Fire-fighters Training and Standard Operating Procedures in Italy

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Rescue in Underground Facilities

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Fire-fighters Training and Standard Operating Procedures in Italy

The activity of training firefighters is therefore aimed at providing all the theoretical knowledge and the practical skills necessary to make them operate in a professional and competent way and in different emergency conditions, in order to achieve the best possible rescue outcome while maintaining their safety.

Often rescue calls are similar, kinds of intervention and scenarios are similar too, but essentially singular.

In the case of intervention in the underground, the burden of risk is determined by the characteristics of the environment in which the accident event occurs.

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In case of interventensions in road tunnels, railway tunnels or in metropolitan stations and underground sites in general, the following elements should be considered :

- **ACCESS DIFFICULTIES**

- they must overcome obstruction to reach the site (rivers, mountains, even built-up areas, etc.)

- access to and from the tunnel is via portals and often there are no other means of escape.

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- The length of the tunnel

Generally speaking, the longer the tunnel is, greater are the problems associated with access under fire conditions.

If a long tunnel is smoke-logged, it can be really difficult for fire-fighters to reach the fire scene

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- The number of bores or tubes

One problem associated with bi-directional flow is that, should an accident occur, being it a fire or an accident, it is likely that traffic travelling in both directions will be affected and brought to a standstill with traffic queues in both directions. This makes intervention by emergency response teams more difficult and even worse if heat and smoke are present.

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Other important elements to be considered are:

- little natural ventilation

- little or no natural light

-Moreover communication devices and location-based systems could fail because of environment conditions (for this reason new technologies are being experimented in order to find more efficient and effective solutions)

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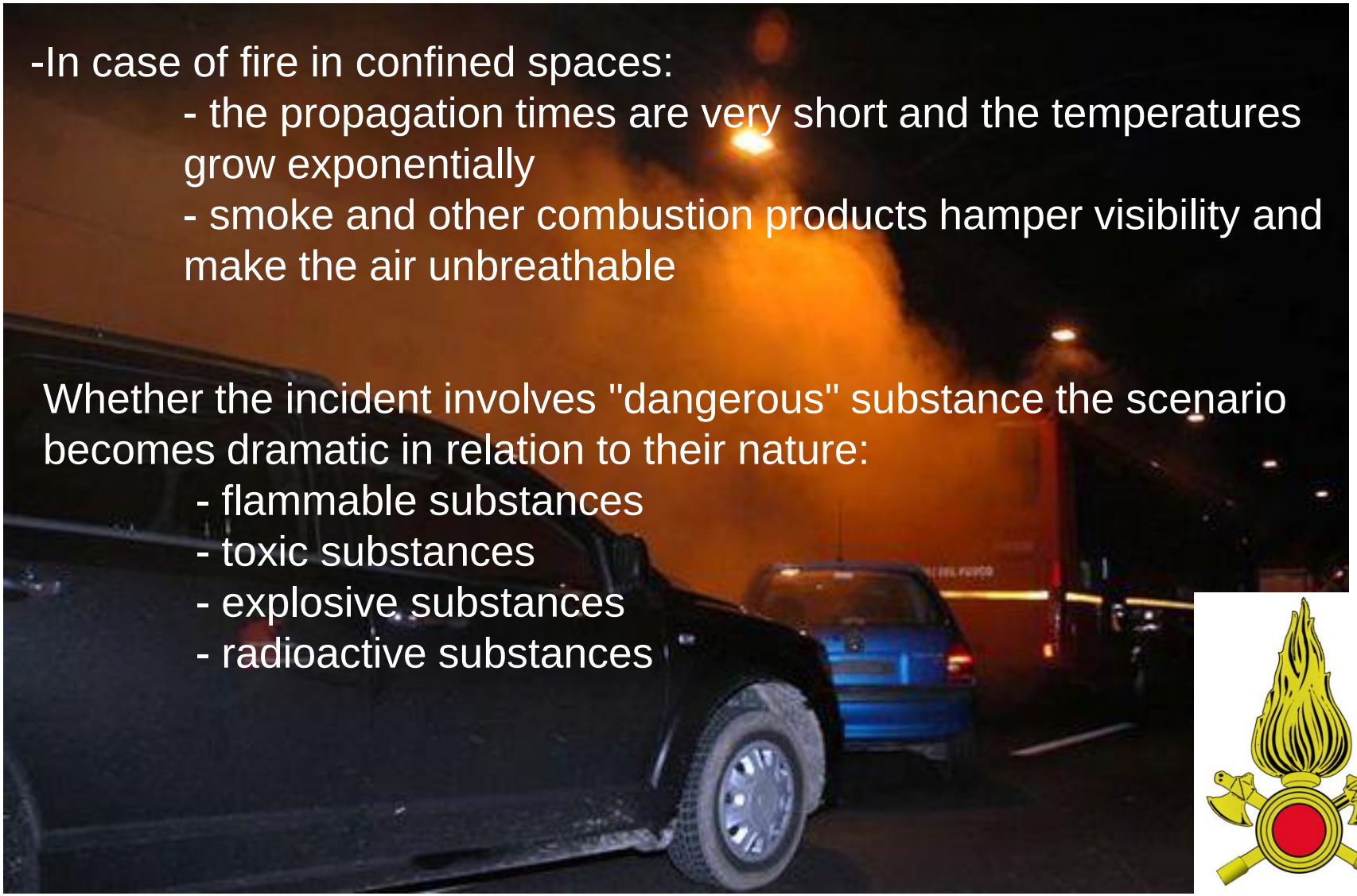

