ICRC International Committee of the Red Cross

Annex III: The role of the Red Cross and Red Crescent Societies in response to technological disasters

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PREAMBLE

The objective of this document is to describe the effects of technological disasters, notably chemical and nuclear disasters, and the appropriate roles of, and actions by, National Societies

The policy-making bodies of the National Societies are the main target group.

Like any global document, it deals with generalities. Its conclusions need to be judged against the situation of each National Society.

1. Executive Summary

In recent years the world has seen an increase in the number of technological accidents and disasters, accompanied by deaths, material losses and dangerous environmental pollution. Several conditions may lead to a further in crease in the vulnerability of populations to technological disasters.

Technological disasters are defined here as resulting from the release of chemical or nuclear material or* ionizing *radiation into the environment (disasters as a result of the use of chemical or nuclear weapons are not considered in this document) .

Although every disaster - be it natural, technological or conflict - is unique in itself, technological disasters may create an extra dimension. In almost every country in the world chemical and/or nuclear material is used, yet the probability of technological disasters occurring is very dependent on human factors.

Unlike many naturally triggered disasters, the occurrence of technological disasters cannot be predicted. This type of disaster may happen everywhere and at any time. Minor technological incidents can turn suddenly into major accidents and disasters. All of a sudden, communities - even in countries far away from the actual site of the disaster - may become *involved as* victim of this disaster. The Bhopal chemical disaster and the Chernobyl nuclear disaster are striking examples.

At several international meetings (e.g. the International Conference of the Red Cross in 1986 and the Regional Conference of European National Red Cross and Red Crescent Societies in 1992) participation of National Societies in relief activities for the victims of technological disasters was recommended.

But, what should be the role of the Federation (National Societies, the Secretariat and the delegations) in another " Bhopal " or " Chernobyl " ? What can National Societies do and what can they not do? For instance, are National Soc ieties able to work in contaminated areas? Do National Societies have to limit themselves to their traditional roles or are they able to take up new roles? How should National Societies prepare themselves for technological disasters and what kind of support can be given by the Secretariat?

The document gives information about the different aspects of technological disasters, their potential risks on the health of the affected population, aspects of relief operations and the possible roles of the National Societies and the Federation s Secretariat. In the annexes some background information about technological disasters is given.

It is recommended that National Societies should only work in sectors where they have, or can build, competence, and where they can provide auxiliary support and additionality to the disaster response system.

2. Why should the Federation be concerned with technological disasters?

In 1986 the Twenty-fifth International Conference of the Red Cross adopted the resolution " Disaster relief in case of technical and other disasters " (Resolution XXI). In this resolution the participants of the Conference recommended that " the League and the Henry Dunant Institute undertake a study concerning the possibilities and the necessities of improved assistance from the Movement in case of technical and other disasters " . After the 1989 General Assembly a " Study on the role of the National Societies in the event of technological disaster " was started. This present document is a direct result of the Study.

In recent years the world h as seen an increase in the number of technological accidents and disasters, accompanied by deaths, material losses and dangerous environmental pollution. At any time technological incidents can turn suddenly into major accidents and disasters. Damaging situations of this kind can also occur below the threshold of disaster, which require immediate and preventive action on the part of all agencies called upon to help. Immediate action may prevent a (major) accident from becoming a real disaster.

The effects of major accidents and disasters may - independently of where they occur in one State - spread to the territory of other States. These kind of accidents and disasters require special and additional measures of prevention, assistance and mutual information and support, which must be planned and carried out both by States and by (inter-)national organizations.

Rapid industrial growth in developing countries combined with (often imported) new technology, lack of legislation, inadequate supervision of safety procedures by public authorities and the lack of or insufficient training of local workers are some conditions for an increasing risk for technological disasters.

Developed countries are faced with outdated nuclear and chemical installations and in industrial States with rapidly changing social and political systems there is often little chance of these installations being renovated or rebuilt.

In almost all countries of the world many people live in close proximity to chemical or nuclear installations, often forced to do so due to poverty or ignorance of the danger. Moreover, millions live near rivers, railways and roads, along which chemical or nuclear materials are transported.

