Octubre 30-31 Noviembre 1 Medellín 2019













Transformación Social desde la

SST

XXXIX Congreso de Ergonomía, Higiene, Medicina y Seguridad Ocupacional. 18° Congreso Colombiano de Ergonomía: Perspectivas de la Ergonomía en el Trabajo Actual.







Powerful resource and networking













Salutations!

Saludos!

인사!

Greetings!

挨拶

Beannachtaí!

Χαιρετίσματα!

Groete!

问候!











City of Medellin Sponsors All volunteers





Disclaimer:

This presentation reflects the opinion of the presenter and are not IOHA's or any other entity's position











Semana
Semana
Semana
de la
Salud
Ocupacional
Transformación Social desde la SST.

René Leblanc Chemist, M.Sc., CRSP, ROH



GHD

International consultant (environment, geotechnical, civil, architecture) Employee owned (2,000 shareholders) 10,000 employees (North America / Australia)





Office in Chile











Part 1 Occupational Heath & Safety







Yo soy Rene!



Yo soy Jiangsu!



Yo soy Chico!



Yo soy Mohamed!









IOHA is the International Occupational Hygiene Association

We work to protect workers health!

We are 35 countries working together to improve working conditions, to reduce occupational illnesses and fatality.

We are association of x,000 members and of xx members.









Colombia **Brazil Argentina** Peru Mexico Guatemala







IOHA is the H in H&S (Health & Safety)

In Canada:

5,000 CRSP

4,000 CSSE

300 ROH

н&5

In USA: 46,000 CSP

38,000 ASSE

7,000 CIH







The profession of Health & Safety is made of lots of professionals working together to protect workers. The profession of occupational hygiene is a specialization in workers exposure to elements.









Occupational Hygienist

Safety Professionals

Asbestos, lead, silica

Carcinogens

Solvents

Radiation

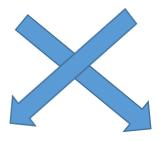
Heat stress

Biohazards

Noise

Ergonomics

Etc.



Interactions

Falls

Excavation/trenches

Electricity

Hurt by object, vehicule

Heavy lifting

Lock-out/tag-out

Noise

Ergonomics

Etc.

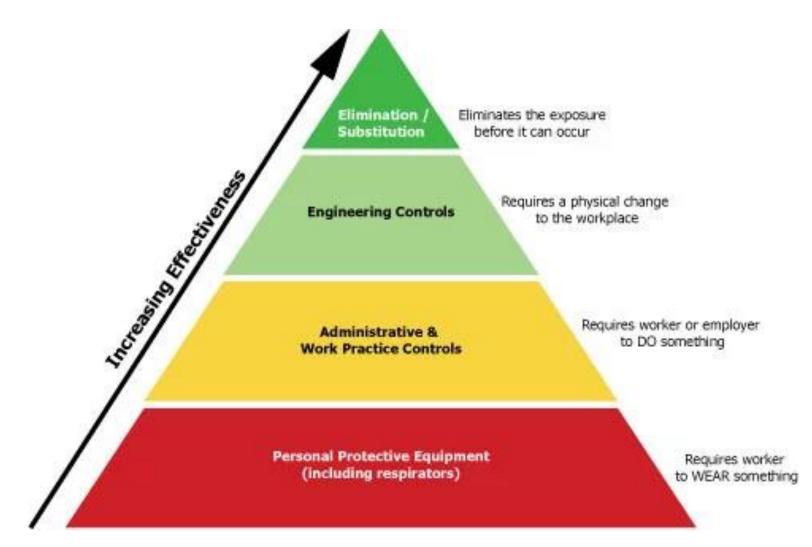






For Both OH and SP

Eliminate risk
Reduce exposure
Substitute to less hazardous
Implement Engineering Controls
Administrative & Work Practices
PPE







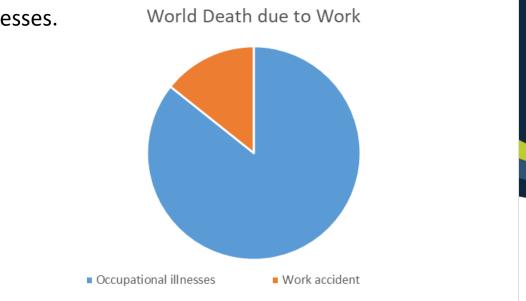


According to ILO

2,8 Millions death per year related to work!

2,4 Millions death do to occupational illnesses.

0,4 Millions death due to accidents.