-In case of fire in confined spaces:

- the propagation times are very short and the temperatures grow exponentially
- smoke and other combustion products hamper visibility and make the air unbreathable

Whether the incident involves "dangerous" substance the scenario becomes dramatic in relation to their nature:

- flammable substances
- toxic substances
- explosive substances
- radioactive substances

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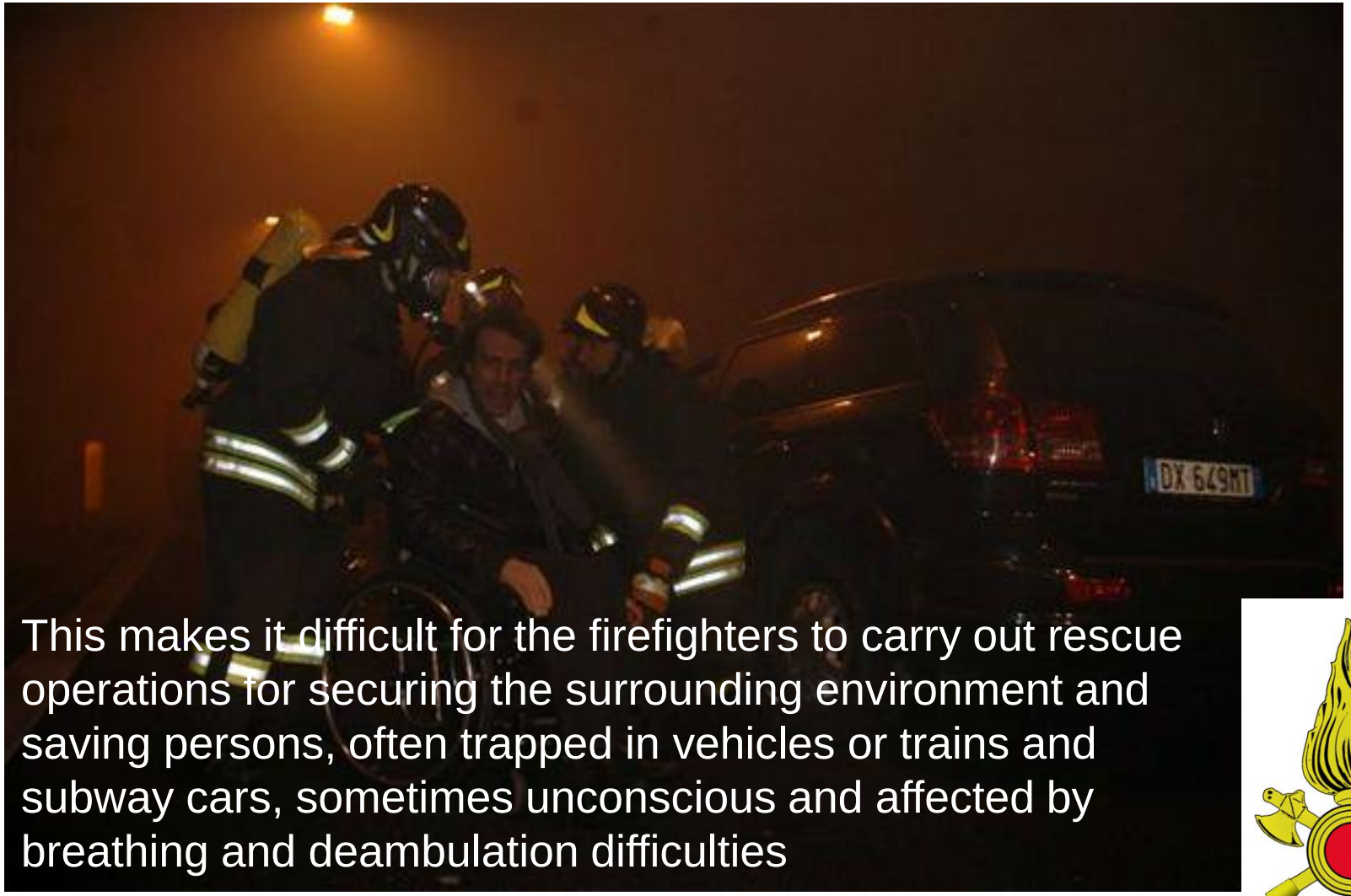

