Development and co-ordination of a local capacity

1. A NECESSARY CO-ORDINATION

In any country where fighting against mines is considered a priority, all the parties mentioned above can be found in the field. Their techniques and their motivation are often different ,their objectives vary depending on the contracts they are bound by...

Therefore, to reach maximum efficiency, it seems necessary to establish a strict organization on a nation-wide basis:

- **of the operational activities**, so as to make the most out of the demining capacity, to be able to assign the teams of deminers in the most rational way, and finally to respond to all new demands depending on the position and situation and activities of the teams

- **of the consciousness-raising campaigns** which should be conducted on a nation-wide basis so as to allow the various teams to share their respective experiences and to plan their activities in such a way that the largest part of the population will be taken care of

- **of the financial aids** so as to amass them into a «common fund» and then distribute them in an equitable manner among the various regions, thus ensuring there will be no rejected populations

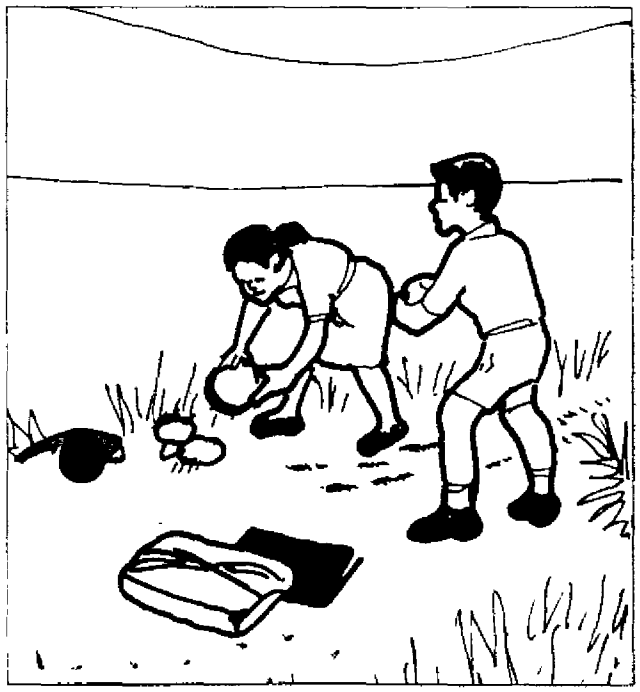
- **of the techniques and procedures** so as to establish, print and distribute guidelines and to standardise the activities

- **of the various tests and trials** as it is critical that the new methods be tested by an organization that will then be able to either promote them or reject them based on the results of the tests

- **of the bulk purchase of equipment** such as explosives, imported equipment... because besides saving time and money, this permits a better control, particularly for such fragile items as explosives.

- **of the information:** the whole of the information related to mines and mine clearance should also be gathered and centralized on a nation-wide basis to build up data banks, to establish detailed maps of the mined zones, to set up survey departments and verify the data and the reliability of the information coming all the way up from the field. This information will also be used to prepare or update the consciousness-raising programs (conveying the information down to the communities), to inform the sponsors, the media, the operational groups in the field about the results (statistics, technical training on newly-discovered mines, stage of the research as new demining techniques are tested ...) and finally to gather the information in a central location for a better distribution for the benefit of all.

- **of the procedures and safety regulations.** Routine is the number one danger facing the operators. Mine clearance techniques are subject to a specific codification which leaves room for initiative and adaptation to specific situations but is clear on the basic elements of procedure. Such codification strictly limits actions not provided for in the standard procedures to personnel with specific level of professional qualification and experience. There must therefore be both a set of general standard procedures with which all field operational personnel are completely familiar, and - to avoid misuse - a further set of restricted procedures with a closely controlled and limited availability.



The standardization of mine clearing techniques: It enables all future mine clearance operators to receive the same training; They will then be able to move from one region to another and adapt to the work of a different organization according to the same rules and therefore with a minimum of time and funds invested in retraining or adaptation.
One advantage of this necessary co-ordination on a nation-wide basis is that it allows to establish at the same time the basic principles of a local capacity for mine action.

2. PRINCIPLES AND METHODOLOGY FOR THE DEVELOPMENT OF A LOCAL CAPACITY

CONSIDERATION FOR THE SOVEREIGNTY OF THE COUNTRY

The basic principle is that the country concerned remains the only party responsible for the fight against mines conducted on its territory. The role of the UN, of the International Institutions or the various interveners is to not only participate in the climining operations but also to contribute to the establishment of a national mine action program When the mine-clearance organization is appointed by the UNO, the program manager takes care of the co-ordination the whole of the operations, either directly or through the regional structures under his supervision. The doctrine of the UN today is well defined. The Department of Humanitarian Affairs (DHA) is in charge of the co-ordination of all mine-clearing operations. This department works in co-operation with technical experts of the Department of peace keeping operations. From the very beginning of the mine-clearing operations, no matter who the project manager is, it should be kept in mind that the program will be transferred to a national organization as soon as possible, so as to take care of operational surveillance, alert, training and mine-clearing tasks, but also all the tasks related to logistic support, administration and medical security. Each member of the personnel should contribute to the training of the local agent who will replace him some day. This could be problematic in regions where there is no training in administration, management and accounting. This problem should be discussed upstream. Considering all hypothesis, the schedule of operations and deadlines should be established and the progressive departure of expatriates should be organized, taking into account the local personnel who will relieve them.

THE OBJECTIVES

Reinforcing or establishing a local and durable capacity influences the mode of intervention.

- operational autonomy on the shorter or longer term (this duration should be decided upon when arranging the program);

- acquisition by the personnel of experience broad enough to help respond to all forthcoming situations;
- ability to adapt to all conditions of work;

- the quality of education guarantees maximum security. Without the guarantee that this discipline is understood and accepted by everyone, training will not be considered completed;

- the duration of training should be adapted to the level of competence of the personnel recruited: in **Mozambique**, training at the ADP centre (Accelerated Demining Program) goes on for 17 days during which theory is taught, alternating with practical experience, until a «real world» training period right in the field. In **Cambodia**, training at the CMAC (Cambodian Mine Action Centre) goes on for one month before the trainees get integrated within a team of deminers;

- understanding on the part of everybody of his position, role and duties within the mine clearance structure, no matter what his job is. For this purpose, each position should be clearly defined, and a «job description» should be established for each operator and well understood by all.