GLOBAL ESTIMATES OF OCCUPATIONAL ACCIDENTS AND WORK-RELATED ILLNESSES 2017

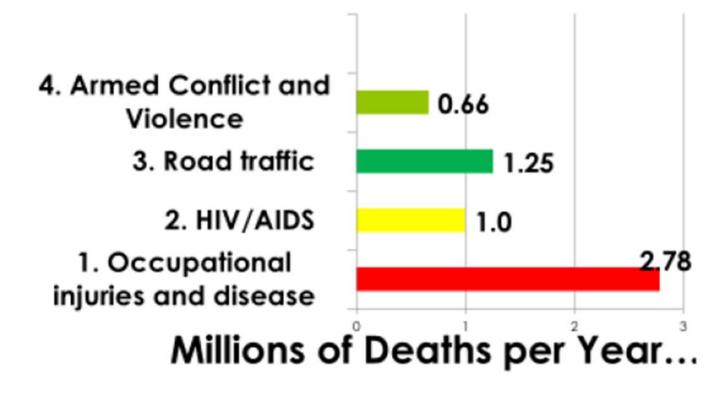
Päivi Hämäläinen . Jukka Takala . Tan Boon Kiat





More people die each year from occupational injuries and disease than from other major causes that are much more visible...





Sources:

1. ILO, 2017

2. WHO, 2016

3. WHO, 2013

 Armed conflict, 2016 (IISS) + homicides, 2012 (WHO)+ terrorism, 2016 (Statista)



For countries where fatal data was not available, the WHO regions were used, where countries of similar income structures were grouped into 7 regions:

- High Income countries (HIGH)
- Low- and middle-income countries of the African Region (AFRO)
- Low- and middle-income countries of the Americas (AMRO)
- Low- and middle-income countries of the Eastern Mediterranean Region (EMRO)
- Low- and middle-income countries of the European Region (EURO)
- Low- and middle-income countries of the South-East Asia Region (SEARO)
- Low- and middle-income countries of the Western Pacific Region (WPRO)

For each region, the available fatality rates of the three economic sectors are shown in Table 2 below.

Table 2: Fatality Occupational Injury Rates per 100,000 employees

Region		Fatality Rates of each economic sector							
	Agri	Agriculture		Industry		Service			
	2010	2014	2010	2014	2010	2014			
HIGH	7.8	no change	3.8	no change	1.5	no change			
AFRO	18.9	no change	21.1	no change	17.7	no change			
AMRO	9.3	8.7	9.5	11.2	6.0	5.7			
EMRO	13.0	no change	14.9	no change	12.3	no change			
EURO	15.7	17.0 👚	10.3	13.4 👚	5.5	3.5			
SEARO	24.0	27.5 👚	9.7	9.9 👚	5.1	4.4			
WPRO	24.0	27.5 👚	9.7	9.9 👚	5.1	4.4			

Tableau 1.1Informations générales sur les lésions professionnelles et le programme *Pour une maternité sans*

			2017	2016
Lésions professionnelles	Avec paiement ¹	> Nombre de lésions professionnelles (LAT)	12 336	13 242
		Nombre d'accidents du travail (LATMP)	230 442	240 674
		> Nombre de maladies professionnelles (LATMP)	76 672	70 645
		Nombre total de lésions professionnelles	319 450	324 561
	• Indemnisées ²	> Nombre de lésions professionnelles (LAT)	8 348	8 935
		Nombre d'accidents du travail (LATMP)	136 920	131 343
		Nombre de maladies professionnelles (LATMP)	15 172	12 651
Quebec's		> Nombre total de lésions professionnelles	160 440	152 929
Injury/Fatality Statistics 2017	• Dossiers ouverts ³	> Nombre d'accidents du travail	86 223	82 179
			15 510	14 678
			101 733	96 857
		> Nombre de maladies professionnelles	9 912	8 235
			5 040	5 182
			14 952	13 417
		> Nombre total de lésions professionnelles	96 135	90 414
			20 550	19 860
			116 685	110 274
	• Décès ⁶	> Nombre d'accidents du travail	62	80
		Nombre de maladies professionnelles	168	137
		Nombre total de lésions professionnelles	230	217







Huge need for Occupational Hygienists and Safety Professionals (as needed basis not a Professional Order)

35 countries has OH association vs 195 countries at United Nations

Africa

Arabic countries

Asia

South America







How to become certified Occupational Hygienists!

Education (B.Sc., M.Sc.)

Wide knowledge

Experience (3-5 yrs)

Exam / certification

Registration maintenance









Only 15 countries have implemented a certification scheme for Occupational Hygienist!

USA (AIHA) offers online exam Colombia working on it!







