



# INTERMIN



## Skills and training in community relations, mining conflicts and artisanal mining in the Andes

### International Network of Raw Materials Training Centers

**INTERMIN**

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Geological Survey of Spain

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776642



- Intermin in a nutshell
- Mining in the Andes, short historical overview and main issues
- Skills needed, gaps and current situation in training SLO in the Andes
- The Intermin approach, comming deliverables and tasks



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Brief!!

- Intermin is a 36 month lasting project that started in February 2018 (KOM)
- Intermin aims to identify the skills required (graduate) for the mining and mineral raw materials sectors, gaps between formation available and industry and explore future pathways to integrate both.
- INTERMIN will create a self-sustainable long-term lasting international network of training centres for professionals.
- The network will map skills and knowledge in the EU and the third countries, identify key knowledge gaps and emerging needs, develop a roadmap for improving skills and knowledge, as well as establish common training programmes in the raw materials sectors.
- The project involves educational and research institutions in the EU and the leading counterparts in third countries, based on specific country expertise in the primary and secondary raw materials sectors.

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## Partners, third parties and Advisory board



Global audience of approximately 550 000  
professionals from 5 continents

This project has received funding from the European Union's Horizon 2020 research and innovation

## Participants

	INSTITUTO GEOLÓGICO Y MINERO DE ESPAÑA	IGME	ES
	EUROGEOSURVEYS	EGS	BE
	BUREAU DE RECHERCHES GEOLOGIQUES ET MINIERES	BRGM	FR
	ASOCIACION DE SERVICIOS DE GEOLOGIA Y MINERIA IBEROAMERICANOS	ASGMI	ES
	LA PALMA RESEARCH CENTRE FOR FUTURE STUDIES SL	LPRC	ES
	UNIVERSIDAD POLITÉCNICA DE MADRID	UPM	ES
	FEDERATION EUROPEENNE DES GEOLOGUES	EFG	FR
	MONTANUNIVERSITÄT LOBEN	MUL	AT
	COORDINATING COMMITTEE FOR GEOSCIENCE PROGRAMMES IN EAST AND SOUTHEAST ASIA	CCOP	TH
	AMERICAN GEOLOGICAL INSTITUTE	AGI	US
	THE UNIVERSITY OF QUEENSLAND	UQ	AU
	YOUNG EARTH SCIENTISTS NETWORK	YES	BE
	SVERIGES GEOLOGISKA UNDERSÖKNING	SGU	SE



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# Andes « big » mining and history

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- Spanish Colonial Era 1532- second decade 18th C
- North American and British investments: starting last decades 19th C
- Nationalization of mining (70's Peru, 1965 Copper Chile, Potosi Bolivia 1952)
- Commodity prices scenario 1980`s and 1990`s. Tin Crisis 1982
- 2000s commodities boom. Attract huge investment in the area



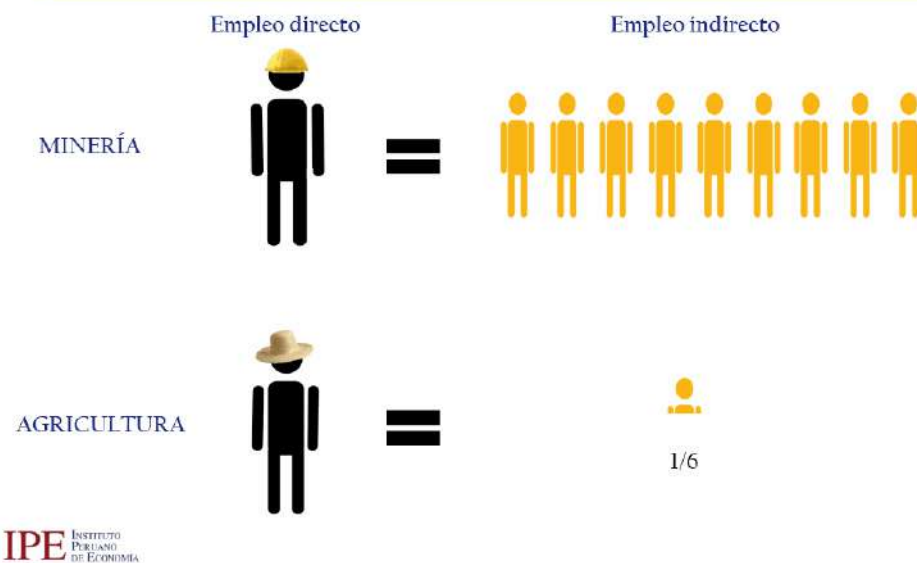


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# The reality in Andes in 21st Century

