



A tool for controlling risks in ropeway operation: the safety management system



Gaëtan RIOULT
Head of ropeways department
French ministry of transport



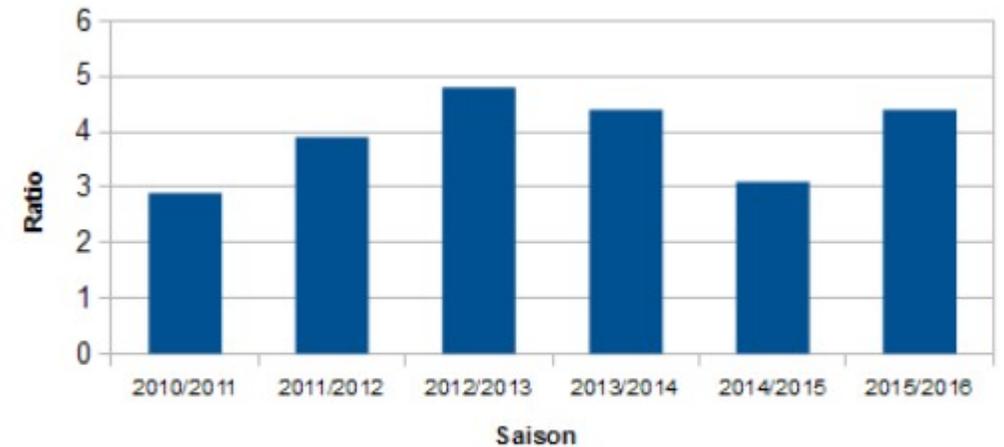
Ropeways as urban public transport systems : a safe transport

A rather satisfactory image towards users and the public authorities regarding safety

French statistics to objectify this image :



Nombre de victimes (blessés graves ou morts) par saison et par famille d'appareil



Nombre de victimes (blessés graves et tués) pour 100 millions de passages



Ropeways as urban public transport systems : a safe transport

Accidents occur mainly on chairlifts

Accidents mainly imputed to the behavior of the victims :

- Lack usually
- Clumsiness
- Essentially in the phases of loading or unloading



Ropeways as urban public transport systems : a safe transport

No international statistics

Comparison with Austria shows a same level of accidents

Difficult to compare to others public transport systems

But seems honest to conclude to a safe situation for ropeways



Regulations : an important factor for progress of safety

Regulations exist since a long time in France, like in others countries

Regular revisions, allowing to integrate technical progress and experience feedback

Covering of safety stakes by technical measures
=> **conformity = safety**

Same approach with european regulation



But technical rules are not sufficient

Accidents show that technical rules are not sufficient to insure safety

Since 2010, several accidents or significant incidents in France, strongly mediatized.

No major degradation of accidentology statistics , but these events show :

- the importance of the organizational and human factors in the scenarios of accidents
- a particular sensibility of ropeways towards the public opinion.



Examples of events with organizational or human causes



Unloading of a passenger on a detachable chairlift

Passenger retained to the seat by a belt of his backpack

Contributory factor : defect of attention of the station attendant, mobilized by other tasks

Illustrate problems of :

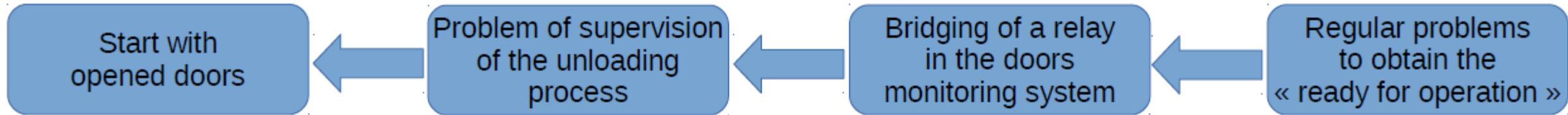
- organization of workstations so as to maintain the vigilance of the staff
- internal control to verify for exemple the implication of staff in their tasks.



Exemples of events with organizational or human causes



Departure « doors open » of a jigback cabin



Regular difficulties to obtain the « ready for operation » due to a fleeting faulty connection in the doors monitoring system.