THE CONDITIONS FOR AUTONOMY

The time necessary to eradicate mines from most affected countries is a matter of years if not of decades, and it is unlikely the international community will be able to take on all the financial and operational responsibility for such a long period of time. The countries concerned might end up having to take on the mine action programs established as well as all the other aspects of restoration and social and economical development of the country.
The national capacity should be set up so that the process of transfer of responsibility could be progressive and efficacious.

NATIONAL STRUCTURE FOR TRAINING AND CO-ORDINATION

This is an essential co-ordination cell used to avoid duplication of initiatives and to manage mine clearing operations throughout the country
The standardization of the procedures depends on this structure, and so do the centralization of some tasks and the simplification of everybody's work Particularly with regard to centralized purchases, administration of common stores and operating of a mine-clearance school. This structure should also help guarantee that all deminers work according to the same standards and

gather information that will be used by the sponsors, the media and the population.
Finally, the structure should permit a rationalization of international financial aids, and keep some more remote regions from being left aside (all financial supports will be grouped within a «trust fund» and distributed fairly across the country).
This structure will only be efficient if it is economically viable, which is indisputably the toughest objective to achieve. For this purpose, the government should include these programs among the various tasks they are in charge of To date, mine clearing operations have been initiated and conducted under mandate from the UN. These interventions were designed as temporary and the organizations taking them on also had temporary responsibility.
How to make sure that financing from the various sponsors, called upon by all, and local budgets, so restricted, if not in deficit, could be properly utilized to sustain such a capacity ? There is still no clear-cut answer to this question, although it is strongly suspected centralized organizations may tend to leave aside the most underprivileged populations living in remote regions.

ATTAINMENT OF AUTONOMY

The process usually consists of three phases.

• The first phase goes on for two years, and its objective is to
- set up the National plan for the fight against mines;
- assess the extent of the problem;
- build up a data bank;
- arrange a rehabilitation program including mine clearance;
- set the priorities for the first stage of mine action;
- establish the specialized mine clearance organism;
- undertake the deminers' training;
- start making the population aware of the danger of mines.

This first phase will then permit to set up the Mine Awareness Education, the **Nation-Wide Mine Survey** and to provide the country with a real **National Mine Action Capacity**.

• **The second phase** is the consolidation phase that may go on for between 5 and 8 years. Like the former one, this phase is financed on an international basis.
- prepare for the transfer of expertise so that the locals may be autonomous at the end of this phase;
- adapt the organization in place to the local context, especially with regards to the «santé-EVASAN» program, including air evacuation,
- prepare for the transfer of responsibilities of the action program to the national authorities, regarding both training of the personnel and administration of national deminers, of contract management, of logistic support and communication strategies;
- update the minefield inventory so as to acquire a better knowledge and to prepare new rehabilitation programs;
- adapt and develop proximity mine clearance.

The second phase will correspond to the organization of the Angolan National Mine Action Institute which will be the last step of a whole process initiated in October 94 by the Angolan Department of Defense

• **The third phase** is the autonomy phase for the country that will take over the mine clearance program. This is the application in the real world of everything that was done before. This phase is financed by the country itself, and its success depends upon the political goodwill of the country leaders and the restoration of the country.
It will only come to an end upon removal of the last mine...

A DECENTRALIZED INTEGRATION

Integrating the various components necessary for the organization of a local mine action capacity requires that the program is as cheap as possible, that its scope covers as much of the most affected territory as possible, and that it becomes operational soon.
Most of the extensively mined countries are characterised by great migrations of populations and high demographic increase rates. While the first demining operations are usually conducted in the areas with the highest demographic density, those with the most resources and the most fertile soils, the most underprivileged populations will eventually have to rely on the exploitation of poor and remote regions for their survival.
Besides, mine clearance cannot be viewed as a mere emergency and military support program, as it will condition the whole development of the country in the future, especially because it is subject to very costly commercial contracts.
On the other hand, it is critical to establish local capacities in response to these situations of uncertainty, which do not raise much interest among the political and national decision makers, so as to eradicate the dangers that put the heaviest burden on the rural populations. These capacities should be established for the long run, in co-operation with local authorities and taking into account the existing initiatives and the motivations of the decentralized administrations and powers.
In short, the experience acquired in the past thirty or forty years spent assisting with development and mine action, the demonstrated advantages of decentralization and community approach all underline the importance of local mine action, which is just as essential as the action resulting from national co-ordination

3. MINE CLEARANCE SCHOOLS

A PRIORITY

It seems that for various political, technical and economic reasons, it is necessary to train local mine-clearance operators. The creation of local schools is one priority in the process of peace restoration. It represents a very important normalization symbol for the populations, as school represents the first tangible evidence of the end of the hostilities and of the co-operation among former adversaries.
Within this structure, the dangerous collective national restoration mission they will undertake is likely to arouse team spirit, friendship and solidarity. However it is not always considered a priority in countries where so much needs to be done for peace restoration. This training should then be integrated within a global mine action program set up and financed by **international aid**.

Future deminers should be chosen among demobilised soldiers from all the various factions so as to give a strict image of neutrality to the population. Not too much should be expected from their demining abilities, though, which are usually nil.
This is the reason why training and instruction should be the responsibility of **foreign civilian or military experts**.

QUALITATIVE AND QUANTITATIVE OBJECTIVES OF THE TRAINING

Both the quality and the quantity of local deminers guarantee the efficacy and quickness of a mine action program. All attention should then be drawn to the early organization of the training facilities. The cost for training a deminer depends on the program. It is estimated at $ 6,000. The experience drawn from Afghanistan shows that the cost for training represents between 4 and 10 % of the total annual budget of the mine action program. Such an investment should be made early enough so as to make it possible from the beginning of the program to cover expenses related to purchase of equipment and installation of the school. Thus the necessity to have a **sufficient and immediately available budget**.
The objective of the deminer training school in Luanda is to train as many as 3,000 mine clearance agents. Through the creation of humanitarian schools, some personnel could be trained in identification of mined areas and public information. The centre of Risalpur, where Afghan deminers are being trained in Pakistan, accommodated up to 77 foreign instructors who taught 20 classes in basic mine clearance simultaneously. In Mozambique, 200 indigenous deminers were trained within 6 weeks, with a student-to-instructor ratio of 6, which appears as the optimal ratio.

