Sustainable wellbeing screening with the 2021 Social Footprint method

Denise T. L. Almeida 2.-0 consultants / CSTB

Presentation to the 88th Forum on Life Cycle Assessment

Credits : Bo Weidema



The 2021 Social Footprint method



The 2021 Social Footprint method

- Combines **input-output data** on **value-added** and **work-hours** with an impact assessment on macro-scale impacts of the non-production specific impacts
- Applies equity-weights (or utility-weights), based on the countr-specific average wage/income
- Measures the sustainable wellbeing as Quality-Adjusted person Life-Year (QALY)
 - It is suggested as a unit for 'Sustainable wellbeing' in parallel to the Disability-Adjusted Life-Year (DALY)



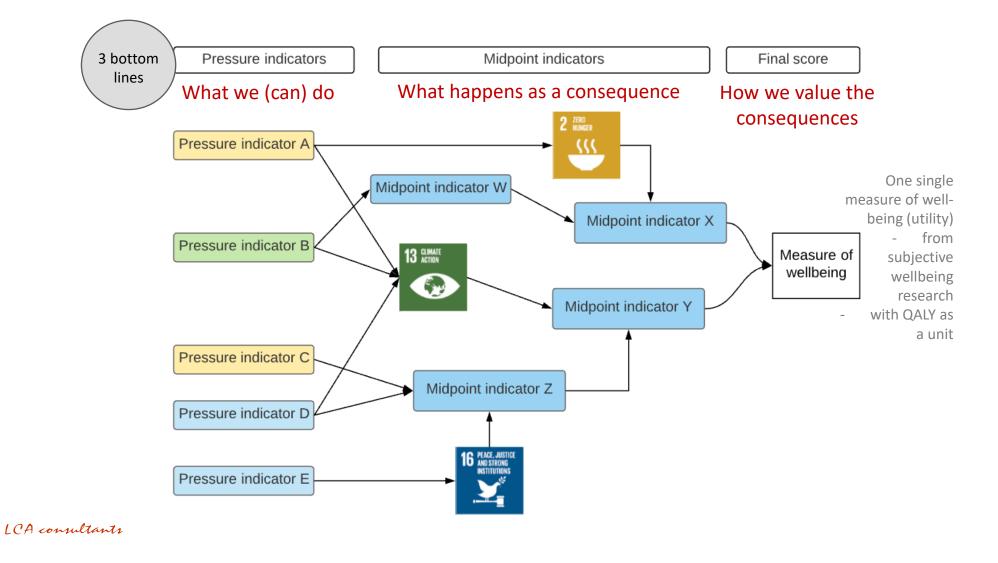
Unique features

- Sustainable wellbeing as a comprehensive summary indicator for all social, ecosystem and economic impacts
 - Allows to quantify trade-offs and synergies between impact categories
- Applying the exhaustive 'capitals' approach to defining the Areas of Protection
- To enable the method to be applied for Life Cycle Assessment (LCA), the applied indicators have been chosen to allow for aggregation and disaggregation at any level of geographical, organisational, and product detail



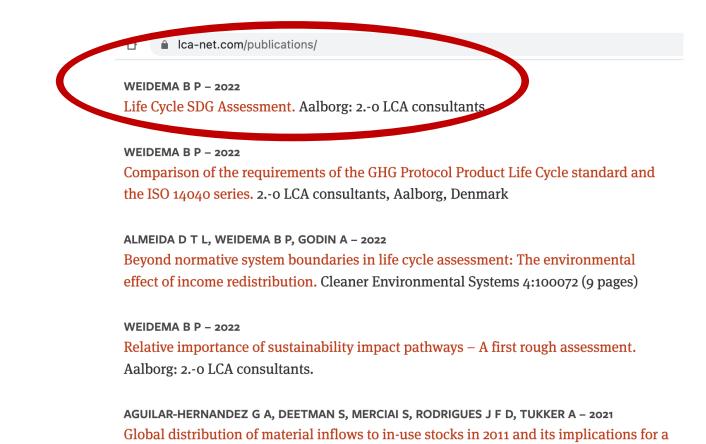
Impact pathway framework

<u>Zr</u>.