Nuclear and chemical disasters are " cross-border " disasters. People living in neighbouring countries (and sometimes even in countries which are much further away) may become v ictims of technological disasters. Any of these conditions may lead to an increasing vulnerability of the population to technological disasters.

Based on the Fundamental Principles, the International Federation of Red Cross and Red Crescent Societies endeavours, in its international and national capacity, to prevent and alleviate human suffering wherever it may be found.

From the humanitarian perspective, the cause of any disaster - be it technological, natural or conflict - is of secondary importance. What is important is that Red Cross/Red Crescent actions, as described in the Strategic Work Plan for the Nineties, should seek to assist the most vulnerable and reduce their future vulnerability. Furthermore, like any professional organization, the Federation should work in sectors where it has, or can build, competence, and where it can provide auxiliary support and additionality to the disaster-response system.

The objective of this document is to describe the potential risks *of technological disasters, notably chemical and nuclear disasters, and the appropriate roles of, and actions by, National Societies* .

Like any global document, it deals with generalities. Its conclusions need to be judged against the situation of each National Society.

The document is a tool to help National Societies:

* to understand the diversity and nature of technological disasters,

* to decide whether involvement in technological disaster response is a priority for them, and

* (if it is a priority) to decide upon the role they may play in technological disaster response.

Comments on the documen ts and suggestions to improve the support by the Federation s Secretariat and Delegations in technological disasters are welcomed and should be addressed to the Federation's Secretariat in Geneva.

3. Some considerations about technological disasters

Technological disasters are defined here as resulting from the release of chemical or nuclear material or ionizing *radiation into the environment* .

The probability of technological disasters occurring is very dependent on human factors. The nature of technological disasters means that the technology and procedures to deal with them are often improvised on an ad-hoc basis for each disaster that occurs. Responses to technological disasters in impoverished countries remain severely limited due to lack of resources, and the failure of those who impart technology to the developing world. This places them outside the scope of most countries disaster preparedness plans.

Technological disasters may have both a short- and a long-term impact on people and the environment. The short-term impact on people happens immediately or within a few days after a disaster, for example injuries (wounds and burns), poisoning, and radiation disease.

Often people have questions about the long-term impact of the incident with regard to their future health or well-being. These questions have to do with the possibility of mutagenic or carcinogenic effects and possible genetic defects in their offspring. It must be clear how future exposure to contaminating agents will be stopped or limited to safe levels.

Radio-active particles, gases and aerosols are carried by air. Oft en, this material is spread over a large area. After the Chernobyl disaster radio-active material was found as far afield as northern Canada. Such aerial pollution is impossible to contain once the hazardous substance has been released, though dilution of the pollutants will depend upon the prevailing meteorological situation (e.g. in a coastal area with strong winds gases will be diluted in a quicker way than in areas without wind). The hazardous material may affect people mostly not with direct effects but with questions and fear.

Radioactive particles and liquid or solid chemical substances may come into the water and be carried by it or dissolved by it. Toxic effects on people are possible when contaminated water is ingested.

Also hazardous material can be stored in soil. Usually the exposure will not be in a range where immediate health effects can be expected. However - especially with contaminated food products - preventive levels can be exceeded.

Short- and/or long-term contamination of organisms living in the water is possible. The hazardous material will enter the food-chain. For instance, fish living in contaminated rivers will ingest or absorb the toxic material. The toxic material may cumulate in the fish; eating contaminated fish may result in an increased body burden.

A well-known example is the accumulation of mercury in fish. Persistence and accumulation of pollutants in ground water is also possible. The effects on people may not be caused by the same substance as the short- and long-term effects on the environment. The disaster in Schweizerhalle (Switzerland) for example had some minor short-term effects on people from the gases released at the explosion, but the effects on the environment were caused by the chemicals released into the river.

Some disasters have short- and long-term effects on the environment but do not affect people directly.

4. Risks of technological disasters

4.1 Health risks of chemical disasters

The risk of acute exposure to chemical agents is not limited to people living in the vicinity of chemical installations or storage facilities. During the transport of chemical substances by road, rail or water accidents may happen, whereby people can face a direct threat. Moreover, during the disaster relief operation relief workers can be affected when no proper protective measures have been taken.