The scope of the training should be restricted to the actual needs of the country and adapted based on their

ability to learn. Detection, identification and destruction of some types of mines should be the main objective. **The trainees should not be expected to become experts in neutralization or to engage in destruction of specifically treacherous ammunitions presenting chemical or biological hazards.**

THE SCHOOL

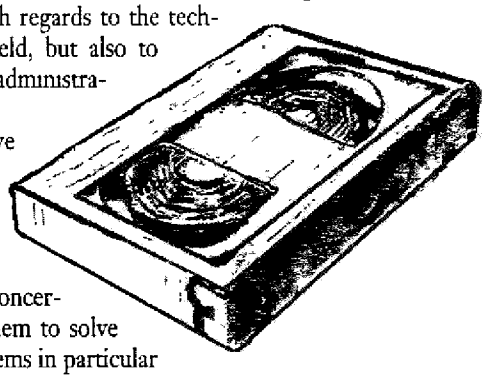
The creation of a mine clearance school is a priority requiring the co-operation and assistance of the country concerned. The school should be located in a vast area not polluted by metal objects, and if possible in the vicinity of a big city.
The site should have running water available, be supplied with electricity, be accessible via a decent road and if possible have housing facilities for the trainees. Health security, including means of evacuation, should be provided just like it is provided in regular worksites.
The school should be able to give a basic training but also to provide specialized tuition to the people who will be in charge of management and administration.

The trainees should be chosen among young motivated people very willing to acquire the bases of a serious and useful training However, they should not be selected based on school achievements, as they generally have no qualification. The average compensation offered to a local deminer is between US$ 120 and 150 per month This is a decent compensation that gives candidates an incentive and allows the individuals performing the selection to be particularly strict.
For psychological reasons, candidates who have been the victims of mines in the past should not be systematically discarded, provided their disability does not make them unfit and their psychological state is satisfactory. The issue of illiteracy of the trainees is not a major obstacle as training is based on the observation of sketches or equipment rather than reading, and on the practice of behaviors adapted to various situations.

The trainees should understand that unlike military practice, the success of mine clearance is determined by quality and not by swiftness. They have to learn meticulousness and acquire a good working method Although no longer in the military, the trainees should be trained to a strict discipline. Their activity is dangerous for themselves and for the others. The discipline of the team is linked to individual meticulousness. It is necessary to wear a uniform, not only for the sake of identification, but also to reinforce the cohesion within the group and its identification by the population as peace keepers.

THE PROGRAM

All mine clearance agents working in the same country must have received the same training.
As instructors might come from various origins, it is critical to make sure that they use the same methods. For this purpose, they should have the same training manuals, not only with regards to the techniques used in the field, but also to safety measures and administration.



Some NGO's have already started in this direction by taking advantage of their good integration within the countries concerned, which enables them to solve communication problems in particular

As an example, these are two typical training programs for local mine clearance operators. The first one is from the DHA; it is implemented in the main Afghan mine clearance school, in Alalabad (Pakistan). The second one is offered by NPA (Norvegian People Aid)

THE EXAMPLE OF D.H.A.

- basic mine clearance (individual training): 15 days
- surveying minefields: 15 days
- preliminary deployment (group and team training) : 10 days
- training of the instructors: 7 days
- training of the team leaders: 15 days
- training of radio operators: 7 days
- maintenance of mine detectors: 42 days
- driving lessons. 7 days
- refresher training[2]: 5 days
- para-medical techniques: 30 days
- training of dog-handlers: 60 days
- training of chief technician: 7 days.

THE EXAMPLE OF N.P.A.:

The training program offered by this great para-public Norvegian association is implemented in Mozambique and consists in three steps.
- 6 weeks of training in mine clearance followed by 8 to 12 weeks actual work in a minefield;
- 2 weeks of training for the team manager, followed by 10 months actual work as a team manager;
- 2 weeks of training for the chief technician, followed by 8 months actual experience as a chief technician in the worksite.

The instructors are very present at the beginning of these training programs but they are barely seen at the end. This principle is consistent with attainment of autonomy via training and transfer of expertise.

RECURRENT REFRESHER TRAINING

This is critical in such an activity, where the slightest weakening in competences may be fatal. The school should then provide the capacity to accommodate trainees for periodical and compulsory review sessions. The frequency of these sessions should be yearly, plus they should be completed by sessions in the field twice a year. The whole training is completed internally. It calls upon formerly trained local instructors, plus a small number of foreign experts.

The question as to **what type of equipment** the deminers should be trained on is an important one as it will determine the purchase policies. For safety reasons as well as for the sake of educational and operational consistency, it is recommended to use only one type of detector, and the same holds true for protective equipment and clothing. Obviously this causes co-ordination problems between the persons in charge of training and the supervising authorities.

Training indigenous mine clearance operators is an absolute priority The school may be unique, or, as is the case in huge territories like Angola, be divided up into several sites. In this case, the general organization of the training must be very strict and set by the main Centre for Training.

The creation of mine clearance schools must be an inherent part of national mine action programs.

As we will discuss in the following, because of the high cost of training, these schools should provide the trainees with a much broader intervention capacity concerning all aspects of the rehabilitation, and also with a very comprehensive knowledge of developmental techniques

Legal and financial aspects

1. OBLIGATIONS RELATED TO MINE CLEARANCE IN PEACE-TIME

PROTECTION OF THE ENVIRONMENT

In war time, the objective of mine clearance is often to guarantee the success of some military manoeuvre rather than preserve human lives. Detected mines must be disarmed, moved out of the field and stored for further military use. In such a context, casualties are considered «acceptable».
In peacetime however, the occurrence of casualties, usually in the course of humanitarian operations, is no longer tolerable. Mines must be detected and then destroyed so as to render any further use impossible. The objective here is quite simple, it consists in saving a maximum of lives, in limiting the number of injured and disabled individuals, in giving the local populations one more chance for development. The various measures involved should be implemented with great consideration for the environment and the safety of the individuals, whether inhabitants or deminers In fact, mine clearance should not contribute any further problems for the villagers such as extensive pollution (destroying explosives generates emissions of toxic fumes) or disabling of equipment, houses, roads, bridges...
In all cases, it is essential that the deminers take care of the damage caused by the destruction of explosives, particularly on roads and paths.
Finally, considering the fact that thorough mine clearance can not be achieved in any region, there will remain some prohibited areas where humans will have no access and that are bound to revert to the wild state, thus making it even tougher to clear them when the time comes.