Country	Mining Gross Domestic Product (% total) 2008	GDP per capita PPA 2015 dolars
Argentina	1,4	22.400
Bolivia	6,3	6.400
Chile	6,7	23.500
Ecuador	0,4	11.400
Peru	5,7	12.000

## Empleo directo e indirecto generado por sector



Source: own compilation from several sources

Mining activity has a multiplying effect on local economic and employment - specially relevant in areas without tourism or industry. Where there are no infrastructures, hospitals, etc...







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# The reality in Andes in 21st Century

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- Main issues faced by mining in the Andes regions regarding social acceptance:
- Mining background: social conflicts and reputation of companies and inherited environmental problems
- Big projects acceptance, legal, environmental and land ownership and political issues
- Artisanal and small scale mining- legalization “*formalización*”. Illegal mines. Due to several crisis and lack (or very small) of social state coverage subsidies.
- Miners are often not locals





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# The reality in Andes in 21st Century



Morococha mine town and Toromocho Project  
Underground mine to a new open pit Project  
4800 million dollars investment and relocation of 5000 inhabitants

See:

<http://www.s-c-g.net/es/portfolio-items/reasentamiento-de-la-ciudad-de-morococha-proyecto-toromocho-junin-peru/>

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# Artisanal and small scale mining: environmental and social issues

Rinconada gold mines (Peru)  
5000 m.a.s.l





# Artisanal and small scale mining: environmental and social issues

Illegal mining neighbouring  
medium scale legal mines: Peru







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# Artisanal and small scale mining: enviromental and social issues

Potosí mines. Cero Rico.  
Bolivia





# Increasing safety and environmental standards: social implications at all levels







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# Identifying a problem

## Mining Conflicts in Latin

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Conflictos mineros en América Latina

Infórmalos sobre un conflicto: Contacto

Nombre(s) y Apellido(s) (obligatorio)

Correo electrónico (obligatorio)

Nombre del conflicto (obligatorio)

País del conflicto (obligatorio)

Nombre del proyecto minero (opcional)

Empresa(s) (opcional)

Descripción general del conflicto

Comentario adicional (opcional)

Enviar

Conflictos Mineros en América Latina

Infórmalos sobre un conflicto Contacto

Categorías

+ Criminalización

Información general	Nº	Detalles
Conflictos publicados	248	Ver
Conflictos transfronterizos	6	Ver
Proyectos mineros involucrados	266	Ver
Casos de criminalización de la protesta	158	Ver

País

País	Nº	Detalles
Argentina	29	Ver
Bolivia	9	Ver
Brasil	26	Ver
Chile	41	Ver
Colombia	15	Ver
Costa Rica	2	Ver
Ecuador	8	Ver
El Salvador	3	Ver
Guatemala	10	Ver
Guayana Francesa	1	Ver
Honduras	5	Ver
México	44	Ver
Nicaragua	7	Ver
Panamá	7	Ver
Paraguay	1	Ver

Conflictos

Proyectos

Criminalización

Consultas

Mapa de América Latina mostrando la distribución de conflictos mineros por país.



