BUILDINGS AND EMERGENCIES - PLANNING AND OPERATIONS

by Prefect Henri Rouanet, Director of
French Civil Safety, Paris

I should like first of all to thank the United Nations Disaster Relief Co-ordinator, the Secretary General of the International Civil Defence Organization and the Secretary General of the League of Red Cross and Red Crescent Societies, who have organized this congress and granted me the privilege of addressing it.

You have thus given me the honour of greeting you on behalf of the French Government and, in particular, of Mr. Pierre Joxe, Minister of the Interior and Decentralization.

During my mission to Geneva last February I had the opportunity of meeting senior UNDRO and ICDO officials in order to develop relations between the French Civil Safety and those two international organizations.

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As far as UNDRO is concerned, on both sides we felt that the time had come to give a new lease of life to relations which had so far been only episodic.

I should like to assure you that the French Civil Safety Directorate will try to make available, through you, to States wishing to receive it the fruit of its experience, in particular as regards the prevention of fire hazards in buildings or industrial complexes.

As far as relief operations are concerned, thanks to the disaster alert messages we receive from Geneva we can act more easily, if the State that has suffered a disaster so desires, by sending mobile rescue teams.

As an immediate step, operational information will be transmitted to you by our "disaster action teams" set up in the Paris Fire Brigade and our Civil Safety Instruction Units.

France is in a position to make available immediately to States which so request teams to look for buried persons, disaster-relief doctors, and military and civilian personnel, as it has done in operations, for example, in the Federal Republic of Germany in 1976, to help the Bonn authorities to fight major forest fires, twice in Italy after earthquakes, in Algeria at El Asnam or, more recently, in Luxembourg after an air disaster.

I also read very carefully the situation reports regularly transmitted to me by UNDRO.

These are the first steps in mutual co-operation which the French Government would like to be even closer; a visit by you to Paris in the near future would be most fortuitous in cementing this co-operation.

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With regard to relations with ICDO, I wish to point out that our country very recently joined the Organization as an observer. The French Mission to the United Nations at Geneva carried out the necessary formalities on 27 July last.

This is the logical consequences of contacts which have steadily developed since your visit to France, Mr. Secretary General, exactly a year ago.

While remaining very much attached to its bilateral commitments (as shown by the mutual assistance agreements, signed with Morocco and Tunisia, and under preparation with Algeria), France has a strong desire to become an active partner for ICDO.

You may be assured of our assistance, Mr. Secretary General, for the education and training of personnel from ICDO member States.

As you know, the training of foreign personnel, as well as the secondment of our own experts, is one of the objectives of the Civil Safety Directorate, which in 1983 alone trained 130 foreign nationals, a figure which will in all likelihood be increased, in particular through the project to double the intake of the National Fire Brigade Training College at Nainville-les-Roches.

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I should like to conclude this introduction by paying tribute to the humanitarian mission and active participation in relief operations of the League of Red Cross and Red Crescent Societies.

In my capacity as representative of the Minister of the Interior and of Decentralization in the Governing Body of the French Red Cross, I can tell you that the latter has permanent links with our Government, in particular with regard to rescue training or disaster relief operations, by virtue of the 50,000 relief workers it has in France.

Its international action is also considerable, as it provided assistance in the case of earthquakes in Italy and Algeria, where it was also responsible for reconstruction operations; in Cambodia, where it was responsible not only for building a dispensary, but also for detecting tuberculosis; and also after the latest earthquake in Turkey.

I shall not address you as a technical expert : I am neither a fireman, nor a doctor, nor an engineer, nor an architect - a fact which some of among you may consider regrettable. As a Prefect, I am a generalist whose job, under the authority of my Minister, is to mobilize, co-ordinate and, if possible, anticipate.

I am sure that the speakers who will address you here over the next three days will share with you the specialized expertise they have acquired which will alone ensure the complete success of "Emergency 84".

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1. Organization of Civil Safety in France : our over-all policy for the organization of rescue operations

I thought it would be useful to remind you briefly of the structure and role of Civil Safety in France. While the goals pursued are the same in every country, the administrative machinery and consequently the distribution of tasks among the various services may have here modelled on very different lines because they are based on different initial approaches.