Open source - Data files

- Especially important for SME's: Open access data and method
- Cardinal-scale quantitative social impact data for year 2019



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Open source – data files

'Life Cycle SDG Assessment impact data for 2019 (Social footprint methodology 2021).xlsx'

163 countries (> 99% of World)

All impacts divided in 76 impact categories defined at the level of Areas of Protection:

- Natural assets N1 to N9
- Manufactured physical assets M1 to M6
- Intellectual assets I1 and I2
- Human capabilities H1 to H35
- Social networks S1 to S24



	seconcert impact data for 3019 (Social Footprint methodology 2021)		Countryname (80)	Marki arrely and	Web and The	outo Milardali. Kontral	World, total (sume)	Residual (Rest-of World)	Alghanistan	Abania	Almeria	Angola	Argentina	terrecia	Australia	Austria A	erbaijan I	tahoain (Barglade di I	belarus	Belgium	teke te	
Calle St	serverset input exarer 1019 (secure respect outlice energy 1011)		Countrycode (60,0+903)	Work, attraction	worte, non-pri	GLO GLO	Works, total (sums)	Reacting (Rect-of World)	Alli	110	134	A(0)	AND	ARM	ALS	AUT	AN I	ELR I	Europeerd.	In Carlos	Education Sector	14.7 Es	
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			EXCERASES region code						VAA.	WE.	WF	w	WL.	WA.	AU	AT	WA.	was .	444	VIE	86	WL.	
pat		Inpat																					
Legery		pathway																					
unber	Impart category Sub-sol resourcesor	dapter	 Chiginal data sources used for calculations (dobal salue distributed by possiblion, dependent) 																				
N1	Sub-rod recourse up	5	records are assessed by population, on an areas resources are assets of the alobal humanity	25		2.5	18 2	53 D	0.0 0.0	13 0.00	0.014	0.010	0.015	0.001	0.008	600.0	600.0	0.001	0.053	0.003	0.004	0.000	
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NB	Morine biomos and biodiversity, complicitation	14	útto	72		73			058 0.0				0.043	0.003	0.024	0.008	000.0	0.002	0.153	0.000	0.011	0.000	
164	methwater biomacs and biodismity, global warming	7 m	ótto	1.7		14			£13 0.0		0.009	0.007	0.010	0.001	0.005	0.003	0.003	0.000	0.035	0.003	0.003	0.000	
Ni	methwater biomacs and biodismity, curreplaitation	15	útto	13		74			041 0.0				0.044	0.003	0.035	0.009	0.010	0.003	0.163	0.009	0.011	0.000	
196	Findhworker resources, com-exploitation	5	ditto	0.3		0.1	15 0.	15 0	0.0	0.000	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.005	0.000	0.000	0.000	
107	Fredwater resources, vetreated westerwater	5	étte	0.3		0.3	15 0.	15 0	0.0	3 0.00	0.003	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.007	0.000	0.001	0.000	
NE	Servezziel biomess and biodiversity, global warming	13	étto	5.6		5.4	12 5.	62 0	045 0.0	18 0.00	0.031	0.023	0.083	0.003	0.018	0.007	0.007	0.001	0.119	0.007	0.008	0.000	
110	Terrestrial biomess and biodisersity, overepiotation	15	6820	29.9		29.5	16 29.	46 D	219 0.5	0.01	0.167	0.123	0.173	0.011	0.098	0.035	0.039	0.006	0.631	0.037	0.045	0.003	
MI	Underinvestment in physical infrastructure	1,9	Possiblet powerty gap to 5.5 USD 011/person/day			17 83	1 8	71 0	D61 D.D	18 0.00	0.011	0.109	0.013	0.002	0.001	0.000	0.010	0.003	0.394	0.000	0.200	0.001	
M2	Property damage, aucidable damage from dicaster	26	IN-DATdatafor extreme weather events, fire and other		6	5.6 D.6	i0 0.	00 01	0.000	13 0.0004	0.00048	0.0000	0.00378	0.00003	0.00335	0.00003	0.00079	0.00013	0.00339	0.00074	0.00001	0.0003	
			dicaters, adjusted for risk scoreabovelowest country subweability from World Risk Report.																				
м	Property damas, due to alobal warning		substrated syfrom World Rea Report.	63		6.1		10 0.0010	647 D.00008	0.000135	0.0001516	0.0000005	0.0004763	0.0000103	0.0010445	0.0000666	0.0001543	0.000415	0.0007681	0.0003161	0.0000047	0.0000046	
M	Property damage, air pollution	11	Global salue distributed by GDP	0.3		0.1							0.00154385	0.00004739			0.00016697	0.00013335	0.00104864	0.00033333	0.0000047	0.00000687	
M	Property damage ar polition Property damage aren'ty value	15	Global salur distributed by GDP	15		0.3							0.00154385	0.00004739	0.00484030	0.00154357	0.00016697	0.00013335	0.00104864	0.00033333	0.00184818	0.0000687	2