Occupational Hygienist Required Knowledge

Basic Science (Maths, Chemistry, Physics, Biology)

Chemical Hazards

Physical Hazards - Noise

Physical Hazards - Other

Biological Hazards

Exposure Assessment

Legislation

Ergonomics

Biostatistics and Epidemiology

Toxicology

Safety

Environmental Issues

Process-related Hazards

Labour Relations

Ethics

Management









Safety Professionals Required Knowledge

Singapore Accord
World Summit on Safety
2017

The Occupational Health and Safety (OHS) Professional Capability
Framework: A Global Framework for Practice

OHS Professional

OHS Practitioner







Safety Professionals

The knowledge matrix of the Framework is described under six areas with each area having many categories with illustrative generic topics indicating the intended scope of the knowledge category. This is described at a high, generic level to allow flexibility in the way it is applied to suit the legal and OHS context in individual countries.

The knowledge areas:

A: Hazards and risks

B: Hazard and risk controls

C: Safety and health management

D: Professional role and functioning

E: Underlying technical and behavioral disciplines

F: Underlying management science.



Ergonomist

Safety Professionals

Psychologist Human Resource

Physics Scientist

Table 7: OHS hazard types

Gravitational, including specialized technical and construction hazards
Falls from height
Falling objects, lifting equipment
Slips, trips and falls on level and stairs
Biomechanical
Manual lifting/handling
Postural (including seating)

al a SST.

Repetitive strain Electrical and (electro)magnetic

Chemical

Toxic, carcinogenic, teratogenic and corrosive chemicals, fibers and dusts

Nanoparticles

Sensitizing agents (for asthma, dermatitis)

Fire and explosion

Thermal environment

Heat and cold

Hot work

Noise

Vibration (whole body and hand/arm)

Equipment under pressure/pressure vessels

Powered plant (kinetic and potential energy)

Flying objects ejected from machinery processes

Entanglement in moving parts of static machinery (including robots)

Use of portable power tools

Moving plant/vehicles (kinetic and potential energy)

Occupational road use

Subsidence and collapse

Structural failure

Psychosocial hazards⁴⁰

Workload/stress

Fatigue

Impacts on wellness

Bullying and harassment

Aggression (people/animals)

Violence at work41

Hazards in special work environments

Confined spaces (including asphyxiant atmospheres)

Drowning/diving

Higher than atmospheric pressure

Computer/monitor screen, including control rooms

Biological hazards (including occupational pathogens)

Infectious diseases

Indoor air quality (spores, pollens, prions, etc.)

Ionizing radiation

Nonionizing radiation (including lasers, UV, radio frequency, etc.)

Hazards of the natural environment (earthquake, flooding, storm, tornado, etc.)







Part 2 Partnership / Networking







Health



Individual Health



Public Health

Maternity Older Illnesses Well-being

Tobacco

Homeless

Poverty

Alcoholism

Occupational Health

Environmental

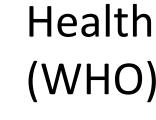
Health



United Nations (UN)







Partners

Individual Health

Workers Health (ILO)

Maternity Older Illnesses Well-being World Federation of Pubic Health Association

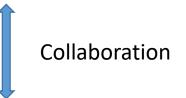
ICOH
IOHA INSHPO IEA ISRP IRPA
Others







ICOH International Commission on Occupational Health (>100 yrs) Doctors/Physiciens in Occupational Health



IOHA
International Occupational Hygiene Association
Occupational Hygienist







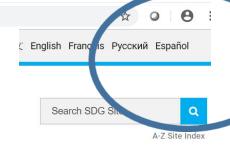
UNITED NATIONS GOALS 2030

un.org/sustainabledevelopment/sustainable-development-goals/

Transformación Social desde la SST.











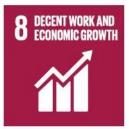










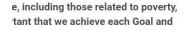
































International Labor Organization (ILO)

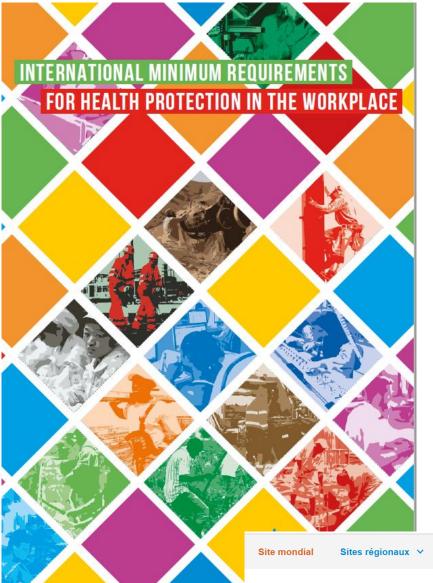
Work for a brighter future report/action plan

Most organizations worldwide are small by size and the importance of small-and medium-sized enterprises (SMEs) to both developed and developing economies and societies is indisputable. According to the World Trade Organization, (World Trade Report 2016 Leveling the Trading Field for SMEs) SMEs represent over 90 per cent of the business population, 60-70% of employment and 55% of GDP in developed economies.

