

## Safety

### 7 Can you explain the technique to ensure safety?

The ultimate technique to ensure safety is “Removing hazardous resources”.  
However, it is not realistic as long as we receive benefits from hazardous resources.

The technique to ensure safety is “Reducing risks close to zero illimitably”.  
However, we have to consider the technique is expensive.

Specifically, there are three techniques: (1) specify hazardous resources, (2) suppose potential hazardous events, and (3) Carry out the methods for risk reduction.

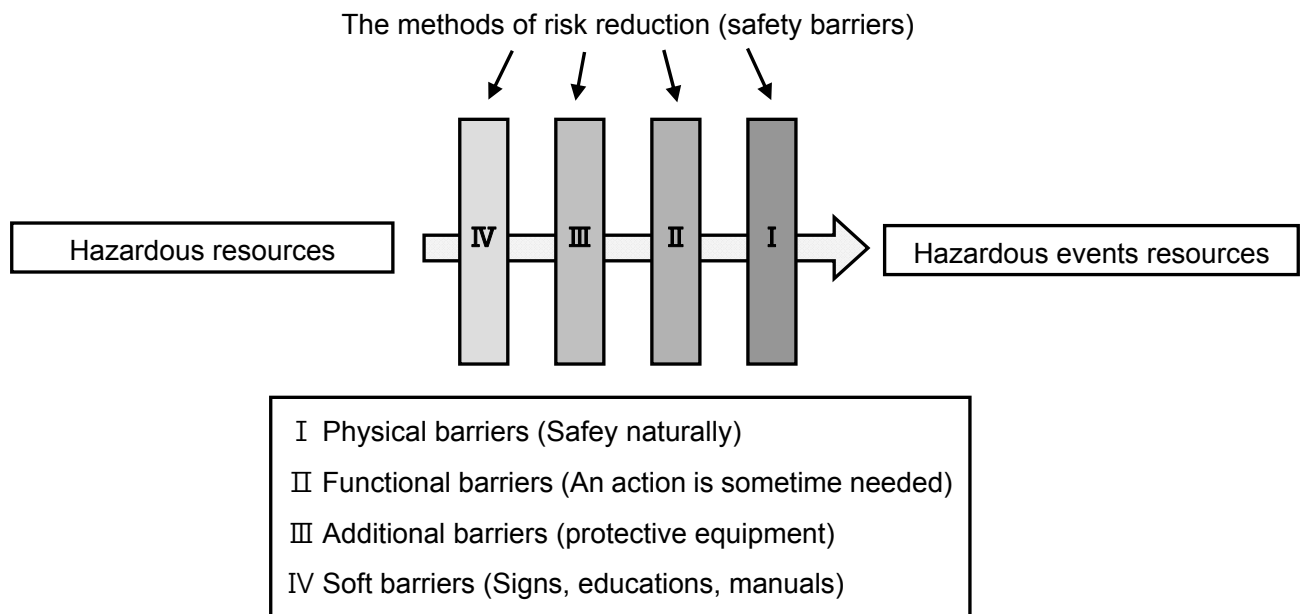
There are two main types of methods for risk reduction.

One is “To reduce the probability of hazardous events” and the other is “To reduce a degree of hazardous events”.

The Methods are as follows:

To reduce the probability of hazardous events	To reduce a degree of hazardous events
1. Segregate workers from hazardous resources 2. Improve working process/work methods	1. Replace by things low risks and harms 2. Impound hazardous resources 3. Use a proper protective equipment for working

In addition, there is an idea of setting up “Four protection barriers”.



Physical barrier, is called safety barriers, should to be set up for the people near to the hazardous events in order to ensure safety without any conscious. But this barrier is very expensive, and it would not be adapted to all of hazardous resources/ hazardous events. For example, in the case of handling gunpowder, we need such a technique that the gunpowder is handled in explosion-proof equipment with robot from outside in order to avoid the explosion. We can imagine it is very expensive, and firework craftsman lose business.

Taken together, there are many techniques to ensure safety. Since techniques are expensive, we need to decide priorities and sizes. For that reason, there is a technique, is called "Risk assessment", which evaluates risks. This is a technique to provide an indication by giving risk a grade. But spare someone the details of it.

Safety is not made by naturally, but by people. Recently dangerous situations are decreasing due to the high level of safety and culture. These cause "Decreased sensitivity to danger". Therefore, we cannot specify hazardous resources or hazardous resources are lurking. We hope to develop an awareness of safety which is able to suppose hazardous events and carry out measures by identification of hazardous resources.

In addition, it is important that safety is not experimental safety (may be), but proven safety (most likely).

Moreover, safety cannot be ensured by only your effort. When working with other person or sharing rooms with other person, all people in the same area need to have awareness of safety in order to ensure one's safety.

The technique to ensure safety is to specify hazardous resources, suppose hazardous events caused by the hazardous resource, and carry out the methods for risk reduction.