Exposure to chemical agents can be jeopardized by the release of combinations of chemical agents or the release of pyrolytic or combustion products due to heating. In such situations, victims with different or combined injuries can be found. For instance, in case of fires, people with burns will be found, explosions will result in mechanical traumas, and poisonous gases can result in respiratory problems.

Various situations may lead to the release of chemical agents:

* manufacturing, processing or storage accidents;

* transport accidents;

* accidents during use of chemicals (e.g. by ignorance of used substances, handling error, inadequate mixture or storage);

* natural catastrophes and armed conflicts leading to damage or destruction of chemical installations.

4.2 Health risks of nuclear disasters

The risk of acute exposure to nuclear radiation is also not limited to people living in the vicinity of nuclear installations or storage facilities. People living along roads, railw ays or rivers and relief workers can be affected.

Contrary to mechanical and chemical injuries, acute life threatening situations will occur very rarely after exposure to ionizing radiation, although in combination with other injuries (e.g. due to an explosion) obviously acute life-threatening situations may occur. Treatment of vital injuries has a higher priority than evaluation of possible radiation injuries.

Only in case of an explosion and/or big fire in a nuclear reactor, one may expect a large group of people with an acute radiation disease.

Various situations may lead to the release of radioactive material:

* accidents with nuclear installations like nuclear reactors;

* accidents with radioactive sources (e.g. during transport). These sources can be divided into open sources and closed sources. From an open source radioactive material can leak; over-radiation may occur by closed sources.

People can be exposed to:

* external irradiation (whole body or parts of body);

* external contamination (radioactive particles on the skin or clothes);

* internal contamination (by inhalation, ingestion, or injection through wounds).

4.3 Psychological and social effects

The psychological effects of a disaster are normal reactions to an abnormal event. This is very important to know for people struck by a disaster. The various symptoms of the psychological effects can be very different from one person to another.

The maximum of the psychosocial disruption will emerge from disasters characterized by:

* suddenness;

* high u ncertainty;

* prolonged duration;

* broad scope of physical destruction, death and injury;

* occurrence at night;

* massive exposure of survivors to dead and badly injured individuals.

If the affected people do not get help and support in their suffering, the psychological problems may increase and lead to serious psychological and physical diseases which have consequences for the social life and welfare of the family and community.

Long-term psychological effects may have a serious impact on a community. People unable to work as a consequence of their psychological illness may find it hard to feed their families and earn their living. Others may face a destroyed life and an uncertain future and may have difficulty in finding the will to go on.

To reduce suffering and aid recovery it is vital that relief agencies are able to identify those who are affected and contribute to their psychosocial recovery.

An appropriate and timely psychological support may help to avoid some of these psychological effects. It is important to provide informed humanitarian support based on a knowledge of common human needs rather than relying solely upon complex mental health interventions by specialists.

5. Relief actions in technological disasters

General

A toxic gas-release has a great and most sudden impact on many people. Therefore the emergency response to these chemical accidents must be very fast. (Liquid or solid chemical material spread by water or soil allow more response time and u sually do not have a major impact on people. More often they cause long-term

effects on the environment.) In addition to the toxic effects, victims may have injuries caused by fire or explosion.

Chemical and radioactive material can be spread over large areas. However, the problem with chemical agents is that it is quite difficult to detect them.

Contaminated zone

Experts **must** evaluate the situation and analyse the nature and concentration of the hazardous material involved as quickly as possible and make recommendations on protective measures for the relief workers and the affected population (e.g. evacuation of the population). Based on the level of radiation the experts decide how long relief workers may stay in the contaminated area. Protective measures for relief workers include protective gloves and/or clothes and gasmasks.

In addition to the presence of chemical material, risks of explosion and lack of oxygen may exist.