Manoj Fadnis, Christopher Arnold | June 27, 2018











World Health Organization (WHO)











ISSAInternational Social Security Association



As per the ISSA Constitution, the term "social security" means any scheme or programme established by legislation, or any other mandatory arrangement, which provides protection, whether in cash or in kind, in the event of employment accidents, occupational diseases, unemployment, maternity, sickness, invalidity, old age, retirement, survivorship, or death, and encompasses, among others, benefits for children and other family members, health care benefits, prevention, rehabilitation, and long-term care. It can include social insurance, social assistance, mutual benefit schemes, provident funds, and other arrangements which, in accordance with national law or practice, form part of a country's social security system.

WORLD CONGRESS ON SAFETY 2020 TORONTO, CANADA







World Bank

Finance projects worldwide

Mostly in emerging

countries

Transformación Social desde la SST.

General EHS Guidelines [Complete version] at: www.ifc.org/ehsguidelines



Environmental, Health, and Safety (EHS) Guidelines
GENERAL EHS GUIDELINES: OCCUPATIONAL HEALTH AND SAFETY



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Applicability and Approach

Employers and supervisors are obliged to implement all reasonable precautions to protect the health and safely of workers. This section provides guidance and examples of reasonable precautions to implement in managing principal risks to occupational health and safety. Although the focus is placed on the operational phase of projects, much of the guidance also applies to construction and decommissioning activities.

Companies should hire contractors that have the technical capability to manage the occupational health and safely issues of their employees, extending the application of the hazard management activities through formal procurement agreements.

Preventive and protective measures should be introduced according to the following order of priority:

- Eliminating the hazard by removing the activity from the work process. Examples include substitution with less hazardous chemicals, using different manufacturing processes, etc;
- Controlling the hazard at its source through use of engineering controls. Examples include local exhaust ventilation, isolation rooms, machine guarding, acoustic insulating, etc;
- Minimizing the hazard through design of safe work systems and administrative or institutional control measures.
 Examples include job rotation, training safe work procedures, lock-out and tag-out, workplace monitoring, limiting exposure or work duration, etc.
- Providing appropriate personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PPE.

The application of prevention and control measures to occupational hazards should be based on comprehensive job

	Consequences						
Likelihood	Insignificant 1	Minor 2	Moderate 3	Major 4	Catas- trophic 5		
A. Almost certain	L	М	E	E	Е		
B. Likely	L	М	Н	Е	Е		
C. Moderate	L	М	Н	Е	Е		
D. Unlikely	L	L	М	Н	E		
E. Rare	L	L	М	Н	Н		

Legend

E: extreme risk; immediate action required

H: high risk; senior management attention needed

M: moderate risk; management responsibility should be specified

L: low risk; manage by routine procedures

GHD STAR Program

APRIL 30, 2007







International Ergonomics Association



Founded in 1959
Present in 52 countries

Unlike chemical hazards, radiation ,...., Ergonomy is everywhere and it concerns everybody

















△ > ABOUT > ABOUT OHTA: PURPOSE AND PRINCIPLES



▶ Putting principles into practice

Board and Committees

Volunteers

Stakeholders

▶ Sponsorship and sponsors

Student Scholarships and Funding

Donations

OHTA Documents

▶ OHTA E-bulletin

News

The Occupational Hygiene Training Association (OHTA)

OHTA was formed to promote better standards of occupational hygiene practice throughout the world. We develop training materials and make them freely available for use by students and training providers. We also promote an international qualifications framework so that all hygienists are trained to a consistent, high standard, recognized in all participating countries.



OHTA began as an informal collaboration between dedicated occupational hygiene professionals who wanted people around the world to enjoy the





Workplace Health Without Borders

International Canada/USA/UK/Australia











ocuron resunts

<u>Training material</u>	<u>Level</u>	<u>Language</u>	<u>Updated</u>	
W503 Noise - Measurement and its Effects	Intermediate	English	26 Mar 2010	view >
W504 Asbestos and Other Fibres	Intermediate	English	02 Apr 2010	<u>view</u> >
W501 Measurement of Hazardous Substances	Intermediate	English	15 Apr 2010	view >
W502 Thermal Environment	Intermediate	English	11 Jan 2018	view >
W505 Control of Hazardous Substances	Intermediate	English	30 Jul 2019	view >
W506 Ergonomics Essentials	Intermediate	English	20 Apr 2010	view >
W201 Basic Principles in Occupational Hygiene	Principles	English	20 Sep 2019	view >
W507 Health Effects of Hazardous Substances	Intermediate	English	22 Apr 2010	view >
W501 Prøvetaking av helsefarlige kjemikalier	Intermediate	Norwegian	30 Mar 2012	view >
W201 Manual Do Aluno	Principles	Portuguese	17 May 2019	view >
W501 Medición de sustancias peligrosas	Intermediate	Spanish	18 Feb 2014	view >
W503 Ruido - Medición Y Sus Efectos	Intermediate	Spanish	19 Feb 2014	view>
W201 职业卫生基本原则	Principles	Mandarin	17 May 2019	view >
W201 Manual del Estudiante - Principios Básicos en Higiene Ocupaciona	Principles	Spanish	22 Nov 2018	<u>view</u> >
Silica Hazard Awareness	Awareness	English	19 Sep 2019	<u>view</u> >