Compensatory measures were implemented, but they were:

- little strong
- operated in a too systematic way to the detriment of an in-depth research of causes of recurring defects



Examples of events with organizational or human causes



Departure « doors open » of a jigback cabin

Event that highlights problems of management of :

- exceptional situations in operation
- experience feedback



Examples of events with organizational or human causes



Fall of a chair during operation on a detachable chairlift

After a stop due to a safety device in station, restarting of installation and then fall of an empty chair after its station's exit

Detection by safety device because break of a grip component

Unfortunately, no detection of failure by operator realizing the diagnosis : then restarting and bad attachment to the rope...

Illustrate problems of competency management



What to do with these events ?

Aim is not to stigmatize corresponding operators who are besides conscientious and reliable professionals.

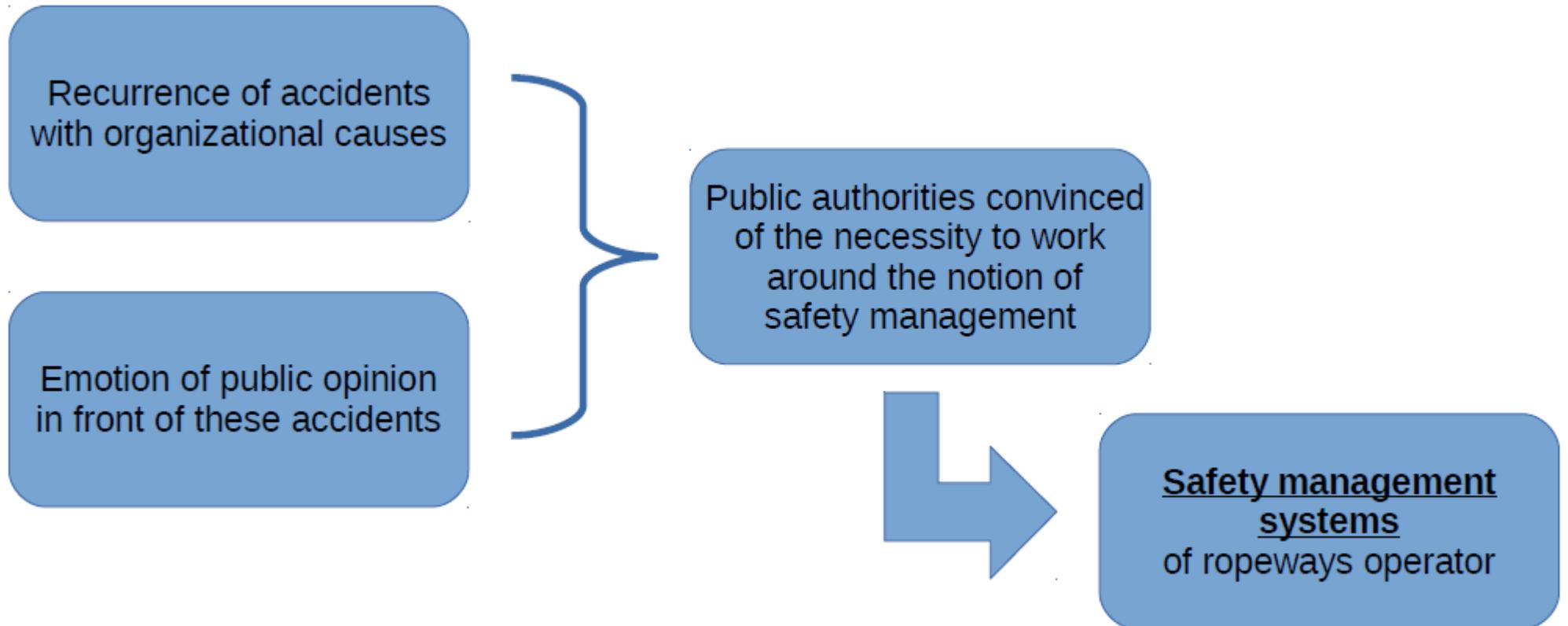
But illustration of the idea that "*every disaster builds itself in the darkness of the everyday life*".



What to do with these events ?

Events that do not bring a new knowledge, highlighted problems are already well known by professionals.

But





What is a Safety Management System (SMS) ?

It is an implemented system of organization by a company to master the risks bound to its activity (global approach)

SMS articulates the means, the rules, the procedures and the methods of the company according to ensure the safety of its activity

It is a method which involves the working community in the control of the risks and allows to work on the safety culture of the company



What is a Safety Management System (SMS) ?