The essential features of our organization are as follows :

- Civil Safety is the exclusive responsibility of the Minister of the Interior and Decentralization, to whom I report directly;
- The Fire Brigade has a multidisciplinary prevention, rescue and relief function, and is responsible for action to deal with all types of hazards;
- The relief organization has a three-tier structure : the commune, the department and the country as a whole;
- the combination of very broad decentralization as regards management and equipment, with a constant effort to ensure unity as regards command of operations, through standardization of equipment and training, as well as disaster planning in the form of emergency plans (our ORSEC plans) under which absolutely identical responses are triggered off to deal with a variety of circumstances.

A. The role of the Fire Brigade

The multidisciplinary role of the fire brigade in France is shown by a particularly significant figure : less than 10 per cent of its 2 million operations annually involve fire-fighting. The fire brigade is a multi-purpose operational tool, designed to cope with all accident situations : it picks up more than three quarters of road accident victims, and intervenes in the case of domestic accidents and accidents due to "dangerous substances", as well as accidents connected with leisure activities.

To enable it to tackle such a variety of tasks, major efforts have been made in terms of training, technical support and warning systems both at the local and at the centralized levels.

In this connection, I wish to highlight the role of the Fire Brigade Health Service, which numbers more than 5,000 doctors, within this system. In addition, a tremendous effort is made to ensure the best possible co-operation with other doctors who provide emergency medical assistance in the case of every-day accidents, as well as in disaster situations. Thus, all the parties concerned are mobilized.

B. Administrative organization

In France, the municipalities bear the fundamental responsibility for emergency rescue services. However, it was necessary to have a structure in which mutual assistance among communes could be allowed full rein. In the light of experience, the Department proved to be the most suitable administrative unit for organizing and financing such a system, which is based on the setting up of a limited number of Fire Brigade Centres.

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Since the Act of 2 March on decentralization, the management of the department service for fires and other emergencies is now entrusted to the President of the Departmental Assembly, but from the operational standpoint the service remains under the authority of the Prefect.

Finally, at the national level, the Ministry of Interior and Decentralization, through its Civil Safety Directorate, has over-all responsibility for the safety of persons and property.

The five functions of the Civil Safety Directorate can be summed up as follows :

1. Operations :

- In time of peace, it is responsible for the general elaboration of rescue methods and techniques and their adaptation to changing risks and technologies, the co-ordination of operations in the event of major disasters or highly specific accidents, and the management of the Civil Safety Directorate's Operations Centre (CODISC).

- In time of crisis or of conflict, it is responsible for sounding the alert in the event of air raids and radio-active hazards, and the implementation of the measures for the shelter, dispersal and relief of the population.

2. Prevention.- This involves analysing dangers and drawing up the corresponding safety regulations. The Directorate works with an exceptionally wide range of partners : doctors, architects, scientists, engineers, insurers, sociologists, publicity agents, etc..

3. Supervision.- This function is entrusted to the Technical General Inspectorate, consisting of senior Fire Brigade Officers. Its role is to ensure at all times the proper functioning and operational capability of the services throughout the territory, and to ensure that legislation and regulations are complied with.

4. Training.- This is carried out by the National Institute for Civil Safety Studies, of which the National Professional Fire Brigade College is part, together with a number of interregional and departmental schools. This represents a considerable training potential which is available to all Civil Safety personnel.

5. Management.- This refers to the function of managing staff, drawing up policy on the necessary material and equipment, and resolving financial problems (as far as that is possible ...).

C. Planning of relief operations

The entire system is designed to ensure that it can be placed on an operational footing very rapidly. This, of course, is an objective.

It is brought into operations :

1. At the communal level, to deal with the accidents of daily life,

2. At the departmental level, in the framework of a global risk coverage plan - the ORSEC Plan - or an auxiliary plan for a major specific risk, which is connected with the ORSEC Plan. There are on average 13 or 14 such plans for each department, which represents some 1.300 ORSEC and related plans for the entire country. These plans are drawn up and implemented under the responsibility of the Prefects;

3. At the national level, through a National ORSEC Plan : two years ago, at this same congress, Mr. Tazieff informed you that the French Government is giving considerable thought and attention to the question of how to provide the best possible response, in terms both of prevention and of relief, to the challenges which major risks, and disasters of all kind, represent. By this we mean the disasters which, by virtue of the potential number of victims, their geographical scope, or the specific nature of the danger, call for the direct mobilization of resources by the Government to reinforce the capabilities of the departments struck and possibly neutralized by the disaster.

