, Civil Defence Institute of the Czech Republic; Mr. B. Sandborgh, Head of the Department of Hazards and the Environment, Swedish National Rescue Services Board; and several key speakers from the Lithuanian Ministries of Environmental Protection and of Transport.

17 10:30-11:30	J. Read	Overview
17 11:30-12:00	H. Rein	ADR/RID
17 12:00-12:30	R. Liuzinas	Dangerous goods
17 12:15-12:30	R. Briedyte	Transport in Lithuania
17 13:30-14:00	B. Sandborgh	Baltic Neighbors Program
17 14:00-14:30	M. Heislere	Latvian Partnership
17 14:40-15:00	A. Jurkevicius	Lithuanian Program
17 15:30-16:30	J. Read	CAMEO, ALOHA, CCINFO
17 16:30-17:30	G. Pulokas	Rail Accident
	A. Paulikas	Rail Accident
18 09:00-09:30	J. Hill	Legal Concepts
18 09:30-10:00	B. Valionyte	Legal Structure of Lithuanian TDG program
18 10:30-11:30	J. Hill	Inspectors
18 11:30-11:50	A. Jurkevicius	Inspector Duties
18 11:50-12:10	V. Ozechauskas	Inspector Duties
18 12:10-12:30	J. Read	Inspector Network
18 13:30-15:00	J. Read	The Press
18 15:30-16:00	S. Grigoriev	Chemical Weapons Convention

18 16:00-16:30	J. Read	MSDS
18 16:30-17:00	Z. Kupciunas	Chemical Weapons
18 17:00-17:30	A. Sinius	Chemical Weapons
19 09:00-09:20	J. Read	Detection Instruments
19 09:20-10:00	B. Zetterstrom	Detection and Identification
19 remainder	various	Reports from delegates

## **Annex 8:**

### **Canadian Centre for Occupational Health and Safety CD-ROM based MSDS Database.**

The Canadian Centre for Occupational Health and Safety will make available sufficient copies of their CD-ROM based database of material safety data sheets (MSDS) such that each country will receive a copy.

The MSDS database is a collection of 100,000 Material Safety Data Sheets (MSDS) for chemical products. It contains the complete text of MSDS exactly as contributed directly by more than 600 manufacturers and suppliers. The MSDS are contributed by North American sources, many from multi-national companies which market chemical products world-wide.

MSDS records contain detailed information, including:

- Chemical and Physical Properties
- Health Hazards
- Fire and Reactivity Data
- Spill and Disposal Procedures
- First Aid Recommendations
- Storage and Handling
- Personal Protection

The MSDS database can be searched quickly and easily for product names and other product identification, manufacturer or supplier names, date of MSDS, or any term used in the text of the MSDS itself. The PRODUCT NAME index provides quick access, even if only part of the product name is known. The PRODUCT IDENTIFICATION index can be searched for information such as product CAS Registry Numbers, company product codes, catalogue numbers, or part numbers.

The MSDS database is available on the MSDS CD-ROM and on tape. Records in French are in the FTSS database.

## **Annex 9: Response Information Centres**

When there is an accident involving dangerous goods those who must respond face three general questions.

1. What dangerous goods are involved?
2. What are its properties, especially in the given situation?
3. What should be done if any of the dangerous goods are accidentally released?

Without an answer to the first question not much can be said in reply to the second and third questions.

For these notes we will assume the answer to the first question is known. For example, the shipper may be able to report what the product is, the driver of the truck or conductor of the train may know, the consignee of the shipment may know, or there may be shipping papers accompanying the shipment which describe the contents. In addition, there may be a dangerous goods placard or label displayed, and even a UN number.

An initial answer to questions 2 and 3 may be readily obtained by consulting a response guide such as the North American Emergency Response Guidebook.

However, if the release is large, or if the location of the release has special characteristics (e.g., near a school, near a large collection of livestock, near a delicate environmental area) more information than what is in an initial guide will be needed. In addition, there will likely need to be communications established with the fire services, the shipper, response teams and possibly others.

These notes are limited to identifying a few basic ideas for a response information centre to enable it to provide answers to questions 2 and 3.

1. The most effective contact method is by telephone. The Centre should have a telephone number (response number) which is easy to remember.
2. Whenever the response number is called there must be an answer within five rings. For a busy Centre this may mean that there will be more than one emergency line such that if the first line is busy the caller will be automatically switched to another line.
3. Regardless of the number of calls expected a minimum of two emergency lines (using the same telephone number) should be considered.
4. The Centre should have an additional telephone line, with a different number, for conducting non-emergency business.

