**Results of the extraction process**

| **Study ID** | **indicators** | **methods** | **scale** | **practices** |
| --- | --- | --- | --- | --- |
| 03 | The study associates social impact indicators to 11 impact categories[[1]](#footnote-1):   1. Health and Safety Impact (Living conditions, mortality) 2. Paid Work Impact (Employment rates, industrial diversification) 3. Stratification Impact (Inequality, social status) 4. Civil Rights Impact (Minority and Human rights) 5. Education Impact (Education, skills) 6. Family Impact (Change in family roles and structure) 7. Gender Impact (Gender roles and equality) 8. Population Change (Transiency of the population, age structure) 9. Conflict and Crime Impact (Crime, civil and domestic conflict) 10. Social Networks and Communication Impact (Personal relationships, social capital) 11. Cultural Identity/Heritage Impact (Values, personality traits Values, personality traits) | A multi-step approach is proposed:   1. Gather Product Development Information 2. Identify Impact Categories 3. Selecting Indicators (this step could benefit from the use of ideation methods) 4. Creating predictive models of social impact 5. Make predictions for the social impact | Indicators will be selected from databases that also provide details of how they are measured or how they are calculated. The authors mention two of them:   * The World Bank[[2]](#footnote-2) * Oxford Poverty and Human Development Initiative’s Working Papers[[3]](#footnote-3)[[4]](#footnote-4)[[5]](#footnote-5)[[6]](#footnote-6)[[7]](#footnote-7)[[8]](#footnote-8) | Good practices:   * The multi-step methodological approach and the focus on modeling social impact. * The use of already validated indicators (e.g., those available in publicly available data banks). |
| 09 | The model is built upon three general features of social impact theory model, namely: variants, impacts, and environmental biases.   * Ik(j): the pressure on individual j in a variant with Nk member * N: the total population * Qk: the set of individuals currently in variant k * Tk,l: time dependent bias from environmental actors (in our cases teachers) toward variant k in period l * Mk: time independent bias toward variant k (in our case assumed to relate to the job market or other relatively constant external pressures) * Si: The status of each individual in the peer society * di: The location of each individual in the peer society * a: the persuasiveness constant and ranges from 0.5 to 1. | Numerical model based on equation | numerical | What may be considered a good practice is the fact that the model considers the connection between the micro-level behavior of individuals and the macro-level patterns that emerge from the interactions of many individuals. |
| 18 | * socio-economic condition * the use of forest and the quality life * value, change condition of household and community * small run-of river hydropower project perception * attitude toward the project * and project support. | * face-to-face interviews based on questionnaires * focus group discussions * exhibition of the project detail | * Project support (%) | The feasibility study of the project includes, in addition to economic aspects of engineering and environmental criteria, aspects of social impact. |
| 30 | Same as in ID03. The indicators chosen and data collected may be refined over time. | The article proposes the use of sensors for collecting indirect data to measure social impact. A social impact Sensor Canvas is proposed.  To define the social impact indicators the multi-step approach presented in the study ID03 is applied | Results of data correlation (hours, number of failures,…) | The eleven impact categories developed by Rainok et al. (2018) considered (see ID03 study) |
| 31 | no information | no information | no information | no information |
| 32 | Six indexes: environmental, social (safety, health, comfort), economy, happiness | Life Cycle Sustainability Assessment toolbox:   * Life Cycle Assessment (LCA) 🡪 evaluate environmental impacts * Life Cycle Costing 🡪 economic impacts * Social LCA 🡪 societal impacts | monetary values (positive or  negative, low or high) | * Using public and statistical data * people’s degree of satisfaction that is obtained through user questionnaires and/or interviews |
| 41 | no information | no information | no information | no information |
| 43 | no information | no information | no information | no information |
| 46 | * Travel time * Extent of congestion * Casualty * Downtime * Economic loss | Algebraic. Comparative method which utilizes historical data of a similar project to predict the probable social impacts of the objective project. | * Min * Min * Persons * Days * Money | Indicators are developed ad-hoc for the problem in question. |
| 50 | Safety and health   * Reactive costs ( Creactive ) * Static costs ( Cstatic ) * Active costs ( Cactive )   Motivation potential score (MPS) which quantifies the motivation of a worker in performing the task   * skill variety, * task identity, * task significance, * autonomy, * feedback and wage of the job | Csafety = ∗C i \_ reactive + Cstatic + Cactive  Where: i is the analysed task (n tasks) that involves risk to worker wellness and IOR is the Incident occurrence risk (likelihood of incidence occurrence)  A questionnaire-based survey could be used to evaluate the magnitude of these five work characteristics based on the responses of workers to the questions on a 1–10 scale  (Hackman and Olham, 1980 ):  MPS = ((skill variety + task identify + task significance)/3)+autonomy + feedback + wageMPS  The wage metric is calculated using the following:  wageMPS = (wage - local average wage) cost of living index  Where Wage is the monthly income for the analyzed job and local average wage is the typical average monthly income for this position. The cost of living index is a relative indicator of consumer goods prices, including groceries, restaurants, transportation and utilities. This index is important to make the wage nationwide comparable and can be accessed on several websites | $/year  Motivation potential score chart. | --- |