Relatively recent examples elsewhere in the world, and even in France, (at the time of the "black tide" resulting from the Amoco-Cadiz shipwreck) have shown that such disasters can, and indeed do, occur. Such major crises therefore call for the mobilization of resources, in the form of manpower, technical expertise and equipment, on such a scale that the entire country has to contribute to the effort, under the direct responsibility of the Ministry.

For this purpose, I organized the large-scale "Vosges 83" manoeuvres, for the mobilization without any advance warning of 1,500 actors. in real time, to deal with the consequences of a serious earthquake. We learned a great deal from these manoeuvres, which enabled me, in the course of the first half of 1984, to draw up manoeuvre regulations concerning "chain of command", communications, "medical chain", Mobile Relief Columns and relations with the media, which I believe to be realistic and could, over all, ensure satisfactory planning of disaster relief.

In this connection, I should like to thank Dr . Milan Bodi, not only for attending the manoeuvres, but also for having kindly published in the ICDO Bulletin what I consider to be a lucid and constructive over-all review of this major challenge which we set ourselves in the Vosges last winter.

Today, work of revising the National ORSEC Plan is very advanced. The decree establishing it will in all likelihood be included in the Government's programme of work for the second half of 1984.

In addition, we are concerned with finding the best response to major technological hazards as a follow-up to the European Economic Community recommendations (the so-called "Post-Seveso" Directive). Accidents which have already occurred in other countries - I am thinking of Seveso. Los Alfaques, Mississauga and Flixborough - have shown that countries with a very nigh level of technological competence and excellent prevention services are not safe from breakdowns.

I intend shortly to issue in a new Plan, known as the ORSECTOX Plan, a set of clear action guidelines based on our experience in nuclear safety, under which those responsible for setting up the industrial facility, elected representatives, Fire Brigade officers and other technical specialists, will work closely together under the authority of the State representative, both before and during the operations.

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I hope you will forgive me for this long introduction, which I nonetheless considered essential to give you a better picture of the nature and efforts of the French Civil Safety organization; and I now come to the more specific aspect of buildings and emergencies.

II. Buildings and emergencies

Background :

French regulations relating to fire prevention in buildings are probably among the oldest.

As early as in the seventeenth century, under Louis XIV, police regulations made it compulsory for owners of buildings in Paris to protect their walls and ceilings against fire by plastering them - a simple and effective measure which has always enabled our capital to escape the great urban fires which have ravaged other European cities.

The owners were also obliged to have on hand a "muid of water" (in today's terms, a barrel of water containing 268 litres), so that immediate action could be taken against fires in their early stages.

In the eighteenth century, a royal edict laid down a principle which has subsequently always been respected, namely, free public assistance in case of fire. Although it may not seem obvious at first sight, the edict was a clever and effective means of preventing fires from spreading, for it put an end to any reluctance on the part of the inhabitants to call on the public services to intervene out of fear of having to pay for that service. Thereafter, fire alarms were always sounded without any delay.

In the nineteenth century, the regulations primarily concerned, at the local level (especially Paris), entertainment establishments and, in particular, theatres, in view of the large number of fires which had occurred in such establishments in the past.

At the beginning of the twentieth century, national regulations were finally established to deal with the harmful effects of major industrial establishments classed as "unpleasant, unhealthy and dangerous", the latter adjective referring in particular to fire and explosion hazards. During the Second World War, additional regulations were introduced to cover fire hazards in all establishments frequented by the general public (shops, schools, hospitals, exhibitions ...). Finally, in 1967, regulations were issued concerning high rise buildings.

A. Guiding principles of our regulations relating to building safety :

There is of course a close relationship between fire-fighting operations and fire regulations; it is a continuing and beneficial interaction : the lessons of experience.