Mi	Property damage, theft, burglary and related ansists	16	Distribution key (GP*2)/capital, based on regression	13	1									0.00003594	0.09175648		0.0009478	0.000153	0.00023040	0.00018010		0.00000418	
		-*	of Switz Redata with GDP/capita	1	¹			0.00191				0.000.0309	onorese28	200002000	eres red i	-average of		200001013	a new and the	Januard 10	wwww.slik		·
11	Yangble cultural heritage	11	Global value distributed by population, since cultural	4.9		6.5	18 4.	10.0	910 0.034	0.0018	0.03734	0.03013	0.03833	0.00187	0.01595	0.00567	0.00636	0.00104	0.10315	0.00598	0.00730	0.00035	
	The design endower is free design of information as an		heritageican asset of the global humanity																				
u	Underlowstment in intellectual infrastructure	10	Part of the residual. Distributed in proportion to the country residuals.	1	185	180.8	16 180	15	1.8 1	4 0:	1 13	1.0	0.9	0.1	0.1	0.1	0.3	0.0	15	0.3	0.1	0.0	
HL	Sub-clinical analets, inadequate access to health care	1.1	Global salue distributed by population weighted by the		25	1.0 75.4	10 75	0.60	015 0.548	7 0.0215	0.37266	0.47690	0.43839	0.02786	0.06565	0.03006	0.12823	0.01189	1.85193	0.06877	0.03609	0.00440	
		1	GED Universal Health Coverage Index																				
на	Sub-clinical analety, throthoning and travmatic traffic situations	1	Global value distributed by GRD Incidence of Road	14.0		14.6	10 14	00 0.06993	606 0.037084	0.0066341	0.04919840	0.03851481	0.05027755	0.00353388	0.01787589	0.00553838	0.01191880	0.00143149	0.37182012	0.02406509	0.00811399	0.00060008	1
на	Health impacts, avoidable, undernutrition, attributable to working conditions		injuries GBD DAUTOr Risk Factor "Subcottinal breatfeeding"			6.0		23.0 65															
148	Health incasts, according on one restriction, and exclusion on the generation of the second s		GED DMLYTer Risk Faster 'Child and material	6.0									0.00014	0.00002	0.00001	0.00001	0.00081	0.00000	0.00163	0.00001	0.00001	000000	
146	react repairs, accessed, cristeristics, attractionets interesting of	- C *	mainstrition' minus 'suboptimal breatfeeling'	833		88.3	16 83.	16 0.48	0.040	0.006.7	032033	0.76830	0.13185	D DD3#3	0.03490	0.00332	DD74BD	0.00313	1.63760	D.D1D3m	0.01108	0.00330	
H	Highh inpats, avoidable, undersutritice, non-production-specific	F	GBD DAUTOr Risk Factor 'Child and maternal		15	1.7 19.6	18 19	68 0.1	587 0.34	14 0.001	0.0510	0.1948	0.0249	0.0018	0.0048	0.0014	0.0196	0.0004	0.3317	0.0031	0.0033	0.0005	
			mainstriction' adjusted for the two indicators above																				
16	Health impacts, avoidable, clean water and sanitation, production-attributable	- A	GED DALYTCY Risk Fattor 'No access to	17.6		17.6	i0 17.	60 0.15	733 0.150	4 0.0003	8 0.01010	0.33633	0.00930	0.00047	0.00075	0.00011	0.00363	0.00030	0.80126	0.00076	0.00043	0.00035	
	Health Impacts, avoidable, clean water and sanitation, non-production-specific		handwashing facility' and 35% of Risk Factor Unsafe GRD DALYTor Risk Factor Unsafe canitation' and																				
HT	react repairs, and any own water and and and the product of the second respective	- C *	75% of Rid Fator Underward source		81	16 815	18 21	58 0.35	066 0.308	2 0.0011	0.01893	0.37665	0.00856	0.00111	0.00093	0.00030	0.00798	0.00041	0.48754	0.00241	0.00033	0.00039	
HR	Health Impacts, work-related psycho-socially caused	1.1	Global value distributed by GRD %D	56.7		56.6	15 56.	65 0.34	584 0.245	0.0206	0.37643	0.17233	0.33953	0.02228	0.32452	0.09189	0.06661	0.01055	1.08571	0.07866	0.10630	0.00256	
HP	Health Impats, and dalify index or and disaters	16	GBD DMAYEer Causer Interpersonal sidered, Yanastians and police car Field, 'Coeffic and terrorism' for (all cause and) Field Factor V Dubleced anos allowed and budging, and for 31.3% of the two Causes Yaposaretic forces of naturel and Venironmental Inst. and cold meposaret		14	1.8 24.3	17 14.	27 0.11			6 D.D3908	0.26866	0.06137	0.00396	0.02391	0.00634	0.01187	0.00136	0.19074	0.03168	0.20944	0.00252	
HID	Health Impacts, and fable, drugs misuse and reff-harm	17	GRD DAILYTor Risk Factory Viscohol usef and 'Drug usef, and For Cause 'alf-harm'		55		10 55	10 0.34	835 0.072	0.0136	0.04779	0.31658	0.89275	0.01749	0.3.24.28	0.04683	0.07336	0.00379	0.37086	0.18269	0.12126	0.00274	