5. The emergency phone should be capable of “conferencing in” other parties.
6. All calls in should be logged. In addition, all calls should be taped so they can be reviewed as the incident unfolds. This could be done on an “endless” tape which keeps a record of the last 30 minutes. When there is relevant information on the tape it could be removed from the recorder and transferred to a play-only device.
7. The Centre will need to employ advisors who are capable of understanding information about chemical products and who can then provide that information to whatever depth of detail the caller needs and can understand. This could range from extremely basic rules to follow for some responders to very detailed recommendations for industry response personnel.
8. Even if the Centre is very busy there should always be at least one advisor in the Centre whose only task is answering emergency calls. To be truly effective, the advisor would have to be in the Centre as that is where the information sources would be.
9. If the Centre is only lightly used, it may be impractical to have it staffed with an advisor at all times. It might be more reasonable to have an advisor “on call”. That is, always reachable by telephone or by pager. The advisor would then remain at home, or return to the Centre to “work” the event. For this to succeed, the emergency calls would have to be automatically transferred to a “central dispatcher” such as a fire station where the basic information would be received and the appropriate “on call” advisor contacted. (But the response number callers should use should not change!)
10. A similar contact mechanism could be used during normal hours to allow the advisor to travel to chemical plants, transportation points or fire stations to conduct awareness and training sessions, yet still be available for emergency calls. The important thing is that each call to the response number be answered within five rings. The provision of information by an advisor should be as immediate as possible. Recognizing that many things need to be balanced, a few minutes delay until an advisor is contacted and can return the call may be acceptable
11. One technique used is to provide the advisor a cellular phone and a pager whenever the advisor is away from the Centre. The advisor keeps the phone turned off, conserving battery power, and is contacted by pager. He calls the number indicated on the pager with the cellular phone.
12. If possible, the advisor should have a computer with him whenever he is “on call”. This computer would contain basic information sources.
13. Basic information sources the Centre should have could include:
  - The North American Emergency Response Guidebook
  - Material Safety Data Sheets (comments on these follow)

- Chemical text books and references
- A full list of important telephone numbers such as police, fire and industry numbers in various parts of the country.
- ALOHA, or a similar program, could be considered.
- General response information programs with a search capability such as Chem Info from the Canadian Centre for Occupational Health and Safety or the Chem Data program from the Harwell Centre in the U.K.

14. The Centre should expect that over time many MSDS will be acquired and a good filing system plus significant space will be needed. Recall that the only reason to have a filing system is to retrieve records rapidly.

15. In North America, companies routinely send copies of Material Safety Data Sheets (MSDS) they generate to CANUTEC and CHEMTREC. Thus a good way to acquire MSDS is to ask industry for these. Secondly, shippers are required by law in North America to have a 24 hour telephone number which can be called to find out about any of their shipments while in transport. As this would be difficult for small companies (shippers) they are allowed to use CANUTEC or CHEMTREC's response number to satisfy the 24 hour requirement provided they have supplied the relevant Centre with information on their products. This is usually in the form of MSDS. This is an important source of MSDS. (You could also consider assessing an annual fee to register a company, adjusting the fee according to the number of products the company wished to place on file in the Centre).

16. Police and fire services should be told of the response Centre and urged to call the Centre whenever they are involved with dangerous goods. In fact, in the beginning all the publicity about the Centre and its capabilities should be provided to the police and fire services only. A concentrated effort must be made to ensure the police and fire services begin to use the Centre routinely and think of it as one of their important resources.

17. If at all possible, there should be only one Centre for a country. If not immediately possible, then this should occur as soon as communications (highways and telephones), etc., permit this.

16. Until a very experienced Centre is operating new advisors should spend a week in an established operating Centre, such as Canada's CANUTEC.

## **Annex 10: Delegate List**

Albania	Namik Rapi
Armenia	Sergey Azarjan
Belarus	Igor Popliko; Alexander Zuev
Bulgaria	Sylvia Raykova; Slavitza Dobрева
Canada	Howard Alper; Jeremy Hill; John Read; Michael Noble; Alain Levesque; Ken Rozee; Blair Johnson; Brian Mansfield; plus others
Czech Republic	Ivo Jirik; Ales Komar; Bederich Uchytíl
Estonia	Matti Viisimaa; Ants Tammepuu; Karl Paks; Alan Ehasalu; Paul Rom; Enn Saik Mihkel Vaarik
Finland	Markku Murtomaa
Germany	Hemult Rein
Hungary	Kristof Kozak; Agnes Ringelhann; Elemer Bereczky; Sandor Takacs

Kazakstan	Askars Omarovs; Almas T. Dzhaurov; Savets Tomaspajevs; Serzans Zamankulovs
Latvia	Andrejs Silins; Andris Plaude; Marianne Heislere; Ruta Melngalve; and several other officials;  plus Dr. Gutmanis, Minister of Transport and Communications; Dr. Emis, Minister of Environmental Protection
Lithuania	Algirdas Jurkevicius; Rimante Briedyte; Mr. Ozechauskas; Giedrius Graiciunas; Birute Valionyte; Jurate Lileikiene Dr. Survila; and several other officials;  plus Mr. Bradauskas, Minister of Environmental Protection
Moldova	Sergui Galitchii
Norway	Arne Johansen
Poland	Dariusz Palijczuk; Adam Wylomanski; Matek Plotica; Ryszard Grosset; Slavomir Marat; Andrzej Gromek

