



SUSTAINABILITY
— FrameWorks —

Health and Safety Small hydro projects

ICH Conference, Medellín
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Overview: International

- **Health and Safety** well before environmental or social
- **ILO** fundamental conventions (8) dating back to **1930**
- **ILO** many instruments related to Health and Safety

Overview: Country level

- Most countries ratified key conventions & developed Health and Safety legislation
- There is a plethora of guidance on safe procedure for any type of activities

BUT

- Weak or non-existent enforcement
- Absence of qualified H&S professional
- H&S is seen as an added cost
- Accidents are seen as fateful/inevitable

H&S: risk factors

- **Construction & transport:** 38% of fatalities and 20% of accidents
- **Small enterprises/projects:** accident frequency rate 3X average
- **Age:** 2X to 3X more less than 29 compared with 50-59 – linked to experience and exposure
- **Job term:** frequency and severity higher for temporary/short term



H&S: Cost

- **Direct costs:** workers' compensation payments, medical expenses, payments and training of replacement employees, and costs for legal services.
- **Indirect costs 3X:** administrative costs, accident investigation, corrective measures, lost productivity, damaged equipment and property, loss of productivity and absenteeism because of low morale, fine...

Managing H&S risks at the core of the business



Managing H&S risks

Key steps

- List activities
- ***Assess risk = HAZARD X EXPOSURE***
- Identify risk control measures using control hierarchy
- Develop & implement risk control rules, standards, procedures, training, roles and responsibilities
- ***Monitor, report, review, update***

Managing H&S risks

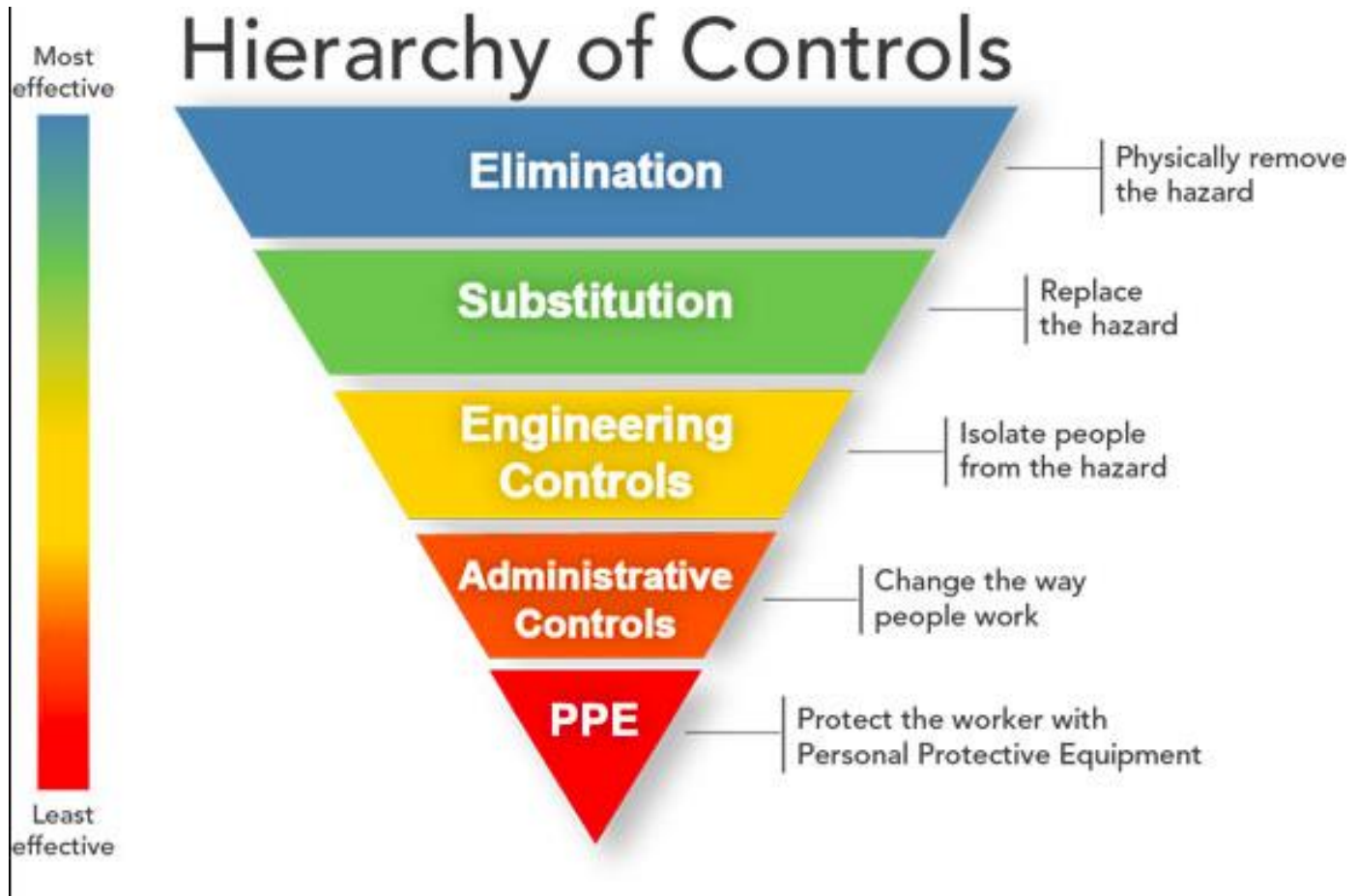
Risk Assessment

HAZARD	RISK	POTENTIAL CONSEQUENCE
Work at height	Fall	Fatality Serious/minor injury Material damage/loss
Construction machinery	Hitting worker(s)	Fatality Serious/minor injury Material damage/loss

Managing H&S risks

Risk assessment

Hierarchy of Controls



Infographic by [NIOSH](#). Control methods at the top of graphic are potentially more effective and protective than those at the bottom. Following this hierarchy normally leads to the implementation of inherently safer systems, where the risk of illness or injury has been substantially reduced.[\[1\]](#)

Managing H&S risks

Risk Assessment

PREVENTIVE MEASURES	PROTECTIVE MEASURES	CONTROL & MONITORING
<p>Avoid</p> <p>Define working rules/procedure</p> <p>Train employees</p>	<p>Install safe scaffolding</p> <p>Use harnesses</p>	<p>Inspection construction regularly</p> <p>Verify harnesses</p> <p>Verify usage</p>

Managing H&S risks

Risk Assessment



ACTIVITY



HAZARD (S)



RISK



POTENTIAL CONSEQUENCE



PREVENTION MEASURES



PROTECTION MEASURES



CONTROL MEASURES

Risk Management

- Rules and procedures
- Emergency preparedness and response
- Training, knowledge and competence
- Roles, responsibilities, missions, contributions
- Change management
- Communication
- Indicators, Inspections and Monitoring
- Analysis of events and root cause

Risk Management

The oil spill

- Is a direct cause of the accident
- Can be eliminated, analyzed, to avoid repetition
- Real consequence cannot be predicted