Every major fire brings its lessons, which in turn lead to an adjustment of the regulations. The action actually taken in such cases is the most authentic testing ground as regards safety. It is therefore necessary to analyse them, establish new principles, and then apply them.

This work of studying and analysing the causes and development of fires usually calls for research efforts which tend to refine and strengthen the regulations by providing scientific foundations for them, and by seeking to reconcile abstract theories, which are essential, with a sense of reality.

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It is important to avoid the danger of arbitrariness and of giving rise to excessive costs, whose justification may sometimes be debatable, as well as the danger of complicating or lengthening certain processes.

In addition, as is true of all preventive action, the creation of fire regulations is a continuing process. The first requirement is political will in the broad sense, and the administrative authorities must ensure that it remains as unswerving as possible. Political will, administrative vigilance, and also goodwill on the part of designers (private or public) - all these must interact in the drawing up and development of regulations and in informing builders about them, explaining their objectives, and ensuring that they are applied.

Regulation and prevention both have the following objectives : to limit the risk of outbreaks of fire, to ensure the safety of inhabitants either by evacuation or by isolation, to limit the danger of a fire spreading to neighbouring buildings, and to allow and facilitate rescue and fire-fighting operations so that the fire does not become a "disaster".

B. The criteria taken into consideration in building safety

I would mention the following fundamental criteria which underpin all preventive and precautionary measures :

The geographical location of the buildings, their proximity to dangerous installations (in particular industrial ones), the presence, or otherwise, of reserves of water, and difficulty of access (mountainous areas) are all criteria which must be taken into account in the design of a building, as they will limit or facilitate the outbreak and spread of fire. The same applies to the distance from a Main Relief Centre.

These geographical factors affect, particularly high rise buildings, the need for permanent fixtures (dry rising mains, wet rising mains, water nozzles, etc.);

Building height is another fundamental parameter used to classify buildings in France and many other countries. Firstly, the fire brigade is dependent on the length of turntable ladders, which may or may not allow them to reach the top floors of buildings, and secondly, all the difficulties involved in rescue and fire-fighting operations increase with height.

In France, the regulations are not very strict up to a height of 8 metres for the highest floor (about two or three storeys). This is the height which it is possible to reach with portable extension ladders. Preventive measures are more strict between 8 and 28 metres (limit of the standard big turntable ladders) and extremely strict beyond 28 metres (nine floors or more).

Finally, a residential building is classified as a very high building when the height of the top floor is more than 50 metres above the access road used by the fire-fighting appliances.

These measures cover all aspects of construction (fire resistance of structures), internal fixtures ans fittings (fire behaviour of materials, furniture, etc.) and technical fittings (heating, cooking, gas, electricity, air conditioning, smoke removal, lifts) and all the traditional safety devices (fire detectors, warning and alarm systems, manual or automatic fire extinguishers, etc.).

The types of activities and the degree of familiarity of users with buildings also affect the design and construction regulations as regards fire safety.

The internal organization of a building naturally depends on the activity it is used for : dwelling, commerce (department stores), entertainment (auditoriums and technical areas), health care (hospitals) or work (offices).

According to the way in which a building is frequented, the possibilities of evacuating people vary, for in the case of residential buildings the occupants are usually familiar with the fire exits, whereas hotels and hospitals raise more serious problems (lack of familiarity with the premises, presence of invalids).

Furthermore, underground premises always present additional difficulty from the standpoint of rescue and fire-fighting operations. Finally, the storage of more or less flammable, toxic or explosive substances (in stores, for example), also creates more difficult conditions for the fire brigade.

C. The building safety record in France and the lessons of experience :

Is it possible to draw up a "building-safety balance-sheet" ? It is extremely difficult to put the matter in quantitative terms, since not every aspect of safety can be measured. At most, we can tentatively put forward a few enlightening figures. According to the publications (March 1984) of the World Centre for Fire Statistics, "visible" losses (material damage) due to fires represent 0.32 per cent of the gross domestic product, while protection of buildings against fire amounts to only 0.16 per cent. The number of deaths is much the same every year : about 400 for a population of 54 million inhabitants, which gives France an honourable place among the leaders in the group of industrialized countries.