OBLIGATIONS AND QUALITY CONTROL

Obligation in terms of achievements. Mine action programs impose on the project managers some obligations in terms of achievement. The efficacy of the measures taken should translate into the absence of casualties in so-called safe areas. This is all the more important that the villagers' confidence usually means a weaker watchfulness on their part. «Approximate» mine clearance then becomes a trap in itself, due to a **false sense of safety.**
The difficulty inherent to mine detection and the random characteristic of their scattering makes it impossible to guarantee full success.
Moreover, the awkward or evil-meant interventions of the individuals should also be taken into account:
- a villager might want to save some overlooked mines so as to protect himself and his cattle. Dangerous daily handling will cause an accident sooner or later which will be attributed to lousy conduction of mine clearance operation.
- a combatant, in a country such as Cambodia where peace is still frail, might lay more mines after completion of mine clearance operations, so as to maintain an insecure atmosphere, and to call into question the quality of mine clearance and, as a consequence, the quality of foreign assistance.

In such conditions, it appears as quite difficult to implicate the deminer when casualties do occur. Quality control, usually imposed by the sponsors, does not provide any guarantee. DHA (United Nations) defines and demands a very high quality level in its contracts: 99.6 %. This figure is arbitrary and it sets the tolerance threshold for properly completed mine clearance.

In actuality, this high threshold renders control impossible, as in theory, to achieve this level, the controller would need to inspect a sample zone where 1000 metal objects had been detected and removed, and he would still need to find four of them at the most.

As regards mine clearance, there cannot be any contractual obligation in terms of achievement, as is the case in transportation contracts for example. In fact, in order to meet the requirement for zero casualty after completion of mine clearance, three conditions should be met:
- **maintain a high level of prevention consciousness** within the populations who were informed about the danger and sometimes even, which might be advisable, make them participate in mine clearance operations
- **guarantee appropriate sign posting** around areas which have not yet been cleared
- ensure that the mine clearance operators perform their work with **professionalism**, competence and efficacy.

From this point of view, it seems more satisfactory to substitute the notion of obligation of means for the obligation of results.

Obligations in terms of means: in medical practice as a rule, the responsibility of the physician is not implicated as non-observance of some obligation of achievement. The physician is not required to achieve recovery but only to implement all the means he has available, in accordance with the most up-to-date scientific data. One justification for this principle that medicine is not considered an «exact science», and its successes and failures are both due for a great part to factors not accessible to the physician.

Although the comparison should not be too deep, the deminer is in a somewhat similar situation: he is always **responsible for his actions**, but **not necessarily for their outcome.**

The efficacy of mine clearance is in direct relation to the quality of the human, material and organizational means used. Discipline, observance of the rules, professionalism of the participants, their conditions of work, of life and of rest, their financial and material satisfaction, the assurance that in case of a casualty, all possible means will be implemented to rescue them, are all the guaranties for the success of the program

To these should be added the **quality of integration** of the deminers into the population, which not only guarantees the establishment of a secure climate but also mutual understanding, a factor that will help **maintain safety and vigilance** after the departure of the mine clearance agents.

The quality control therefore consists here in assessing the means implemented. The permanent presence on the ground or even the unexpected visit of an **independent expert** will provide a more reliable evaluation than any control of the achievements, if it examines:

- the quality of the equipment
- the competence of the personnel
- the quality of the demining techniques
- the keeping of the various diaries (daily log, monthly report, end of operations report...)
- the organization of safety squads
- the quality of hierarchical relations and of supervision in the field
- operational and logistic organization
- ...

An important point to underline is that the enterprises considered the **most successful in terms of results are those with the fewest casualties happening to deminers** This concept should be taken into account as a selection criterion for a mine clearance NGO or company. In any case, the controller should be selected based on strict criteria such as competence and professional independence. His contract shall be contersigned by the representative of the beneficiary State (National Mine Action Coordinating Structure) The appreciation of these specialists will be of the utmost relevance upon acceptance of the work done, which sets the time at which the State takes over responsibility for the casualties occuring in the area.

Control indicators:

All mines are not equal in terms of damaging potency, and it is very difficult to estimate beforehand the quantitative result of mine clearance operations using destruction of mines and unexploded ammunitions (by definition, this figure is unknown) This is the reason why it does not seem appropriate to include quantitative concepts among the clauses of any contract. The progression of a mine clearance worksite may be badly delayed by the presence of many metal pieces which, although harmless, will systematically need to be handled with as much precaution as actual explosive ordnance. On the other hand, the access to a several-mile-long road might be prohibited due to only a few mines that give the impression of some extensive pollution Removal and destruction of those mines may present some economic benefit not comparable to the cost of the work performed by the deminers.

Discussed above were the criteria used as a basis for quality control, depending on whether you are most concerned with achievements or with means. Although quality control remains a essential tool to assess the efficacy of a mine clearance program, the quantitative aspects should not be overlooked, even though the detection of a mere 100 000 mines appears as negligible as compared to the number of mines laid within the same period of time, well over 2 millions. The assessment of the productivity of mine action and especially of mine-clearing operations should solely be based on the number of lives saved, the number of casualties avoided and the total areas returned to normal conditions.

THE OBLIGATION OF RESERVE

In peacetime, a mine clearance worksite is similar to a humanitarian operation, or even a humanitarian public health operation The true purpose of mine action is not, per se, to remove mines, but to save human lives. From an ethical point of view, peacetime mine clearance is therefore bound to the same rules in terms of neutrality, impartiality and reserve as those ruling humanitarian enterprises with the sole purpose to keep them from being manipulated by such or such faction The populations should be the main beneficiaries of mine clearing operations, particularly in more remote and underprivileged areas. Mine clearance is a tool for peace, an essential preliminary condition for the implementation of development policies. The future of the whole country is concerned and therefore mine clearance should not be at stake in terms of power.

Therefore, the deminers are bound by obligations of absolute political reserve. Their only relationships with the delegates of public authorities and with local chiefs, either institutional or not, should be strictly limited to the technical and humanitarian aspects inherent to their mission. Their behavior should no be the expression of any partial preference or give rise to interpretations, rumors or manipulation. Most frequently, this problem arises when indigenous deminers or assistants are being recruited. As the providers of well-paid local employment, mine clearance operators are extensively called upon.

These appeals however should not significantly alter the criteria for selection which are.

- how representative of the former combatants are the candidates
- the technical competence of the candidates
- their ability to acquire initial or complementary professional qualifications
- their sense of discipline and rigour

The presence of medical staff in the field should be utilized to take on voluntary assistance and health care missions for the benefit of the populations, possibly recruiting local health care assistants in some cases, while still being careful not to display any derogatory attitude.

