

Supplementary materials

Table S 1. Criteria for risk levels of each assessed social indicators defined in PSILCA

Subcategory	Indicators	Unit		Risk level						Reference for indicator definition
				No risk	Very low	Low	Medium	High	Very high	
Contribution to economic development	Public spending on education	% of GDP			10+	7.5-10	5-7.5	2.5-5	0-2.5	
Health and safety	Health expenditure	% of GDP			15+	10-15	5-10	2.5-5	0-2.5	
Fair salary	Living wage per month	USD			<100	100-200	200-500	500-1000	1000+	
	Minimum wage per month (no data)	USD			1000+	500-1000	300-500	200-300	<200	
	Minimum wage per month (data available)	Liv. wage / Min. wage	Min wage >300USD		<0.5	0.5-0.9	0.9-1.3	1.3-1.8	1.8+	
			Min wage <300USD				0.5-0.9	0.9-1.3	1.3-1.8	
	Sector average wage per months	Salary / Liv. Wage or Salary / Min. wage			2.5+	2-2.5	1.5-2	1-1.5	0-1	
Forced labor	Goods produced by the forced labor	#		0	1	2	3-4	5-6	7+	[1]
	Trafficking in persons	Tier# and text		-	1	-	2	2 watch list	3	[2]
Working time	Weekly hours of work per employee	hours				40-48	30-40 or 48-55	20-30 or 55-60	60+	
Respect of indigenous rights	Presence of Indigenous population	Yes/No		No	-	-	Yes	-	-	
	Human rights issues faced by indigenous people	Pts (based on ratification of ILO convention No.169 (1pt), availability of UN report on the rights of indigenous people (1pt), and		-	5	4	3	2	1 or 0	[3–5]

		adoption of UN-DESA 2007 (max 3pts))							
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Table S 2. Results of data uncertainty analysis for selecting social indicators for further assessments.

Impact indicators	green concrete {CH}					green concrete {DE}					green concrete {JP}					green concrete {SE}					green concrete {TH}					green concrete {US}				
	R	C	T	G	F	R	C	T	G	F	R	C	T	G	F	R	C	T	G	F	R	C	T	G	F	R	C	T	G	F
Active involvement of enterprises in corruption and bribery	2	2	2	2	3	3	3	3	3	4	3	3	3	2	4	2	2	2	2	3	5	5	5	5	5	2	2	2	2	3
Anti-competitive behaviour or violation of anti-trust and monopoly legislation	3	3	5	3	3	4	4	5	4	4	4	4	5	4	4	4	4	5	3	4	4	4	5	4	4	2	2	5	2	2
Association and bargaining rights	4	4	5	3	5	2	3	4	1	4	2	3	4	1	4	2	3	4	1	4	4	4	5	3	4	2	3	4	1	3
Biomass consumption	2	1	4	1	1	2	1	4	1	1	2	1	4	1	1	2	1	4	1	1	2	1	4	1	1	2	1	4	1	1
Certified environmental management system	2	1	2	1	2	2	1	2	1	2	2	1	2	1	2	2	1	2	1	2	2	1	2	1	2	2	1	2	1	2
Child Labour, female	3	3	4	2	5	3	3	4	2	5	3	3	5	2	5	4	4	5	3	5	2	2	5	1	5	2	2	4	1	5
Child Labour, male	2	2	4	2	5	2	2	4	1	5	3	3	5	2	5	3	3	5	3	5	2	2	5	1	5	2	2	4	1	5
Child Labour, total	2	2	4	2	4	2	1	4	1	4	3	2	5	2	4	3	3	5	3	4	2	1	5	1	4	2	1	4	1	4
DALYs due to indoor and outdoor air and water pollution	2	1	5	1	4	2	1	5	1	4	2	1	5	1	4	2	1	5	1	4	2	1	5	1	4	2	1	5	1	4
Drinking water coverage	2	2	3	1	1	2	2	3	1	1	2	2	3	1	1	2	2	3	1	1	2	2	3	1	1	2	2	3	1	1
Education	2	1	3	1	1	2	1	3	1	1	2	2	3	2	1	2	2	4	1	1	2	2	3	1	1	2	1	4	1	1
Fair Salary	2	1	4	1	2	2	2	3	1	2	2	2	4	1	2	2	1	4	1	2	2	1	4	1	2	2	2	2	1	2
Fatal accidents	2	3	5	1	3	2	3	5	1	3	4	4	5	4	4	2	3	3	1	2	3	4	4	2	3	3	4	4	2	3
Fossil fuel consumption	4	5	5	3	3	2	5	4	1	1	2	5	4	1	1	2	5	4	1	1	2	5	4	1	1	2	5	4	1	1
Frequency of forced labour	2	4	3	3	-	2	4	3	3	-	2	4	3	3	-	2	4	3	3	-	2	4	3	3	-	2	4	3	3	-
Gender wage gap	3	1	4	1	2	3	1	3	1	2	3	1	4	1	3	3	1	4	1	2	3	1	3	1	2	3	1	5	1	3
Goods produced by forced labour	2	4	1	1	2	2	4	1	1	2	2	4	1	1	3	2	4	1	1	2	2	4	1	1	3	2	4	1	1	2
Health expenditure	2	1	3	1	1	2	1	3	1	1	2	1	3	1	1	2	1	3	1	1	2	1	3	1	1	3	2	3	2	2
Illiteracy, female	2	2	5	1	1	2	2	5	1	1	2	2	4	2	1	2	2	4	1	1	2	2	4	1	1	2	2	3	2	1
Illiteracy, male	2	2	5	1	1	2	2	5	1	1	2	2	4	2	1	2	2	5	1	1	2	2	4	1	1	2	2	3	2	1
Illiteracy, total	2	2	5	1	1	2	2	5	1	1	2	2	4	1	1	2	2	5	1	1	2	2	4	1	1	2	2	3	2	1
Indigenous rights	3	1	3	1	1	3	1	3	1	1	3	1	3	1	1	3	1	3	1	1	3	1	3	1	1	3	1	2	1	1
Industrial water depletion	2	2	5	2	2	2	2	5	1	1	2	2	5	2	2	2	2	5	1	1	2	2	5	1	1	2	2	5	1	1
International migrant stock	2	1	2	1	-	2	1	2	1	5	2	1	2	1	5	2	1	2	1	5	2	1	2	1	5	2	1	2	1	5
International migrant workers (in the sector/ site)	2	3	5	2	2	5	5	5	4	5	3	4	5	3	3	2	3	5	2	2	2	3	5	1	2	5	5	5	5	5
Minerals consumption	3	2	4	2	2	2	1	4	1	1	2	1	4	1	1	2	1	4	1	1	2	1	4	1	1	2	1	4	1	1
Net migration	2	1	1	1	-	2	1	1	1	-	2	1	1	1	-	2	1	1	1	-	2	1	1	1	-	2	1	1	1	-
Non-fatal accidents	2	3	4	1	2	2	3	4	1	3	5	5	5	5	5	2	3	3	1	2	3	3	3	2	3	2	3	4	2	3
Pollution	3	3	2	1	1	3	3	2	1	1	3	3	2	1	1	3	3	2	1	1	3	3	2	1	1	3	3	2	1	1
Public sector corruption	2	1	3	1	-	2	1	3	1	-	2	1	3	1	-	2	1	3	1	-	2	1	3	1	-	2	1	3	1	-
Safety measures	2	4	1	3	2	2	4	1	3	2	2	4	1	3	2	2	4	1	3	2	2	4	1	5	2	2	4	1	1	2