XXXIX Congreso de Ergonomía, Higiene, Medicina y Seguridad Ocupacional 18º Congreso Colombiano de Ergonomía











Occupational Safety and Health Administration

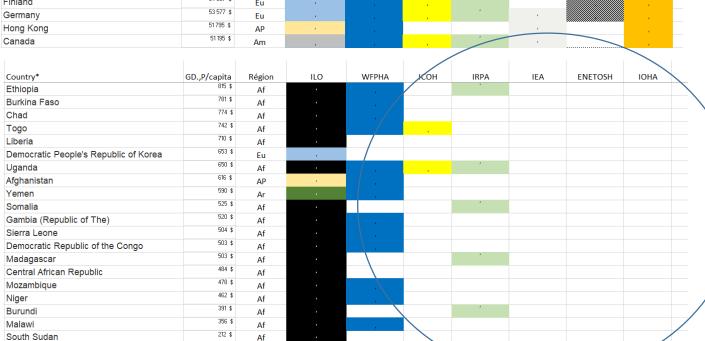








Country*	GD.,P/capita	Région	ILO	WFPHA	ICOH	IRPA	IEA	ENETOSH	IOHA
Monaco	165 414 \$	Eu							
Liechtenstein	161 277 \$	Eu							
Luxembourg	129 710 \$	Eu							
Iceland	92 922 \$	Eu				,			
Switzerland	90 532 \$	Eu				*	4		100
Norway	85 204 \$	Eu				*	4		
Ireland	84 426 \$	Eu				*			
Qatar	70 668 \$	Ar							
Denmark	66 907 \$	Eu				,			
United States of America	65 058 \$	Am				*	4		
Australia	63 052 \$	AP				*	4		
Singapore	62 675 \$	AP	4				4		
Sweden	62 548 \$	Eu				,			
Netherlands	58 062 \$	Eu				*	4		
Austria	57 441 \$	Eu				*	4		
San Marino	55 339 \$	Am							
Finland	54 687 \$	Eu				,			
Germany	53 577 \$	Eu				*	a a		
Hong Kong	51795 \$	AP					4		
Canada	51 195 \$	Am		100					
Country*	GD.,P/capita	Région	ILO	WFPHA	ІСОН	IRPA	IEA	ENETOSH	IOHA
Ethiopia	815 \$	Af				,			
	701.4								







Other issues

War
Famine
Health
Social security
Women's right
Democraty

....

Absence!







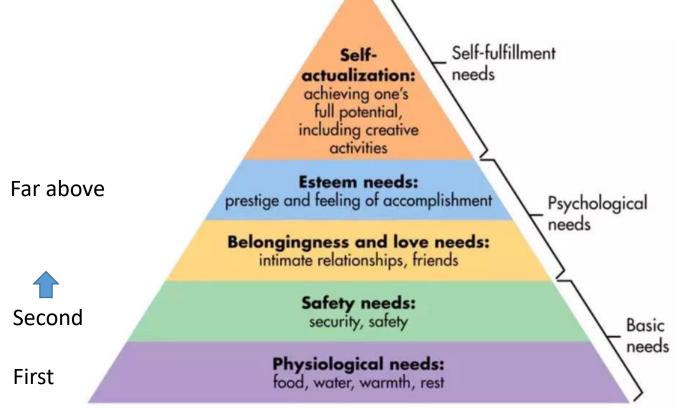








Maslow Pyramid























Part 3 Who's responsability?















UN? **Governments?** Standards (ISO)? **Employers? Employees?**











OHS International Convention Ratification per Country

C121 - Employment Injury Benefits Convention, 1964 24 countries

C152 - Occupational Safety and Health (Dock Work) Convention, 1979 27 countries

P155 - Protocol of 2002 to the Occupational Safety and Health Convention, 1981 12 countries

C167 - Safety and Health in Construction Convention, 1988 31 countries (China)