However, the obligation of reserve has its limits. both for the deminers and for the volunteers of the humanitarian action and the doctors. The deminer often embodies (actually, always does in the case of a peace keeping program) a political will towards international safety. His obligation to testify may then , in some circumstances, stand against his obligation of reserve when he becomes aware of acts that jeopardise the safety of individuals, the Law and Human Rights. Finally, it is quite obvious that the project managers should consider the safety of their personnel in the field as their first priority, even though this should mean delaying or interrupting the course of a program.

A SPECIFIC MEDICAL STRUCTURE

On an average, one mine action casualty occurs every 1000 mines, one serious casualty every 2000 mines. and one fatality every 4 to 5000 mines. This highlights the necessity of medical support of mine clearing operations. This support was long overlooked, as if casualties were unavoidable and health care ineffective. It is true that in war, the victim of a mine is most of the time doomed, due to the other risks of war, to the insufficiency or late arrival of health care on the front, of the slowness of evacuation to the civilian zone. In peace time, the situation is different and appropriate medical support can be established and implemented.

Medical support. It consists of one physician. and several nurses more or less numerous depending on the number of worksites and on the means of evacuation. One nurse is assigned to each section or each worksite, and he is in charge of emergency health care. There should be as many nurses as operating worksites. The physician has the power over the whole plan of action related to the location of the worksite He must be present throughout the working periods and possess a good experience in surgery. His main mission consists in sustaining the vital functions of the victim and getting him / her ready for evacuation. When the worksites are operating, he should always have a fast mean of evacuation available (ambulance, helicopter, aircraft..)

Chances of survival depend for a great part on the time it takes to reach the hospital: the maximum chances are guaranteed for interventions completed within less than 6 hours. The hospital should be equipped with the necessary surgical means and material to permit effective intervention within the shortest possible time.

The task of the physician then consists in considering the various local alternatives to combine **swiftness of evacuation with quality of medical care**.

Several hospitals should have been examined in advance with regards to their intervention capacity They should be reachable by radio. Administrative procedures should be set beforehand in the form of conventions to avoid administrative issues delaying admission of the patients to the hospital. In some cases, sanitary evacuations will be necessary on long distances (ex.: Johannesburg in Angola).

Evolution of the number of mine clearance casualties since 1990 (in Afghanistan).

YEAR	1990	1991	1992	1993	1994	1995 (6 mths)
Total number of operators	500	1 500	1 800	2 100	2 800	2 800
Number of operators killed	2	10	11	6	10	2
Number of blind or amputated operators	6	6	27	31	25	9
Number of operators slightly injured	15	2	15	20	16	18

(From. UNOCHA Mine Clearance Programme)

LIABILITIES AND INSURANCE

Insurance coverage for mine clearing operations in peace time is a specific legal domain not provided for by the industrial legislation or the Jurisprudence. Three types of risks are to be considered: casualties concerning the deminers, casualties concerning outsiders on a worksite, and finally casualties that could occur due to unexploded mines and other ordnance on a site that had been depolluted and classified as «safe». Legal international principles impose the project manager with the obligation, whichever his status might be, to take on the responsibility of the damage caused by his activity, with regards to both work-rela-

ted accidents and to accidents to outsiders (civil liability). By no means could a sponsor (such as the European Commission) be implicated. As for accidents that could occur in so-called cleared zones, the beneficiary State will have to take on the legal repair of the accident as soon as they have acknowledged completion of the work in compliance with the national mine action program.

INSURANCE AND SOCIAL SECURITY COVER OF THE DEMINERS

The company or NGO executing a mine clearance contract should then be particularly cautious about properly insuring their operators and their activity. Mine clearance is not a common job, and industrial injuries, when they are not fatal, are usually very seriously disabling. In Kuwait, where 7 million mines had been laid during Gulf War, 84 experts from the mine clearance squads were killed or injured. At least 41 persons died in the course of mine clearing operations performed by the UN in Afghanistan between 1990 and 1995.

This underlines the necessity to draw all attention to the social security cover of a demining operator. **Expatriates** face even higher risks of death or injury during the course of their missions It would be unfair to expose them to such risks without appropriate insurance or to send them back to the care of the social institutions of their home countries Generally this problem is solved by specific contracts offered by the main western insurance companies. However the problem is not always taken care of for expatriates from countries outside of the western world, and whose situation is similar to that of **mercenaries**
This is the case of professional demining operators from India or Pakistan. Furthermore, the policies offered to demining personnels remain very uncertain. It is quite common to see companies or NGO's «skip over» these specific risks and restrict their coverage to civil liability for damage caused to third parties. Some hiring contracts for **local demining agents** provide for compensations in case of casualties resulting in total or partial disabilities, either temporary or permanent. Evaluation of these guaranties and therefore, of the allowances, is left to the care of local laws and is sometimes «phoney».

MINIMAL DUE GUARANTIES:

The insurance should cover
- **all health- and surgery-related expenses,** evacuations towards the hospital agreed upon in the safety plan of action, evacuations towards more distant structures and if necessary, repatriation towards the home country.

- **death- and disability-capitals** (loss of the eyes, of a limb...), determined according to the criteria in use in western countries for the expatriates and those of the beneficiary State for local operators

- **a disability pension** for total temporary disabilities, equal to 75 % of the gross weekly wages, for a duration of up to 104 weeks

TOTAL AMOUNT OF THE PREMIUMS

- for an expatriated demining operator actually working in the field in mine and ammunition detection and destruction, a specialized insurance offers a guarantee in the form of a 150,000 ECUs allowance, a medical-surgical-evacuation guaranty of 250,000 ECUs as well as a 280 ECUs weekly pension for 104 weeks, for an annual premium of 7,500 ECUs.

- for the same level of guaranty, the annual cost of the premium for an expert supervising mine clearing operations with no personal risk goes down to 4,500 ECUs. This example was provided by a British company who employs many mine clearance specialists of Indian origin. Obviously, the amount of the allowances and pensions may be higher or lower, with the annual premium varying in proportion. It also varies depending on the number of insured people, as it is relatively more costly to insure one single person, for example an expert-controller, than a full team

- another European commercial company offers a 5,000 ECUs premium for a one-year guaranty for demining experts working in the field in a treacherous situation.