# Skills required

The “first person to arrive” can be critical for the project

Combination of local speaking guides and social collaborators in early stages





Geologist and engineers many times are the first contact with the community (they also coexist with locals): we need to improve our social and communication skills and multidisciplinary teams







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# Skills required

## Indigenous languages in Spanish speaking Latin America

Source: Gladys Zuna Llanos

Universidad San Francisco Xavier de Chuquisaca. Bolivia



Quechua:  
“language of the Incas”:

1. Peru
2. Bolivia
3. Ecuador
4. Argentina
5. Chile





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# Gap identification - Tackling the issue

4th Congress in Community Relations- Peru 20 – 22 may 2019

2 relevant issues:

Legalización of informal (ilegal) mining and artisan mining  
Social License of big investments



For more information see: Congress in Community Relations

[www.congresorelacionescomunitarias.com](http://www.congresorelacionescomunitarias.com)

Mining formalization (an issue as important as community relations for the big projects)

[http://www.eliteperu.net/formalizacion\\_minera.html](http://www.eliteperu.net/formalizacion_minera.html)

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## Seminario de Actualización FORMALIZACIÓN MINERA – Avances y Soluciones

**Fecha:** 14 Noviembre 2017 / **Horario:** 2 pm. a 6.30 pm

**Lugar:** Ministerio de Energía y Minas, Av. Las Artes Sur 260, San Borja, Lima



INICIO

CURSOS

CONGRESOS

AUSPICIOS

NOTICIAS

NOSOTROS

CONTACTO

ser descargados una semana antes del curso, y utilizados hasta una semana después.

**Dictado por:** Phd. Eng. Thamer Yacoub - Presidente de Rocscience, Canadá

**Certificado:** Otorgado por Rocscience, Canadá

**Contacto:** Teléfono: +51 991975259 / Correo: data@eliteperu.net

## TOOL KIT DE RIESGOS SOCIOPOLÍTICOS Adelántese al Conflicto

**Modalidad:** In House / **Horas:** 16 .

**Taller de Entrenamiento**

Domine las Herramientas mas poderosas para la gestión preventiva de conflictos



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# Gap identification - Tackling the issue

The screenshot shows the website of the Facultad de Ingeniería en Ciencias de la Tierra (FICT) at the Escuela Politécnica del Estado (ESPOL). The header includes the ESPOL logo, the FICT name, and a search bar. A navigation menu contains links for FICT, Oferta Académica, Investigación, Vida Estudiantil, and Galería de Autoridades. The main banner image shows a person with a backpack walking towards a building. Below the banner, the 'ENLACES DE INTERÉS' section lists: Boletines Informativos, Documentos de Interés, Medios de difusión, and Estadísticas del año 2017. The 'Vinculación con la Sociedad' section contains the following text:

**Vinculación con la Sociedad**

Según lo establecido en el Reglamento de Régimen Académico Espol, los estudiantes deben cumplir un total de 640 horas de Vinculación con la Sociedad. De ellas, el 60 % corresponde a Prácticas Empresariales y el 40 % a Servicio Comunitario.

Cada facultad y unidad académica de Espol cuenta con una Unidad de Vinculación con la Sociedad. Estos departamentos supervisan los proyectos de servicio comunitario y pasantías empresariales, además de informar a los estudiantes sobre la disponibilidad de programas.

Links with society  
640 hours!!

Students chose among  
many projects and social  
centres guided by  
professors in real projects,  
water supply, teaching and  
training

Also in artisanal and small  
scale mining







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# Gap identification - Tackling the issue

- Strong commitment from companies that believe in what they are doing
- Improving the way they approach to society the social awareness and sustainability
- Not more “colonial approach”

The screenshot shows the Pan American Silver website. At the top, there is a navigation bar with links for CONTACT US, EMAIL SIGN-UP, ESPAÑOL, and a search icon. Below this is a secondary navigation bar with links for COMPANY, OPERATIONS & PROJECTS, INVESTORS, and SUSTAINABILITY. The main content area is titled 'Bolivia' and features a large photograph of a group of people, including children, standing in a mountainous landscape. To the left of the main content, there is a sidebar with a list of locations: United States (Waterloo Project), Mexico (La Colorada, Dolores, La Bolsa Project), Peru (Huaron, Morococha, Pico Machay Project), and Bolivia (San Vicente). The 'Bolivia' section is currently selected and highlighted.