C176 - Safety and Health in Mines Convention, 1995

C184 - Safety and Health in Agriculture Convention, 2001 16 countries

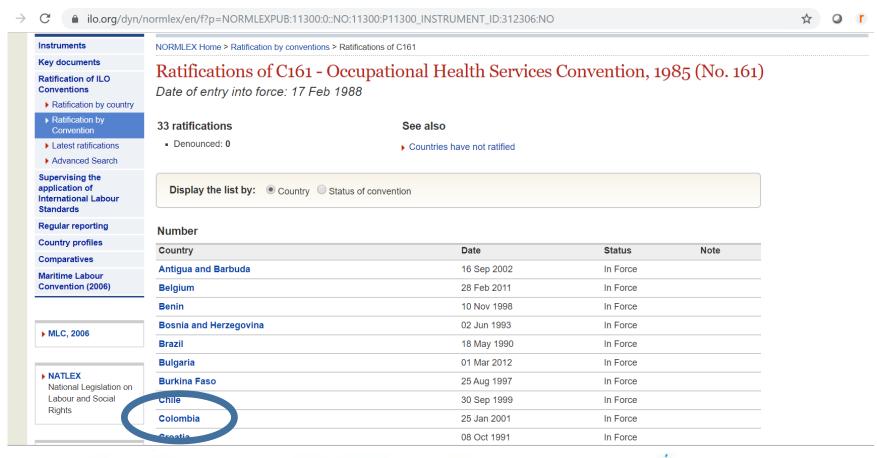
C187 - Promotional Framework for Occupational Safety and Health Convention, 2006 45 countries (Can-Uk)

TWO countries signed all conventions FINLAND and SWEDEN

102 signed none of them 48 signed one (Canada, UK, USA, China) 21 signed two 8 signed three 10 signed four 3 signed five (Guinea, Luxembourg, Germany) 0 signed six























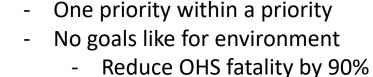






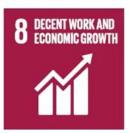






Not in the News!!









































(My) 12 steps for a country to implement OHS*

- Sign/Implement International Conventions
- Adopt Laws & Regulation
- Have an education system teaching OHS (elementary, high school, college, university)
 - ENOTOSH
- Have trained inspectors and enforce regulation (positive reinforcement/punitive)
- Have a Occupational Hygiene Medical System/Structure
- Have Associations for promotion & communication, involve people
- Provide social security for accident/injury
- Have a structure to report incident
- Investigate Incidents/Fatality
- Study occurrences, trends (epidemiology) piorize
- Implement prevention culture (source elimination)
- Accountability
 - Canada Bill C-21









(*) Not necessarily in order







Canada Bill C-21 (2004): incredible effect!!!!

Es responsabilidad de cualquier persona que dirija o esté autorizada para realizar una tarea o la ejecución de una tarea tomar las medidas adecuadas para prevenir lesiones corporales a otra persona (217.1, Código Penal).

Still +/-1,000 fatalities and thousands of injuries/illnesses per year in Canada!













Accountability / Sometimes complex

100% employers / 0% employees 100% employees / 0% employers 50% / 50%

Quebec 100% employers, but...

Ex. don't wear your ear plugs, your boss problem







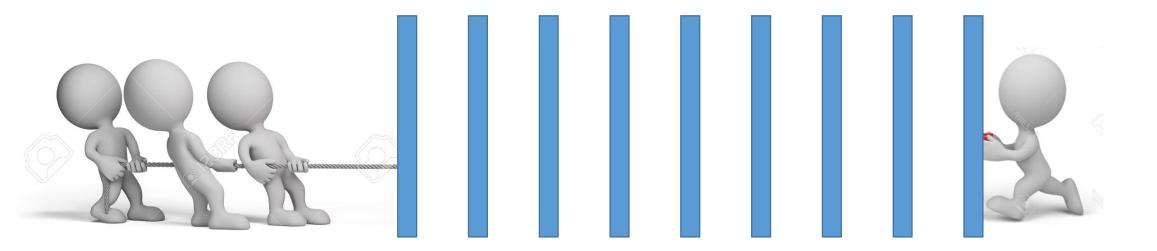








Maximize Results (Efforts vs Impacts)

















Limits to government interventionism?

- Responsability
- Accountability
- Free market
- Time to adopt regulations
- International commerce
- National, provincial, municipal rules











Employers





Many employers makes H&S as no. 1 Priority (discussion)
Social Corporate Responsability/Sustainability (huge potential)

- already strong in social science and environment
- more to be done in OHS
- Consumers Good Forum

Chain of supply Sub Contractors (domino effect)



Swedish national data suggest that about 50% of companies have an ongoing, systematic OHSM (2014)

Has mentioned SME = 90% working population

Employers has obligation to train employees on hazards they may be exposed during their work. Many employers don't even know!!!



























Standards (ISO)

Great opportunity Mostly volontary, not mandatory unless become requirements











Employees





Education? Knowledge?

Capacity?

Choice?

Unions (rf. Quebec Asbestos Strikes)

OSH Joint Committees















Evidence

There is now a body of evidence showing the relationship between workplace health and well-being, worker engagement, resilience, and productivity.