H11	Health Impacts, avoidable, hannful substance-eniosions		GBD DMVTor Kisk fasters Wr polisten', 'saal exposure', 'Doupstional cardinogens', 'Doupstional actimages', and 'Doupstional particulate native, gase and furnes'	117.5		1175	187	10 1.53	574 1.160	14 0.0826	0.41070	0.41792	0.35335	0.04872	0.09294	0.04693	0.15081	0.01821	1.42189	0.11893	0.08868	0.20250	
H13	Health Impacts, avoidable, ultraviolet radiation exposure		608 DALY for 70% of Cause Malignant skin melanomal and 50% of Cause Non-melanoma skin caron ⁴	0.6		0.5	is o:	55 0.00	810 0.000	0.00010	0.00100	0.00060	0.00538	0.00023	0.01198	0.00334	0.00048	0.00003	0.00381	0.00303	0.00248	0.00002	
HIR	Health Impatts, avoidable, ioniding radiation reposure	1.1	(excluded due to insignificance)	0.003		0.6	0			-	-												
H14	Health Impacts, and dable, noise	1	GRD DM/YFor computional noise(7/13 of total) and population which im/population (from country- group datain Table 1 and 3 from Borken et al. 3007)	4.5		4.5		51 0.05	418 0.005	0.0015	0.20763	0.00664	0.03335	0.00156	0.04876	0.01133	0.00533	0.00063	0.04864	0.00437	0.01453	0.0003.0	
			group datase table 1 and 1 from Borben et al. 2007) For traffic noise(6/13 of total)																				
HIS	Highth impatts, avoidable, heat	1.1	608 DALYRIA Factor High Temperaturel, and For	43			10 4.	10 0.03	187 0.031	15 0.0001	0.03131	0.00796	0.00687	0.00015	0.00476	0.00033	0.00303	0.00113	0.10335	0.0006.6	0.00018	0.00010	
			the combination of Risk Factor 'througational injury'																				
HIE	Health Impacts, avoidable, dietary ride	1.1	and Cause Vire, Heat and Hot Substance' GED DALYTer Ride Factor 'Distance Ride'	64.5		64.5	12 64	52 0.54	851 0.321	5 0.0363	0.38786	0.08965	0.83451	0.04418	0.18500	0.06860	0.15865	0.00716			-		
H18 H17	Health Impacts, anoidable, inadequate physical election, occupational	1.1	608 DALYTER Ridefator 'Low physical atteity'	1.0		10							0.00358	0.00175	0.018500	0.06556	0.00453	0.00116		-			stive dat
HIE	Health impacts, avoidable, in adequate physical exercise, Moure activities	1.1	GDB DALVECT Risk Factor 'Low physical activity'										0.00378	0.00136	0.01071	0.00464	0.00351	0.00116		- 1/	5		ctn/o dot
H19	Health Impacts, avoidable, unsafe sevial practices	1.1	608 DAUTOr Ridsfattor 'Unsafessa'		16								0.06647	0.00199	0.00617	0.00393	0.00475	0.00023		- Y			
HDD	Health impatts, avoidable, orgonomic ride, compational	3	GDB DALYTor Risk Factor 'Decupational orgonomic	5.3		53	16 5.	16 0.04	469 0.019	19 0.00431	0.01863	0.01476	0.02465	0.00364	0.01707	0.00603	0.01041	0.00103					JUVL UAL
HØ 1	Halth Inpacts, avoidable, unintentional injury	1	Factors' 608 DAUTOr Cause 'Bansport Injuries' and 67% of 'Unintentional injuries'	50.5		50.4	17 50.	47 0.43	045 0.352	0.0185	0.30716	038340	0.37657	0.01518	0.14497	0.04247	0.05333	0.00637	_		• • •		
103	Health impacts, and able, n.e.c.	1	Asoidable/ABD DAL1[from Weidena & Farthe 2018] not covered under other Health impacts,		11	15 183	10 10	53 0.0	044 0.15	0.015	0.1283	0.1430	0.3131	0.0313	0.1430	0.0767	0.0534	0.0037					
		_	avoidable.1																		-	10'	Inrago
HER	No access to contraception*	1	Suttmasher Data Center Humber of women aged 15–49 who want to avoid pregnancy, with an unmet need for modern contraception				i0 6.	60 0.04	565 0.055	0.0019	0.03314	0.03343	0.03818	0.00331	0.00000	0.00000	0.00774	0.0000.0			C	JU.	/erage
H24	Universited programoles, autonomy infringement	5	Guttmather bits Center rates of unintended pregnands and teen pregnancies expressed per scenae, aged 15–60 from UN World Population Prospects 2019, subtracting unancidationation from Brackey K. (2019)	1	71	1.0 78.0	00 78.	ce	0.75 0.	i5 0.0	0.45	0.81	0.46	0.03	0.08	0.03	0.11	0.00					•
	Health impacts, audidable, unwanted pregnancies	5	Share of 600 DALYTor Cause Maternal and neoratal disorders' that are from unwanted share of "pregnance		15	16 154	14 15:	64 0.01	534 0.353	0.0016	0.05375	0.06469	00080.0	0.00309	0.00348	0.00134	0.01593	0.00039	0.43113	0.00337	0.00147	0.00056	
HUS			resulting in lise births' (see data sources above), ecopt for cause 'hiterenal abortion and miscernage', included separately if above 0.015 incidences per woman aged 15-40	1																			