CONTACT US EMAIL SIGN-UP ESPAÑOL Q

PAN AMERICAN  
— SILVER —

COMPANY OPERATIONS & PROJECTS INVESTORS SUSTAINABILITY

United States  
    > Waterloo Project

Mexico  
    > La Colorada  
    > Dolores  
    > La Bolsa Project

Peru  
    > Huaron  
    > Morococha  
    > Pico Machay Project

Bolivia  
    > San Vicente

**Bolivia**

San Vicente

See:  
<https://www.panamericansilver.com/spanish/sostenibilidad/estrategia-desarrollo-social>

No 776642



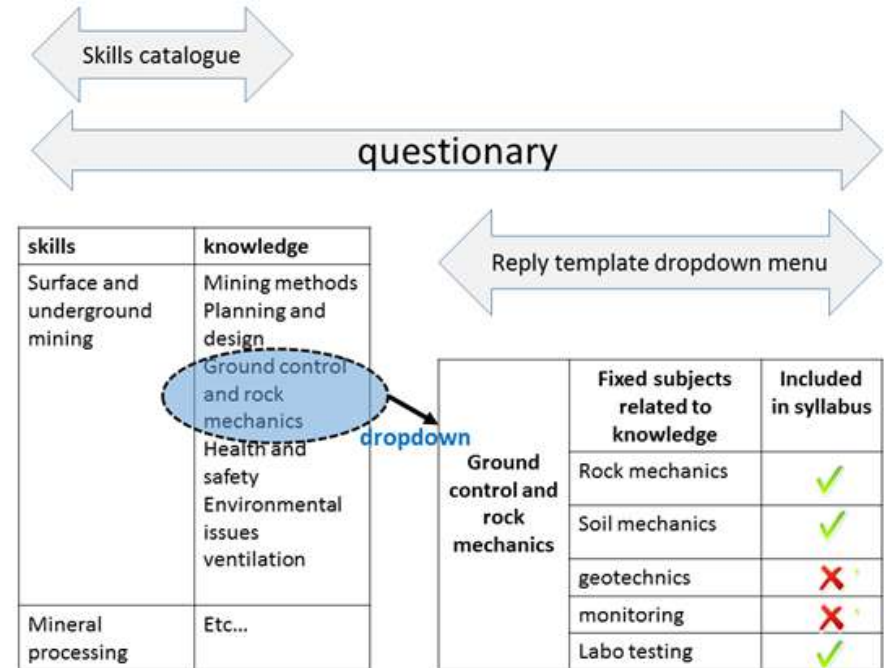


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# The intermin approach

Skills catalogue and questionnaire (comming months)

	Name of career	Faculty/ engineering	Mining value chain					
			exploration	Site set - up	mining	Processin g	Market	Closure and remediation
1	Mining engineer	engineering	x	x	x	x	x	x
2	Industrial / mechanical engineer	engineering		x	x	x		
3	Chemical Engineer	engineering				x		x
4	Sociology	Faculty		x			x	
5	Geologist and Engineering Geologist	Faculty/ engineering	x	x	x	x		x
6	Communication	Faculty		x			x	
7	Environmental engineering	Faculty/ engineering		x				x



## 5.- Skills list proposal (add justification for each skill)

Skill / Competence	Knowledge	Occupation	Justification - definition	Current status <sup>7</sup> : <ul style="list-style-type: none"> <li>classical or consolidated skill</li> <li>to extinguish or highly decreasing</li> <li>emerging skill or future needs identified</li> </ul>
Surface and underground mining	Mining methods Planning and design Ground control and rock mechanics Health and safety Environmental issues ventilation		ABET	
Rock fragmentation	Explosives Mechanical Fragmentation Blast design Grain size analysis		ABET	
Materials handling			ABET	
Mineral processing			ABET	
Mine surveying			ABET	
Valuation and resource/reserve estimation			ABET	
Social and environmental acceptance of mining	Social license to operate / social skills			
	Community relations			
	Project communication			
	Local knowledge - native languages			
	Environmental Impact Assessment			





# Thanks very much!