Investment for companies













Salud Ocupacional

Transformación Social desde la SST.

What makes most impact?

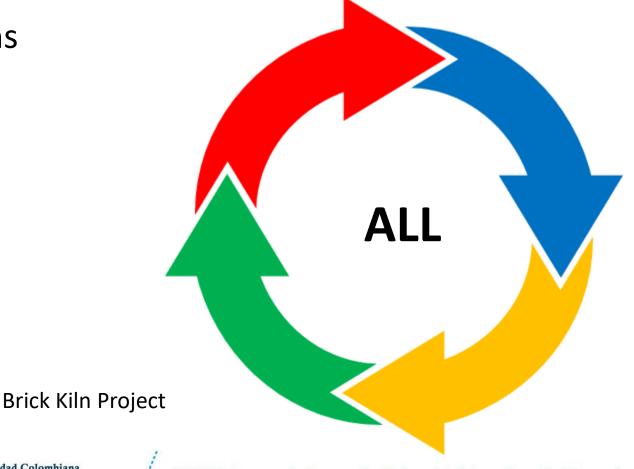
Laws / regulations / conventions

Education / Training

Behavior (risk tolerence)

Accountability

Enforcement/Penalty

















Why accidents happens? Accident investigation

It was faster that way

I've done it a 1,000 times

They showed it to me that way

I had to hurry

Did had the proper tool but didn't want to go get it

I had no other choice

5 Why?

Truck accident Qc















Knowledge vs consciousness

Its not because I see that I look
Its no because I ear that I listen
Its not because I know that I apply

Experience vs competence

Young workers / 1st job

Willing to learn
Willing to work
Don't want to deceive
Ready to do anything
Anything!!!











Funding in OHS





While their's 100's of fund for environment (great)

None or almost in OHS, many in H, many in research/treatment

Little, very little in fundamental Prevention (cost?)

ILO Vision Zero Fund (High level)
Its employers responsability?
IOHA current project (to be followed)















Part 4 IOHA















We talk! We influence! We take actions! We bring people together! We organize conference! We provide training! We ensure competency! We make partnership! We share knowledge! We are Greta! We need a Greta!

















IOHA's NAR

IH Certification Competency
Australia = Canada = France = Colombia

IOHA's program to review and approve

certification scheme for applying countries to ensure reciprocity!



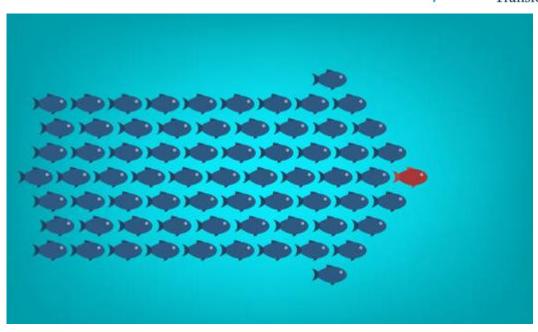






Influence

- WHO
- ILO
 - Statement on Tuberculosis
 - Statement on OH as Workers Fundamental Right
- World Bank









Partners/Sponsors

Many, per events!