Decontamination zone

Before people from the contaminated zone are allowed to enter the safe zone, they have to be decontaminated in order to prevent the spread of chemical material. Decontamination can be done by removing contaminated clothes, and by cleansing with water and soap. (Major problems in a decontamination procedure are the availability of and the access to water; in the " cold areas " decontamination may even lead to hypothermia).

6. Possible role of the Red Cross and Red Crescent Societies

6.1 General

Primary responsibility for the prevention of disasters, assistance to victims and reconstruction must remain the domain of public authorities, even in the most underdeveloped countries. While most industrialized countries have an extensive civil defence infrastructure, countries in the developing world frequently lack the capability from both expertise and resource standpoint to fulfil this crucial role.

The role of an operating National Society has to be seen in the light of its national context, e.g. limitations within national legislation and the Fundamental Principles. Most of the roles are not unique for technological disasters, but are applicable for all types of disasters. For instance, is there any difference whether evacuees come from an area stricken by e.g. a flood or by a nuclear disaster. The strength of National Societies lies in their constant readiness for rapid action and the flexibility of the various forms of assistance. The best possible preparedness - be it for natural or technological disasters - should be maintained. This is in clear accordance with the traditional role of National Societies.

It is recommended that National Societies should work only in sectors where they have, or can build, competence, and where they can provide auxiliary support and additionality to the disaster response system.

6.2 Prevention

Raising awareness

Technological disasters are a t hreat to humanity just like the risk of mass starvation or war. National Societies may consider playing a role in increasing people s knowledge about technological hazards to which they may be exposed. People should be informed about technological risks in their region, by evaluating the dangers resulting from chemical or nuclear installations, by providing information and consultation to interested and worried people and by collecting addresses of voluntary local experts (toxicologists, doctors, technicians, fire-fighters etc.).

Advocacy role

The Federation seeks to assist the most vulnerable and to reduce their future vulnerability. This can be done through advocacy and lobbying as well as direct actions.

For instance:

* Defending the rights of the most vulnerable individuals and groups by lobbying for safety measures in

hazardous industries in order to achieve better working and living conditions and for strict environmental and housing rules for people living in the vicinity of chemical or nuclear installations

* Urging the government to establish and to test regularly emergency plans for technological disasters.

6.3 Relief and rehabilitation

6.3.1 Operating National Society

First aid and transport of injured

In addition to the standard knowledge about first aid, first aid workers have to know how to work in an area with chemical or nuclear contamination, unless the First Aid activities take place only in safe zones. Working in contaminated areas also means that First Aid workers have to know how to use protective clothes etc. Finally they have to know the basic principle of triage.

Working in areas contaminated by chemical or radioactive material or radiation can only take place when certain conditions can be fulfilled. Experts should be present to evaluate the level of contamination and to give recommendations about protection for the First Aid workers. Also decontamination facilities should be available. Rehearsals of working in contaminated areas should take place very regularly.

Before taking a decision whether the National Society should or should not work in contaminated areas, some ethical questions have to be answered. For instance, what to do when it is not clear that an area is contaminated because of a lack of reliable measurement results? And what to do when no protective clothes will be available for their First Aid workers? Do we leave the patients where they are or do we send our volunteers to help while knowing that they might become victims themselves?

Social services

A second traditional activity of National Societies is in the provision of social services to the most vulnerable in a disaster (e.g. distribution of food and clothes and sheltering). Experiences from Chernobyl and other (technological) disasters have shown that psychosocial support to the disaster victims is also of tremendous importance throughout the relief operation.

Rehabilitation

National Societies can take care of victims of disasters with long-term hea lth and psychological effects. They may organize relief programmes to help the affected population in order to return to a normal life by integrating the affected people into ongoing health programmes of the country or the Society.

Tracing

Many people might be evacuated to safer places. Families will be split up in the havoc. Tracing family members will have a positive psychological impact.

Information during and after the disaster

Clear and reliable information to the victims of the disaster helps to reduce the psychological effects of the emergency. National Societies should try to establish their own sources and expertise for the independent gathering of information in the disaster area.