This makes it difficult for the firefighters to carry out rescue operations for securing the surrounding environment and saving persons, often trapped in vehicles or trains and subway cars, sometimes unconscious and affected by breathing and deambulation difficulties

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The firefighters involved in confined spaced

- apply all the knowledge acquired during the training

- act in accordance with standard operating procedures and with any contingency plan

- perform full scale simulations:
    - to enhance the analysis and study of accidental events
    - to plan rescue operations
    - to test the operational procedures
    - to conduct operational training

Fire-fighters Training

Fire-fighters Training

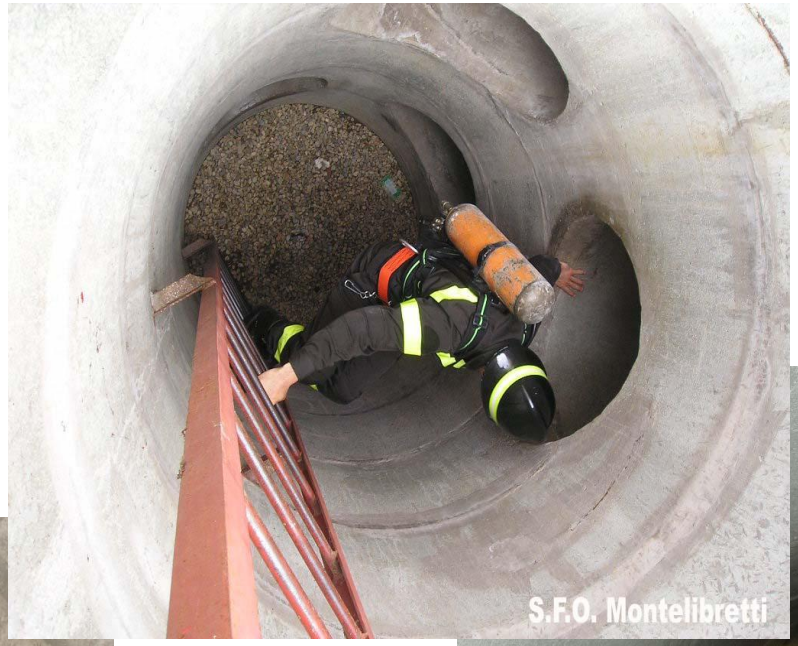
-physical and chemical fire

- hazardous substances and n.b.c.r. risk

-extinguishing agent

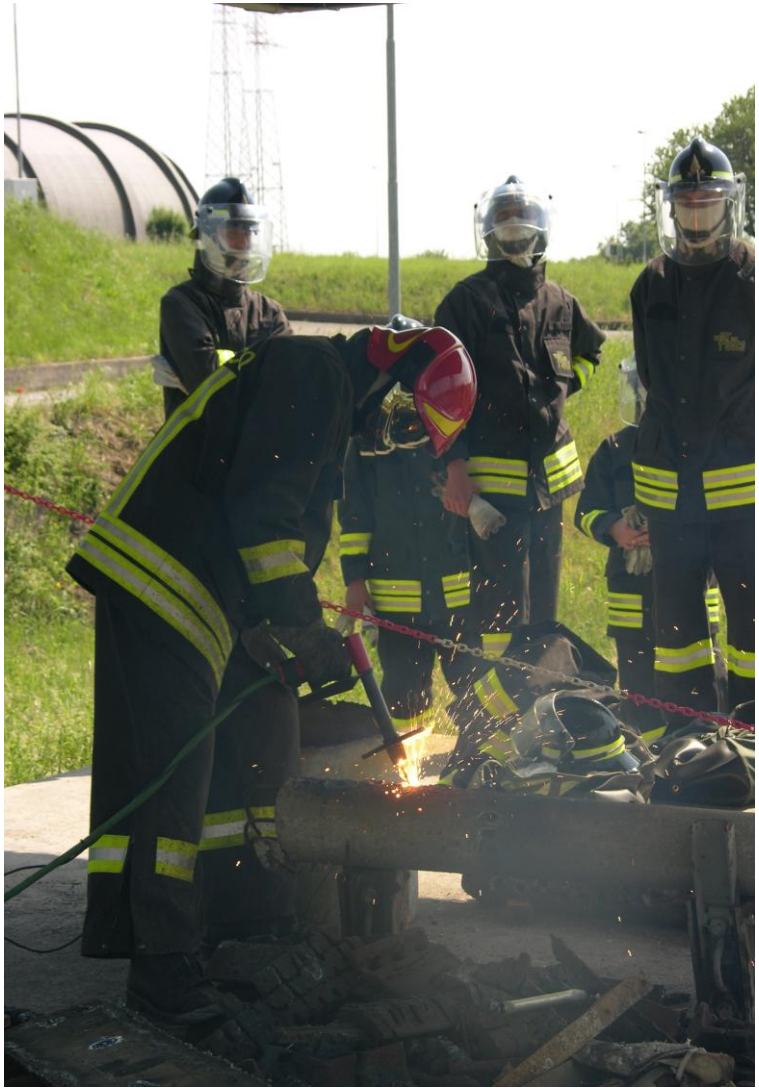
- d.p.i.