Insurance of mine clearance operations should be subjected to a specific codification which does not exist yet and which could derive from the positions taken by the most reliable intervenors. In this kind of activity, all different aspects of the fight should be taken into consideration, each presenting a specific level of danger. Before this normalization is achieved, it appears as necessary to make sure that the sponsors, as they have a moral responsibility, request by contract that the demining organizations provide the best possible insurance to the operators, no matter what their origin might be.
The amount of the premium in this insurance will be clearly indicated in the contract proposal. The ideal would be for the International Industrial Bureau to consider this issue and give recommendations with regards to working conditions, insurance and social security cover.

2. ORIGINS AND STRUCTURE OF FINANCING

THE COSTS

The cost of mine clearance is huge. According to international experts, the cost for identification and destruction of one mine is between $ 300 and $ 1,000. The **United Nations Organization** estimates the destruction of all mines strewn on the face of the Earth to be close to $ 33 billions Moreover, a program this ambitious would take ages to be completed.
Removal of 84,000 mines, which is the total of all mine clearing operations in 1994 cost the International Community $ 80 million. The estimates of the United Nations for mine clearance is $ 70 million per year, to maintain approximately 5 000 demining operators in the field. If new projects are taken into account, the total could reach up to $ 100 million. With regards to the Angola program itself, $ 12 million will be necessary for the creation of the mine clearance school and execution of mine clearing operations by local operators for a period of 18 months. Obviously this will not be sufficient to provide support to the country until it reaches its full autonomy.

The cost of mine clearance includes the expenses related to supervision, training, equipment, communication, medical support and insurance. Today we have sufficient experience to look back onto and estimate the cost of some operations.

- clearing one square meter of roadway costs approximately $ 1
- clearing one km of electric line costs approximately $ 1,000
- clearing one hectare of ground costs approximately $ 2,000
- a single program such as the Afghan program requires 3,000 operators and costs approximately $ 25 million per year
- training of a demining operator costs approximately $ 6,000
- as for damages, the average cost of an amputated individual (care plus prostheses) ranges from $ 3,000 to $ 5,000, depending on the country, to which should be added the loss of productivity of the disabled individual, as well as the cost for his reintegration or assistance

Cost of the various components of the worksite:
The contracts of the E.C. set the amounts of the compensations for the various types of personnel.

- for a three-month mission, an expatriated explosive expert and co-ordinator is compensated on the basis of 6,000 ECUs per month, for an expatriated project manager. 5,500 ECUs, for an expatriated operator: 4,500 ECUs
- The budget allocated to land transportation (rental and maintenance of vehicles) is calculated based on rental rates ranging from 3,000 and 4,000 ECUs per month (Mozambique).
- The air transportation service for EVASAN amounts to 7,000 ECUs per month and corresponds to an aircraft remaining on duty during periods of operations of the worksites.
- To these budget items should be added all the means of detection, of mine clearance, of telecommunication and logistics, estimated overall to 12,000 ECUs per month and per team.

The cost of mechanical mine clearance:
The following example was provided by Colonel Focsaneanu (CMAC) in order to compare the economic advantages of mechanical mine clearance. He compares the costs incurred for clearance of 100 sq Km·

- if performed by 40 squads of 30 operators each:

$ 70 million, duration: 10 years

- if performed by 40 squads and 4 flail machines·

$ 26.5 million, duration: 3 years.

SOURCES OF FINANCING

THE UNITED NATIONS

Whether humanitarian operations, peacekeeping operations or restoration of the infrastructures of a country, the mine action programs financed by the UN are executed either by NGO's, or by private commercial in response to offers to tender. A number of organizations linked to the UN participate directly in mine clearing operations and related activities. UNICEF, UNHCR, PAM, PNUD and WHO have been active in emergency mine action, particularly with regards to the critical area of public information.
Funds usually stem from appeals to donor countries. In the past, UNO arranged programs in Mozambique, in Afghanistan, in Cambodia, and in Angola. Besides, the Organization will provide assistance to Ruanda, Georgia, Chad and former Yugoslavia within the next 12 months
Implementation of these programs will require financial means in excess of $ 65-70 million.
In July 1995, an international conference organized by the UNO in Geneva was dedicated to the issue of mine action. The secretary-general estimated the immediate needs corresponding to the commitment of member states to amount to $ 87 million. He requested that they gathered the necessary resources to replenish the Voluntary Trust Fund for Assistance in Mine Clearance created in 1994. This fund, with a current balance of $ 21.6 million, includes a $ 7 million fund allocated to emergency operations and thus immediately available.

THE EUROPEAN COMMUNITY

The European Community became involved as soon as 1992 in financing emergency mine clearing operations, then from 1994 on, into depollution operations related to rehabilitation and development programs. The EC was the main donor in the Afghan program which concerns priority zones vital to the economic rehabilitation of the country. Most of the time, European financings are the ones that permit implementation of the UN programs Since 1992, the EC has made huge sums available for mine clearance programs, for a total of approximately 30 million ECUs (approximately $ 42 million).

FINANCING OF MINE CLEARING OPERATIONS BY THE EUROPEAN COMMUNITY SINCE 1992

COUNTRY	PERIOD	AMOUNT IN ECUs	INTERVENOR
Afghanistan	92 to 95	15 million	HALO.DASA. ATC. OMA. MCPA
Cambodia	92 to 94	4 8 million	HALO. MAG. COFRAS*
Iraq	92 to 95	4 9 million	HI. MAG
Mozambique	92 to 94	1 9 million	LONRHO
Somalia	92 to 93	0.87 million	MSF (NL)
TOTAL 92 to 95		**27.5 million**	

** whose mine clearance activities were taken over in 1996 by CIDEV*

Within the scope of the Foreign Policy on Common Security, the European Union adopted on May 12th, 1995 a common decision of action related to anti-personnel mines. This decision provides for a moratorium on the exportation of antipersonnel mines, a common approach for the conferences dedicated to revision of the 1980 Convention (in Vienna in 1995, then in Geneva in 1996), and finally the reinforcement of the action of the Union and its member states in the area of mine clearance. On July 6th, during the Geneva Conference on mine clearance, the (Spanish) Chairman of the Union announced the participation of the Union to the aid funds in excess of 3 million ECU's, as a complement to the participation of the Member States. This sum will be allocated to assistance in the form of «information within the countries concerned, training of mine clearance specialists and instructors (...) or direct participation in mine clearing operations. The decision to carry out such specific action shall be subjected, for each **operation**, to approval by the European Union Board.»

The common decision of action adopted on May 12, 1995 enables the Western Europe Union to be called upon as military expert of the European Union in regard to mine clearance.