SMS introduced in Europe further to the publication of the directive SEVESO in Europe

=> Operators of dangerous industrial activities have to develop safety management systems proportionned at the risks inherent to the installations.

Then developed in other business sectors :

- Safety of the rail transportation (european regulations),
- Urban guided transports like subways or tramways (french regulations)
- ...

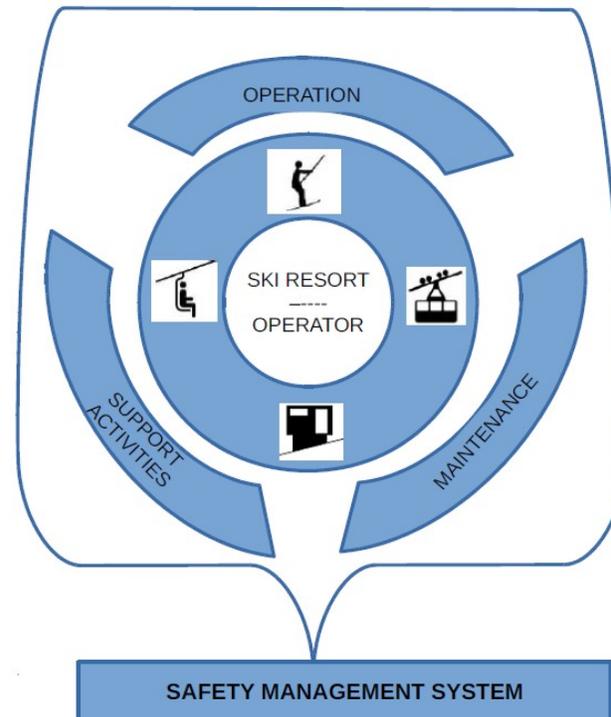


Safety Management System (SMS) of ropeways operators



Obligation to the french ropeways operators to develop a SMS

Operators of aerial ropeways, funiculars, surface lifts, carpets are also involved





Safety Management System (SMS) of ropeways operators



8 themes to handle



But no unique model !



Safety Management System (SMS) of ropeways operators



Example of theme to be handled: operation

Definition of the organization of operation, by taking into account various situations which can be met (normal operation, exceptional circumstances, incidents or accidents).

- Definition of the tasks and the functions
- Identification of the tasks and the functions presenting an impact on the safety (controls before opening, driving, supervision, ...)
- Definition of qualifications for each tasks and functions
- Allocation of the workplaces and tasks as a function of the competence of the operating personnel



Safety Management System (SMS) of ropeways operators



Example of theme to be handled: operation

Definition of the organization of operation, by taking into account various situations which can be met (normal operation, exceptional circumstances, incidents or accidents).

- Description of the principles appropriate to the company for the normal operation, for operation under exceptional circumstances (for example authorizations for bypass safety functions, definition of the compensatory measures, ...)
- Definition of the procedures for the management of incidents and accidents or evacuation



The way to develop in France the Safety Management System (SMS)



Approach based on the dialogue and subjected to the experiment of operators

Implementation of a workgroup piloted by ministry of transport with the representatives of operators

Several meetings between July, 2014 and January, 2016 to define the project, negotiate the modalities of application...

During season 2014 – 2015, experiment by 8 operators, representative of various types of operators : check of their capacity to develop a SMS, work on the contents and the level of precision of the relative documents



The way to develop in France the Safety Management System (SMS)



Elaboration of guides by STRMTG and DSF (french national association of operators) to precise regulation and specify the contents of the safety management systems.

Elaboration of models of document by DSF to help operators to implemente their safety management systems

Implementation of meetings and trainings by ministry of transports and DSF, to present and explain SMS to operators (7 meetings, 6 trainings)



Schedule of implementation of Safety Management System



October 1st, 2017, for operators having at least an aerial ropeway or a funicular

October 1st, 2019, for others operators (having only surface lifts or carpets)



Conclusion



As in other business sectors, french operators are going to develop safety management systems, in the objective to still strengthen the level of safety of their installations.

Opportunity to estimate the organization's maturity regarding to risks control and safety.

Also occasion to involve all levels of work community in the thought around safety.

An approach to estimate on the middle-long term, only timescale susceptible to produce notable results regarding safety...