Fire-fighters Training



- techniques for interventions in restricted spaces in non-ordinary lighting and ventilation conditions

Fire-fighters Training



- Emergency and rescue equipment

Fire-fighters Training

- Alpine, caving and river rescue techniques

Fire-fighters Training

- techniques of first aid service

Fire-fighters Training

Operational Procedures

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Standard Operating Procedures in Italy

Standard Operating Procedures in Italy

What does Standard Operating Procedures in Italy mean?

The S.O.P. are guidelines explaining the firefighters' role and tasks in rescue interventions.

They should not be confused with "operational planning of emergency", describing strategies for emergency response in specific places or installations.

They should not duplicate technical information, knowledge and skills that are contained in "Technical Protocols" and relevant documents for professional training.

Standard Operating Procedures in Italy

The S.O.P. describe: security, supplying and logistics, equipment maintenance, rights and duties of personnel, structures and chains of command, coordination with other organizations, documentation and reporting of activities, etc..

The S.O.P. do not describe how to do a job (skills), but describe the rules of the organization (eg provincial command) according to wich the job must be done (procedural guides).

Standard Operating Procedures in Italy

Why do we need S.O.P.?

- to operate according to "quality“ standards, providing a service with characteristics of uniformity at national level, so to meet the needs and expectations of the citizen-user;

- to facilitate and standardize the activities and relationships with other agencies and organizations operating in the same scenario for assistance;

- to transform the rules followed by the operators into effective measures having requirements of laws, regulations and technical standards (need of "management");

- to collect and transmit professional background that often can not be experienced directly by the individual

Standard Operating Procedures in Italy

Who draw up the procedures?

Procedures must be drawn directly by the operational staff.
The periodic review and possible testing of S.O.P. ensure that they are close to reality

The study and analysis of S.O.P. are part of the the daily training and are subject to careful analysis during the "debriefing" (more or less formal) carried out after each relevant emergency intervention; technical difficulties, weaknesses or problems are here discussed

Standard Operating Procedures in Italy

What do the procedures contain?

Standard rules

- provisions on the use of specialized personnel (helicopter-pilots, divers, CBRN, SAF, …)

- protocols for coordination with the health national service

- cooperation agreements with transport companies,motorway companies, …

- plans

- data from the ADR

- …

Standard Operating Procedures in Italy

What do the procedures contain?

- **Management rules about emergency rooms**
  - primary questions during the communication of alarm
  - agencies to be alerted and authorities to warn
  - appropriate resources for intervention

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Full-scale simulations

Full-scale simulations

- **Emergency planning**

  - Tunnel and facilities design
  - The nature of traffic using the tunnel
  - The accident/incident detection process
  - The communication of relevant information to the emergency services and/or dedicated tunnel rapid response teams

Standard Operating Procedures in Italy

- The role of each agency involved
- Clear lines of command and control
- Rendezvous points and triage points
- Command and control points
- Rescue and evacuation procedures
- Fire extinguishing tactics appropriate to tunnels and the use of safe work strategy, taking into account the presence of hazardous materials
- Providing the appropriate equipment both for the tunnel operator and the emergency services

Information to the public in the event of an emergency.

With regard to this last point, arrangements should be made to inform the travelling public on how to behave during an emergency and how to prevent it.

Standard Operating Procedures in Italy

In order to provide truly effective plans, it is essential that all relevant agencies are familiar with the layout of all risk related devices, their design features, for example ventilation systems and drainage systems, as well as fixed installations specifically fitted to cope with emergency situations.

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Road tunnel

Imperia

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La Spezia

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Gran Sasso

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Gran Sasso

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Biella

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Cuneo

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Torino

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Torino

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Railway tunnel

Imperia

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Imperia

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Messina

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Varese

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Lodi

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Underground Station

Bari

Thank you
for your attention!

Dott. Ing. Francesca Guido