THE ORGANIZATION OF THE AMERICAN STATES (OAS)

Since the May 23, 1992 resolution regarding various aspects of peace return in the countries of Latin America, many mine clearing operations have been organized in Nicaragua, Honduras, Costa-Rica, Guatemala and El Salvador. These operations were financed by the OAS with direct support form the United States in the training area. During the July 1995 conference on mine clearance held in Geneva, OAS estimated that pursuing the operations in those countries requires financing up to $ 14 million for an ultimate period of time of between 6 months and 2 years, depending on the country.

BILATERAL INTERVENTIONS

Among all bilateral interventions, that of the United States is the most significant. It has been constantly increasing since 1992 via the mine-clearance assistance program and the inter-agency working group for mine and mine clearance control. In 1992, $ 8.4 million were allocated to that purpose via USAID. This allowance almost doubled in 1993, and in 1994 it amounted to $ 17.9 million. It should reach $ 25 million in 1995, among which 20 % allocated to research. The main beneficiaries of this aid were Mozambique, Erithrea, Afghanistan, Namibia, Nicaragua and Cambodia.

The overall effort of the international Community has been estimated to $ 150 million per year on an average for 5 years. This figure is to be compared to the $ 33 billion necessary to definitively solve the problem.

THE POSITION OF THE WORLD BANK

To date, the World Bank has refused to commit financing to mine clearance, because they argued this was a strictly military issue the Bank had nothing to do with. This position has recently changed, especially with the process of peace restoration in Angola and because of the evidence that mine pollution inhibited the execution of any development program Mine clearance is now considered a phase of ground preparation. Mine clearance also appears as a useful economic activity which offers an opportunity for demobilised soldiers to turn to new types of employment, for the benefit of civilian populations. This kind of demobilization-reconversion operations benefited from financing by the World Bank in the past, in various African countries and in Argentina. However, despite their good will, the World Bank wishes to maintain their freedom of decision so that financing for mine clearance programs will be debated upon for each case independently.

Strategy of the European commission

The role of the **European commission** in the huge humanitarian operation which is the fight against mines on a world-wide basis should be in accordance with the terms of a very clear strategy. For this purpose, it is necessary to draw lessons from past experience and use the data at hand to the best. The current strategy, which favours mine clearance per se, leads to a dead end.

1. THE FUTURE

NEW THEATRES OF OPERATION

Besides the ageing worksites that were formerly mentioned in the present document, it will become necessary to consider the emergence of new theatres of operations for mine action. This is currently the case in Angola under the supervision of the UN, and it will soon be in Namibia, Liberia, Erithrea, Sudan... Countries from former USSR where civil war is raging will also need to be subjected to massive depollution programs, in Tchechenia, Georgia, Tadjikistan, Armenia...
However, ex-Yugoslavia will be the main focus of international attention. Indeed, it is expected that depollution of Croatia and the new Croato-Bosnian federation, which is ready to start just now, will mobilise over $ 150 million.

RESEARCH AND DEVELOPMENT

The future of mine action implies that the operators have moderns means available to replace the manual methods currently in use, which are slow, tedious and old Modern means should enable them to perform fast and cost-effective mine clearance, in accordance with the financial requirements of huge worksites. Many studies are currently being carried out.
(The various areas of research are detailed in **appendix 8, page 81, «Research and Development»**).
The reader will also profitably refer to the outstanding study by the Joint Research Center of the European Commission published with the title : «Localization and Identification of Antipersonnel Mines», 1995, ISPRA n° 9501. **(See appendix 9, page 83)**.

These technological approaches are not expected to replace the still prevailing manual method in the near future. Unfortunately, research in this area is not supported by the international institutions concerned, especially European ones. The **World Bank** is planning to allocate a budget line to this research activity. Interestingly, the Government of the **United States** is also planning to allocate 20 % to the research activities of the budget to mine action (bilateral actions, which represented $ 25 million in 1995).

2. A DEAD END

Current mine clearance methods, as discussed above, are not suited to the budgets available, and they do not permit a productivity achievement in proportion to the extent of the problem. They do not even give a chance to reach an annual rate of destruction equivalent to the number of newly laid mines. In order to treat over 2,000,000 units, it is necessary to:

- Multiply fifty-fold the current demining capacities: With respect to technological level, this implies training between 250,000 and 300,000 new operators. Since the training cost for each demining operator is $ 6,000, a training budget of between $ 1.5 and 1.8 billion would be required, which is **twenty times as much** as the sums currently dedicated to humanitarian mine clearance.

- Accept the hazards linked to the growth of this activity. Indeed, one casualty is to be deplored every 1,000 mines, and **one fatality every 4,000 mines**. To achieve actual reduction in the number of mines, one should expect 2,000 operators to get seriously disabled and 500 to be killed each year. Obviously such figures are unacceptable in a peacetime activity, especially due to its humanitarian nature.

- Finally, accept as mere fate the fact that modern techniques and their application in this area are bound to fail We believe that such a «fatalistic» position, adopted by some experts, requires caution In fact, some experts claim that the only efficacious techniques are the ones that have been extensively tested since 1918; others believe it is best to commit into as many mine clearing operations as possible, using the equipment

currently available, without waiting for some technological revolution to change the mine clearance market drastically. Actually, the only sensible position consists in conducting traditional mine clearing operations wherever depollution is badly critical, using all possible restrictions, while developing all preventive measures until a new generation of mine clearance techniques emerges is born.

We would like to make a comparison, if we may, with the area of Public Health. This is with respect to AIDS. The fight against this disease imposes two different strategies: the first one consists in searching the means to either destroy or neutralize the virus, the second one consists in educating the populations so as to limit the risks of contamination. When the time comes, the authorities will set up an overall policy for eradication of the disease which will resort to various modes of action, vaccinations, chemotherapy...

The same holds true with respect to mines. Today our means of action are in a dead end because they are not suited to the needs. Therefore, it is essential that we simultaneously increase our effort in research and develop preventive strategies against this plague of the modern ages that will have to be eradicated eventually. We would like to add that if the 20,000 to 30,000 annual casualties caused by mines were all westerners, mobilization of research, imagination, energy and financial resources would possibly have led to faster implementation of effective means of effective new technologies.

3. THE GLOBAL APPROACH

The European community, in front of this situation, should become slightly less pragmatic and define the conditions for its intervention so as to achieve the best «humanitarian productivity».