In practice - Very low requirement for company-specific data

- Company-specific data from workplace surveys and/or inspections are only needed for 17 out of the 76 impact categories, covering 9% of the global impacts
- All other impact categories, i.e., covering more than 90% of all impacts, are linked to pressure indicators for which default industry data are available from national and international data sources
- The 76 impact categories are colour-coded according to data availability (how easy it is to link them to pressure indicators): 'data reasonably available', 'depends on survey data', 'non-production specific'



Non-production-specific impacts

- Related to missing governance at the country level, rather than being technology- or company-specific
- Default data for these impacts are openly available from national and ILO statistical sources
- It is the role and responsibility of the productive sector to provide the funding, either directly, through payments of taxes, or through sufficient payments to the labour force so that they can pay for these services
- Ultimately these impacts are therefore linked to a limited set of economic pressure indicators, notably 'underpayment of labour and taxes' and (insufficient) 'voluntary transfers'
- This implies that inequality plays a very important role for the overall results



The 2021 revision of the social footprint method

- The country-specific levels of wellbeing are calculated from the Cantril scores of the annual World Happiness Report, adjusted for lost life years
- The global potential level of wellbeing is calculated to be 0.961 QALY/person-life-year
- The social footprint is calculated as difference between the actual and the potential country-specific wellbeing
- The non-production-specific parts of the social footprint are separated out and distributed over the industries in each country in proportion to their equity-weighted contribution to national income, so that industries with low wage levels receive larger weight
- New conversion factors between QALY and monetary values



Results and their interpretation

- Due to the important role of inequality for the overall results:
 - Hotspots in the results will point to unit processes with relatively low wage levels
 - For the same amount of value added (price of the product), the more equal the wage levels over the life cycle, the lower the impact will be
 - If a higher price will be accepted by the customers, this will be best spent on the parts of the life cycle with lowest wage levels



Conclusions

- While being based on a comprehensive database and a detailed cause-effect model, the method can be applied in a simple screening mode, with:
 - Very low data requirements
 - Results that are very simple to interpret
 - Very clear and meaningful directions to act upon
- For those who want to dig deeper into causes and effects in individual countries and industries, the database provides ample options for more detailed contribution analyses, for example per:
 - Impact category
 - Area of Protection
 - Safeguard Subject
 - SDG topic

• Pressure category (e.g., for a Triple Bottom Line)

Thanks for your attention!

denise.almeida@lca-net.com