Now new, webpage









Networking and resources

IOHA is 32 countries association

More than this

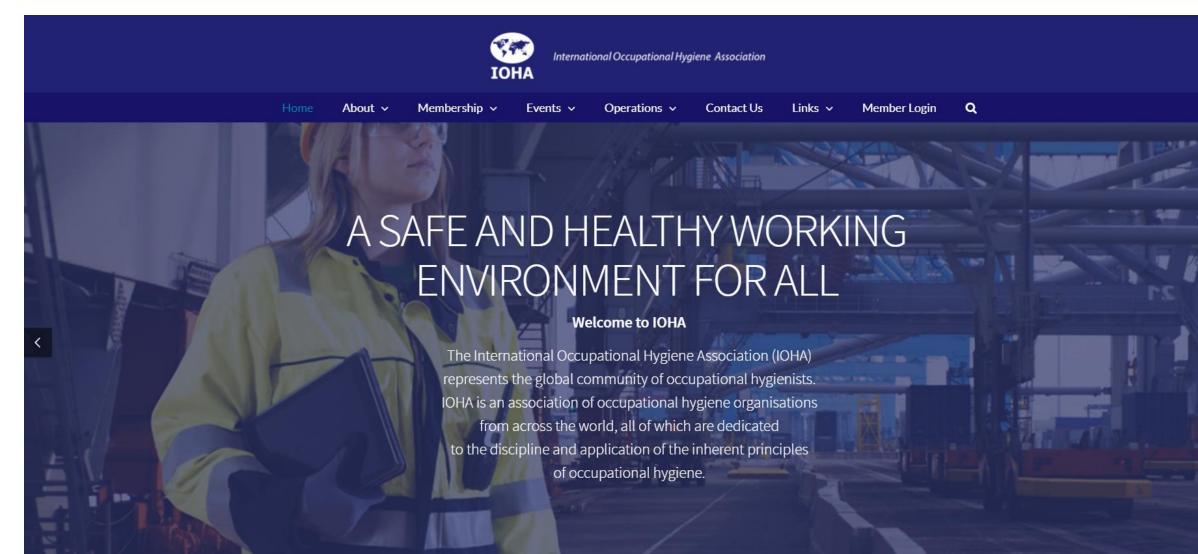
IOHA is 25,000 members association

New Website



























































About

Membership v

Events v

Operations v

Contact Us

Links v

Member Login Q













Sponsors

SPONSORS

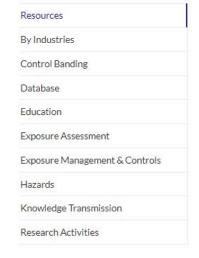








Resources



A simplified way to describes part of Occupational Hygiene, is through this scheme.

Source



Transmission/Dispersion



Receptor

A contaminant (source) is being dispersed or transmitted to a receptor. Many elements then comes into play. What is the source? What is the contaminant? What is the concentration? Can we eliminate/substitute the source? How is it being dispersed? Can we control/reduce/eliminate its dispersion? Who will be the receptor? What will be its exposure? What is the frequency? What is the duration? What will be the impact on its health? On short term/long term? And many other questions...

We encourage people working in the field of OHS to expand their knowledge to understand and answer these questions. Please do not hesitate to use our Network tool to ask questions. The following links will provide you resources to find some answers and follow the evolution of knowledge in our field of practice.

HAZARDS

BY INDUSTRIES

DATABASE

CONTROL BANDING

EXPOSURE MANAGEMENT & CONTROLS

EDUCATION

EXPOSURE ASSESSMENT

KNOWLEDGE TRANSMISSION

RESEARCH ACTIVITIES









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Biological Monitoring

Hygiene Calculation Tools

Sampling Media and Equipment

https://www.skcltd.com/images/pdfs/224-G1.pdf

https://www.draeger.com/Products/Content/laboratory-behind-glass-tubes-pi-9046079-en.pdf

https://www.casellasolutions.com/content/dam/casella/site/knowledgebank/noise-glossary-of-

terms.pdf

https://www.casellasolutions.com/content/dam/casella/site/knowledgebank/air-sampling-glossary-of-

terms.pdf

https://www.bksv.com/en/Training/Video-tutorials

https://www.partnerconnect.honeywell.com/~/media/EssPortal/Product/Files/Brochures/Gas-

Detection/HIS_India_Gas-Detection-Brochure.ashx

https://www.skcinc.com/catalog/hse-guide.php

https://www.skcltd.com/knowledge-library/what-is-air-sampling.html

Laboratory Analysis

OELs

https://en.wikipedia.org/wiki/Occupational_exposure_limit

http://gestis-en.itrust.de/nxt/gateway.dll/gestis_en/000000.xml?

f=templates\$fn=default.htm\$vid=gestiseng:sdbeng\$3.0

http://www.hse.gov.uk/pubns/priced/eh40.pdf













































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IOHA News



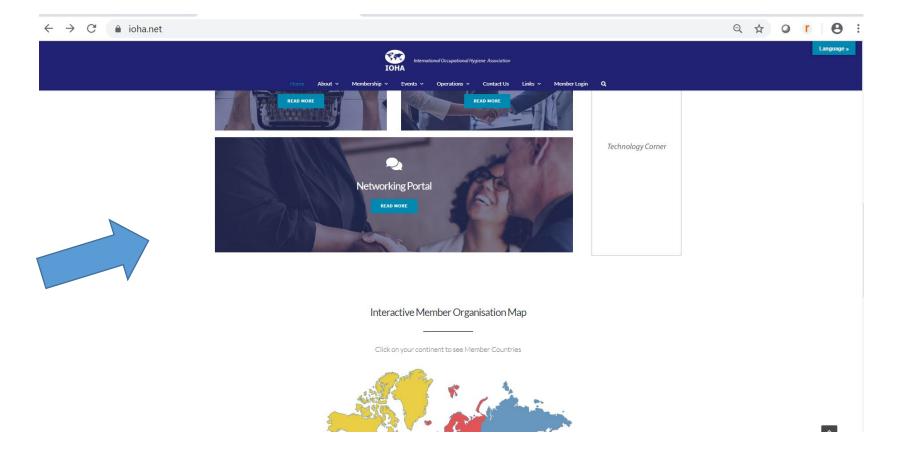


























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Merci!

Gracias!

Questions?

Preguntas?