(N.B. - Major fires in France since 1970 : Saint Laurent du Pont - Cinq-Sept Nightclub, 1970 (147 dead), Argenteuil - tower block, 1971 (18 dead), Paris - CES Pailleron, 1973 (21 dead), Saint Jean le Losne (Côte d'Or) - 1980 (30 dead). A 1981 statistic gives 5 dead as a result of fire per million inhabitants in France. I think this figure is one of the lowest in the world).

These interesting results are of course obtained through the application of preventive measures, but also thanks to the sound tactical precautions of the Fire Brigade, which tries to anticipate future operations as much as possible by taking steps in advance :

- Inventory of large buildings; preparation of lists and addresses of such buildings, including available fire-fighting resources in terms of personnel, equipment and water (for example, department stores);
- Periodic inspections of such buildings;
- Regular fire drills and manoeuvres organized jointly with the safety officers of such buildings, who are very often former Paris firemen.

Improvements in building methods and the many lessons learnt from tests and simulations, and also from recent fires, as well as very broad concertation, now make it possible for us to adapt regulations to the technical and economic realities of today.

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The objective now is not only to establish regulations in order to "ban" some types of building, as the deterrent aspect of regulations is always misinterpreted.

Architecture and building methods develop very quickly; new materials come into use, above all synthetic materials and multilayer components. In the face of these changes, if regulations are too detailed or too rigid development becomes impossible and building costs become prohibitive, as regards both new methods using heavy prefabricated elements (facing panels, for example) and the use of lightweight or synthetic materials (plastics).

A seminar has already been held on how to ensure this necessary up-dating or regulations, as the point of departure for a wide-ranging experiment involving a number of official laboratories including the Scientific and Technical Centre for Building, the Industrial Technical Centre for Metal Construction, the Central Police Laboratory and the National Testing Laboratory.

These laboratories carry out tests on the fire-resistance and aging of all types of materials. They also study the over-all processes of fire development in various types of premises (hotel rooms, hospital rooms, etc.).

A more comprehensive approach is thus adopted so as to gain some perspective on contemporary building safety requirements.

The Civil Safety Directorate is therefore preparing regulations for the year 2000 which will only establish obligations in terms of results, while being less descriptive than the current regulations which seek to establish exactly the means to be used.

This is a real change in our approach to the future regulations. We want to strike a better balance between the safety of inhabitants and respect for architectural creation, between a concern for costs and the need to avoid complicating procedures. Thus, our ambition for the end of this century is to establish obligations in terms of results and not of means.

And as of this year, I am redirecting our research funds to this end.

In concluding this brief description of our policy relating to establishments frequented by the general public, I cannot fail to mention the presence every year of many senior officials concerned with safety from foreign countries in French administrative services, colleges and private enterprises.

I have no doubt that they are attentive observers of our efforts and - why not ? - constructive critics.

Conclusion

I have tried to present to you, in a dynamic light, the main components and the principal functions of Civil Safety in France. In addition, I have explained our approach to building safety problems, while remaining at a general level, as befits a non-specialist.

We make no claim to serve as a flawless model. Like you, we have our successes and our failures. Safety is a relative and not an absolute concept, a matter of research and not of certainty.

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This is necessarily so, because the cornerstone of these systems depends on human behaviour, with its interests, carelessness and thoughtlessness.

However, the system we have gradually established in the light of experience, sometimes unpleasant experience, is something to which we are definitely attached, I must confess.

This attachment stems, in particular from the extremely high motivation of our Fire Brigade, the civilian and military, professional and voluntary fire service personnel, and the dedication of their personnel in the preventive, technical and operational fields.

In addition to the moral challenge inherent in danger to human life, there is a technical challenge. To take up that challenge, Civil Safety staff in ever greater numbers and fields have become specialists to cope with the wide range of technological hazards which is growing daily broader.

In this great effort to respond to new dangers, particularly those affecting buildings, I wish to highlight the intelligent, active and responsible approach of many other parties, including engineers, technicians and architects.

This permanent joint effort provides the best form of encouragement for those who, like you and me, are responsible for the safety of everyone, both at home and at work.