Not only during the disaster is it important to give people reliable information, but also (even many years) after the disaster. Many scientific programmes monitor the affected population without giving individual feedback to the persons examined; this may lead to the impression of being used as guinea pigs. The Chernobyl Programme run by the Belorussian, the Russian and the Ukrainian Red Cross Societies and supported by the Federation checks and immediately informs the affected population whether late effects of nuclear radiation have been discovered and how nuclear contamination can be prevented.

6.3.2 Participating National Society

The role of Participating Societies in technological disasters is in itself not unique, but may be the same as for all types of disasters. Partic ipating National Societies should focus on material and financial support. Examples of material support are shelter materials for evacuees and water supply systems. Due to the response time it is not opportune to send experts to the disaster stricken country. Moreover, it is the primary responsibility for the public authorities and the intergovernmental organizations to send these experts.

6.4 Federation's Secretariat

Also the role of the Federation s Secretariat in technological disasters is not unique, but is in principle the same as for all types of disasters.

In addition to its coordination role, the Secretariat should be able to support National Societies in preparing for technological disasters (e.g. guidelines for First Aid to victims of technological disasters).

The Federation may create a " Reference Centre for Technological Disasters " , operated by the Federation s Secretariat or hosted by a National Society. This Centre will collect and distribute information related to prevention and relief of technological disasters.

7. Acknowledgement

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ANNEXES

RESOLUTION XXI "DISASTER RELIEF IN CASE OF TECHNICAL AND OTHER DISASTERS"

(Adopted at the final plenary meeting of the XXVth International Conference of the Red Cross, 1986)

The Twenty-fifth International Red Cross Conference,

recognizing that technological developments in many areas constantly progress and that many States carry out nuclear activities,

being aware that in the development and application of existing and new technologies it cannot be totally excluded that at any time technical incidents can turn suddenly into serious accidents and disasters, which directly endanger the health and life of a great number of people,

recognizing that damaging situations of this kind can also occur below the threshold of disaster, which require immediate and preventive action on the part of all agencies called upon to help,

knowing that the effects of such serious accidents and disasters can independently of where they occurred in one State spread to the territory of other States,

being aware that these kinds of accidents and disasters require special and additional measures of prevention, assistance and mutual information and support, which must be planned and carried out both by States and by internat ional organizations,

expressing the wish that to this end international co-operation may be reinforced and intensified,

acknowledging the fact that the International Red Cross and Red Crescent Movement is more especially obliged to provide mutual assistance and support in any kind of disaster,

recognizing the necessity for the Movement to address itself more comprehensively and more intensively than up to now to the issue of possible dangers and consequences of technical or other disasters with a view to more adequate and improved assistance,

noting with gratitude that the members of the International Atomic Energy Agency meeting in Vienna recently adopted a Convention on early notification of nuclear accidents and on mutual assistance,

1. requests governments to intensify future international cooperation for the safe development and application of new technologies and to undertake efforts to conclude further bilateral and multilateral agreements on mutual, timely and comprehensive information as well as on measures for mutual assistance,

2. recommends to governments and international organizations when concluding such agreements and conventions also to take proper account of the capacity of their corresponding National Red Cross and Red Crescent Societies and of the entire Movement to participate in relief action and to include them in their information system at an early stage,

3. further recommends to governments vigorously to support their National Red Cross and Red Crescent Societies in their efforts to improve their capacity for assistance in the field,

4. calls upon National Red Cross and Red Crescent Societies to approach their governments in the manner outlined above and to undertake efforts that promote improvement of their own capacity for assistance,

5. encourages National Red Cross and Red Crescent Societies to intensify their efforts to arrive at bilateral and multilateral agreements and commitments to mutual assistance in case of major disasters of any kind,

6. recommends that the League of Red Cross and Red Crescent Societies and the Henry Dunant Institute undertake a study concerning the possibilities and necessities of improved assistance from the Movement in case of technical and other disasters and that the result of this study be reported to the next International Conference,

7. calls upon the Movement not to slacken its efforts to support National Red Cross and Red Crescent Societies in their endeavour to conclude agreements for mutual assistance in case of technical disasters and all other kinds of disasters in as comprehensive a manner as possible and in the spirit of human solidarity and to carry out a regular exchange of experience.

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