For this purpose, we suggest that a number of technical, social and ethical measures be taken into consideration in all mine action contracts, and that each of the various operations identified within this document be the subject of a specific contract executable either individually or as part of a complementary association. Finally, it seems essential that these rules could translate into the global distribution of the European financing allocated to the fight against mines.

BASIC DATA COMMON TO ALL CONTRACTS

Note. what is meant by «operation of ***fight against mines****» are the four modes of intervention formerly defined mapping and marking, information and training of the populations, training of local mine clearing operators and mine clearance itself*

- get involved in mine action only in countries which have reached stability in terms of political situation and ended the conflict by a **peace treaty or cease-fire.**

- get involved in mine clearing operations only in order to face **ultimate humanitarian emergency situations** or to make possible the implementation of a **vital rehabilitation or development program,** with fast economic effects (agricultural crops, land transportation, opening up of some regions...)

- outside these two cases, get involved in mine action only if it is the outcome of a **global and detailed estimation of needs** expressed in order of priorities and of a **program planning** on both the middle and the long term, indicating the relative importance of all means of action.

- get involved in mine clearing operations only under the condition that the operation is clearly **integrated within a national program** co-ordinated either by the beneficiary government or by an international institution mandated for that purpose

- get involved in mine clearing operations only under the condition that it could eventually be **taken over by the beneficiary country** itself

- get involved in mine clearing operations only under the condition that the grant allocation or contract could be accompanied by an **estimation** during the course of execution, and by an **expert appraisal mission independent** from the contracting NGO or company, conducted upon expiration of the contract.

THE VARIOUS TYPES OF CONTRACTS

There are seven of them and they correspond to the whole of the mine actions eligible for European financing.

- **The contract with the national authorities** is about the technical and administrative clauses ruling the operation, and the obligations of the beneficiary State.

- **The initial mine-action campaign feasibility contract.**

The objective of this extremely relevant contract is to estimate the cost and duration of a program, to set the **priority order** of the actions to undertake and consequently of the **techniques to implement.** This study will also permit to determine whether all social, economical and political conditions are met.

• **The mine clearance contract** as it is currently used. This contract can take three different forms depending on whether it is about **humanitarian mine clearance**, «**accompaniment mine clearance**» for an (intensive) development project, or a **large scale mine clearance** (either proximity or extensive).

• **The quality control contract.**
It serves to assure the beneficiary State and the donors that the operation was conducted for the right purpose.

• **The population warning, information and training contract.**
It will specify and standardise the objectives and **educational techniques.**
In fact, although keeping of great local adaptation capacity, it will obey strict principles and rules, as for a **public health campaign.**

• **The research, identification and prohibition contract.**
It will impose the implementation of safe and reliable **modern techniques** for **map making, stake marking** and **location.**
Many conspicuous gaps still remain in this area, which the modern techniques should help fill up.

• **The contract for appraising the social and economic outcome.**
This contract is complementary to the former ones. Indeed, the sponsor must not only be informed of the **quality of the work** performed by the main contracting party, but also have access to an **estimation of the benefit generated** by the operation with respect to the populations.
Economic evaluations carried out years after the end of a mine action program should be provided for.

These six contracts are complementary and they can be fulfilled by **commercial or community operators.**

Their standardization and diversity will give rise to more specific offers to tender concerning one or several items. In the latter case, the tenderers will be obliged to form a consortium, which can only have beneficial consequences in terms of prices and final outcome of the operations

The Research & Development contract.
The clauses for this last contract will have to be specified with great care, because this contract is of a totally new type, and its purpose is to enhance research in the area of demining techniques.

In the interest of the populations affected by mines, it is necessary that financial and political supports be provided to the companies which are seeking a technological and industrial solution to this humanitarian issue.

BUDGET DISTRIBUTION

As an example, and without any commitment on the part of the European Commission, the authors propose the following distribution of the budget which could be used for planning the fight against mines for the next five years. Besides, they suggest that the total amount of the financing allocated to this purpose be significantly increased from the current 10 million ECUs to 30 million ECUs from the next fiscal year on

Distribution by areas:

Training & mine clearance	55 %
Map making, Surveying	20 %
Warning, Information	10 %
Research and Development	15 %

Mine clearance itself is divided up into:

Emergency humanitarian operations	10 %
Intensive mine clearance, rehabilitation and development operations	15 %
(Extensive) proximity mine clearance operations	25 %
training	5 %

Geographical distribution:

Croatia and Bosnia-Herzegovina	1/3 (5 years)
Africa	1/3 (10 years)
Far East, Latine Am., Ex-USSR	1/3 (10 years)

With this global approach for the fight against mines and unexploded ammunitions, aftermaths of recent regional wars, the European Community gathers an array of means of action and therefore has the possibility to adapt its endeavours to the actual needs of the populations at risk.

Conclusion

As a conclusion, it appears that the European Community should not become involved in the fight against mines at any price. The point is not to do just like the others, to follow such or such leader or expert in virtue of tradition or experience; the point is to adopt a sensible and exemplary position which praises both the rationality and humanism of Europe. Nobody to date may claim that they have the solution to such a complex issue. Military expertise itself provides but a restricted solution.

It might be argued that the authors neglect the short run in favour of the long run, and that they place too much hope in technology and sciences. Indeed we firmly believe that to solve a technological problem, you should call upon appropriate technological means of a superior level of knowledge and development. We believe that techniques, and consequently technologies and modes of action of a new generation will help face the challenge that the science of death and destruction has presented to us.

Until then, the maximum should be done, not only to remove mines, but to reduce the number of casualties. As a «humanitarian» operation, mine clearance, whether for emergency or development, is more about the human person than about mines themselves. There can be no exception to this principle. The aim should not be seen in terms of figures (number of mines to be destroyed, depolluted areas...) but rather in «humanistic» terms: preserve the individuals' health and life, give a new chance to a community and reinforce a newly restored peace.

Destruction of treacherous devices is a means, not an aim.
Preventive measures should therefore not only accompany mine clearing operations but also precede them. It will be noted that these «soft» operations, when conducted with modern techniques and in a professional manner, usually guarantee relative safety to the inhabitants of risky regions. Very often, this safety is based on the participation of the people, and is by far greater than in cases of poor-quality mine clearance.

The operations that go along with surveying and mine destruction should then be given all attention. Until the emergence of new efficient mine-clearing means, these operations should be regarded as actual means of action, and not as mere side-measures.
This should be the main tenet of the European Commission.