Romania	Corneliu Negulescu; Stefania Chiriac; Claudia Taraibuta
Russian Federation	Sergei Grigoriev;
Slovak Republic	Robert Domcek; Renata Kubovicova
Sweden	Bjorn Sandborgh; Gundega Muchks; Roland Nilson;
Ukraine	Ivan Federovich Volk; Nina Tudel; Peter Nakhaba
United States	Kent Gray; Lynn Schoolfield Paul Thies

## **Annex 11: Two Delegates' Assessments**

**The following comments were provided by Dr. Bederich Uchytíl of the Czech Republic:**

The pilot study was an efficient connection between a classic education course and seminars. This connection has allowed a maximum transfer of information among participants. The results of the pilot study : "Transportation of dangerous goods" was useful for the Czech republic on several levels:

1. Obtaining information about methods and means used in other countries

in times of accidents. As concrete examples:

- demonstrations of the plume dispersion model ALOHA for the calculation of dissipation of toxic compounds,
- demonstrations of the database/program CAMEO to obtain description of behaviors of toxic compounds,
- the booklet describing mobile analytical equipment's suitable for "on site" analysis,
- the video "Bleve" about explosions of liquefied combustible gases in gas-tanks,
- the booklet "Initial emergency response guide" with records about dangerous compounds and their transportation including detoxification
- booklet containing extensive data on ammonia,
- CD containing "Cheminfo" and "MSDS" from Canada.

2. All lectures given in sessions were very useful including general lectures describing legislative any country could consider and the more general lectures, given namely by Dr. Read, Mr. Hill (attorney) and Mr. Gray (response expert). Some examples are:

- video record of burning of tank trunk and quenching (Lithuania, Vilnius 1996),
- detailed lecture about a very serious chemical accident on a railroad in Canada and how response proceeded (Dr. Read, Canada),
- treating with press and television, general approach and practical demonstration (Dr. Read, Canada in Riga, 1995 and Vilnius, 1996),
- news on ADR convention (meeting in Vilnius 1996),
- demonstration of a program for dissipation of detrimental compounds in the ground (representative of Sweden, Vilnius 1996),
- contribution on transportation of very dangerous compounds (chemical weapons agents) (representative of Germany, Vilnius 1996),

- demonstration of CD from Canada containing database "Cheminfo" and "MSDS", copies of which were provided to delegates (Dr. Read, Canada in Budapest, 1997),
- field trip to petroleum refinery and exhibition of equipment and operation of the fire-brigade (Budapest, 1997).

3. Contacts and experiences obtaining as a result of the meeting, for example:

- "dual-use" requirements on devices for exploration, it means utilization for rescue services in the time of peace and for civil protection in the time of war,
- the discussion of all participants in the Budapest seminar showed a general underestimation of the danger of liquid ammonia, which is the compound with the highest number of accidents,
- example of accident, when concentrated sulfuric acid flowed in water without dilution and made strong separated layer. Such case is extremely dangerous.
- discussion about ecological criminality.

4. Of very high value was that it was possible to obtain reference materials which we are using in our work and for preventive education.

Some examples are:

- The video "Bleve" about explosions of liquefied combustible gases. Thanks to the courtesy of Transport Canada this video has been translated in Czech and it is used for education. This video piqued great interest.
- The booklet "Initial Emergency Response Guide" containing data about dangerous compounds and about methods of initial treatment of any accident. I had used this booklet in time of flood on Moravia in 1997.
- The survey of mobile analytical means. This booklet, which has a review of mobile analytical equipment suitable for solving analytical problems in the time of detrimental accidents is used in the Civil Protection Institute for education purposes.
- The compact disc containing database Cheminfo and MSDS. This CD is very useful in our work with regional authorities, firemen etc.

**The following comments were provided by Dr. Marianne Heisler of Latvia:**

Six years have passed since the first Pilot Study meeting, and now it is possible to evaluate how the situation has changed in our countries since 1994.

At each Pilot Study meeting the Pilot Study Director and the participants made comprehensive presentations based on their practical experience, information and knowledge. It was an excellent way to transfer information among participants and helped us with ideas for the implementation of ADR/RID in our respective countries. The topics continued to expand from meeting to meeting, showing how the process of increasing our knowledge has been continual.

We appraise the performance results of the NATO CCMS Pilot Study as perfect, since this type of study process helped us develop similar processes in our countries in the field of Dangerous Goods transportation.

Many positive changes have taken place in Latvia since the first Pilot Study meeting, and now the treatment of issues associated with dangerous goods transportation has become of permanent importance.

Our key objective is to enhance the safety of the transport of dangerous goods. Actions to attain our key objective include:

- harmonisation with international regulations and EU directives;
- establishing of institutions responsible for monitoring and enforcement;
- development of training programs ;
- establishment of national reporting systems and designation of responsible organisations; and,
- designation of special routes and identification of those dangerous goods for which special routing would apply

Once again I would like to thank Dr. J. Read for his input in our joint work. I hope that our contacts and exchange of information among participants will continue after the completion of the Pilot Study. The next step of information exchange among the Baltic States on issues dealt with in our Pilot Study will continue in seminars about the existing situation and problems in Baltic States in the field of transportation of dangerous goods organized by the Baltic Environmental Forum.