Sanitation coverage	2	2	3	1	1	2	2	3	1	1	2	2	3	1	1	2	2	3	1	1	2	2	3	1	1	2	2	3	1	1
Social security expenditures	2	1	5	1	4	2	1	5	1	4	2	1	4	1	4	2	1	5	1	4	2	1	4	1	4	2	1	5	1	4
Trade unionism	2	3	4	1	4	2	3	5	1	4	2	3	3	1	4	2	3	4	1	4	2	3	4	1	4	2	3	2	1	4
Trafficking in persons	2	1	1	1	4	2	1	1	1	4	2	1	1	1	4	2	1	1	1	4	2	1	1	1	4	2	1	1	1	4
Unemployment	3	3	3	3	3	4	3	4	3	3	5	5	5	5	5	3	2	3	2	2	3	2	2	3	2	2	5	5	5	5
Violations of employment laws and regulations	2	1	1	5	2	2	1	1	5	2	2	1	1	5	2	2	1	1	5	2	2	1	1	5	2	2	1	1	1	2
Weekly hours of work per employee	2	3	3	1	3	2	4	3	1	3	2	4	3	1	3	2	3	3	1	3	2	4	3	1	4	2	4	2	1	4
Workers affected by natural disasters	2	1	2	1	4	2	1	2	1	4	2	1	2	1	4	2	1	2	1	4	2	1	2	1	4	2	1	2	1	4
Youth illiteracy, female	2	2	5	1	1	2	2	5	1	1	2	2	4	2	1	2	2	5	1	1	2	2	4	1	1	2	2	3	3	1
Youth illiteracy, male	2	2	5	1	1	2	2	5	1	1	2	2	4	2	1	2	2	4	2	1	2	2	4	1	1	2	2	3	3	1
Youth illiteracy, total	2	2	5	1	1	2	2	5	1	1	2	2	4	2	1	2	2	5	1	1	2	2	4	1	1	2	2	3	3	1

Each letter represents the indicators for the pedigree matrix to assess the data quality: R reliability of the sources, C completeness conformance, T temporal conformance, G geographical conformance, and F further technical conformance. Values 1 to 5 represents the quality of the data, where 1 is the best and 5 is the worst. Each value has specific criteria for the assignment of the value. “-” sign represents non-availability of the data. Social indicators with 5 or - are highlighted.

References

1. United States Department of Labor, Bureau of International Labor Affairs List of Goods Produced by Child Labor or Forced Labor Available online: <https://www.dol.gov/ilab/reports/child-labor/list-of-goods/> (accessed on May 3, 2018).
2. United States Department of State Trafficking in Persons 2014 Available online: <https://www.state.gov/j/tip/rls/tiprpt/2014/226649.htm> (accessed on May 3, 2018).
3. Office of the United Nations High Commissioner for Human Rights Special Rapporteur on the rights of indigenous peoples Available online: <http://www.ohchr.org/EN/Issues/IPeoples/SRIndigenousPeoples/Pages/CountryReports.aspx> (accessed on May 3, 2018).
4. United Nations Declaration United Nations Declaration on the Rights of Indigenous Peoples. *United Nations Gen. Assem.* **2008**, 10, doi:10.1093/icljaj/24.3.577.
5. International Labour Organization *ILO Convention 169 of June 27, 1989: Convention Concerning Indigenous and Tribal Peoples in Independent Countries*; 1989; Vol. 169;.