| 58 | Three types of impacts are discussed: economic, ecological (carbon emissions) and social (optimal job opportunities, training).  The social sustainability is tacked in the model by the management of social resources including **training for the workers**, **fixed jobs** as well as inclusion of variable jobs based on the quantity of returns.  Environmental, economic and social impacts of the chosen criteria are evaluated using a hybrid method involving **Analytical Hierarchy Process (AHP) and the Fuzzy Technique for Order Preference by Similarity to Ideal Solutions (TOPSIS)** resulting in the determination of importance (weights) of the triple bottom line (TBL) aspects, i.e. economic, social and environmental development. | AHP and TOPSIS with multi-stage modeling:  Stage 1: hybrid method using Analytical Hierarchy  Process (AHP) and the Technique for Order Preference by  Similarity to Ideal Solutions (TOPSIS)  Stage 2: a three  objective mixed integer linear programming model is  developed in fuzzy environment which minimises the total  cost, the environmental impact and maximises the social impact of the network utilising the weights of the objectives from the first stage | Numerical (number of created jobs)  Weights of objective functions (alternatives) based on criteria requirements are determined. The weights for alternatives are derived on the basis of numerous qualitative as well as  quantitative criteria. These weights are then used in TOPSIS  calculations and final weights for the objective functions  are derived. | AHP-TOPSIS Methodology |
| 60 | An integrated indicator was created  to assist in interpretation of the overall change  Following Zhong (2014), the integrated indicator included four components: EUE (energy use efficiency),  weighting LCA score, net profit and ecological service value. The indicator was calculated using Eq. (4):  (4)  Two indicators were used to assess the social impact: One indicator was the change in household income, including agricultural and non-agricultural sources of income. The second indicator was participation in employment outside the agricultural sector. | Firstly, input-output methodology for energy efficiency measurement  Secondly, LCA (life cycle assessment) was used to estimate environmental effects of the programme.  Thirdly, the  economic benefits of the changed systems were estimated using an  input-output balance approach.  Fourthly, both ecological service value  and social impact were analyzed based on surveys **involving questionnaires and interviews**. | Numeric and qualitative (normalization and weights were applied) | The good practice is related to the creation of a comprehensive indicator to evaluate the impact of the assessed programme. The indicator comprises four components: energy efficiency, environmental performance, economic performance, and ecological and social performance. |
| 75 | no information | no information | no information | no information |
| 76 | * community’s social make-up (People), * its jobs and wealth (Economy), * its character (Place), * its organizational and leadership capacity (Vision and Vitality) | Interactive community forums complemented with a set of small-group, interactive participation techniques, facilitated discussion  groups.  A 5-step composite method is used:   1. Participants provided numeric ratings (from 1 to 10) of their community’s current (baseline) situation across each of the four dimensions 2. A formal presentation provided participants with the latest scientific information about each salmon recovery alternative, followed by a question-and-answer dialogue 3. Participants considered the scientific information and provided a preliminary judgment of community impacts relative to their baseline assessment, rating impacts with a scale ranging from -5 to 5 4. Researchers facilitated discussions within each group to pool information from group members and clarify one another’s presumptions about likely changes across the delineated community dimensions 5. Participants provided a final individual numeric rating of the magnitude of anticipated impacts, followed by participants’ listing of three qualitative justifications for those ratings   The collected data are processed using content analysis techniques. | numeric ratings of their community's current (baseline) situation across each of the four dimensions, based on a scale ranging in values from 1 (the most negative situation for the community, one that was "as bad as it could be") to 10 (the most positive situation that was "as good as it could be"); -5 ("the most negative, adverse impact in 2020 possible") to 5 ("the most positive, beneficial impact in 2020 possible"); the midpoint was designated as reflecting the maintenance of current, or baseline, conditions into the future.  for each community dimension. | * Two categories of subjects participated in the research: „self-selected” and „actively engaged participants. * Small group techniques using nominal and focus groups or the Delphi method offer smaller groups of stakeholders the opportunity to discuss impacts collectively and develop mutual understanding |
| 81 | 7 criteria were used to assess social impact:   1. GDP per capita as soles per month in the department??? 2. Employment rate per year in the department 3. Poverty rate per year in the region. 4. Number of inhabitants per doctor (GP) per year in the department 5. Enrolment rate in primary education in the region. 6. Number of reported crimes per year in the department 7. Access to drinking water rate per year in the department | Grey clustering method based on center-point triangular whitenization weight functions (CTWF) method, due to the fact that the CTWF method enables to classify observed objects into definable classes, called grey classes.  A structured questionnaire, which had five grey classes, was applied: S1= Decrease noticeably, S2= Decrease, S3= No  effect, S4= Increase, and S5= Increase noticeably; which S1=[0;2>, S2=[2;4>, S3=[4;6>, S4=[6;8>, and S5=[8;10]. | quantitative and qualitative | Steps 1-4 described in the paper? |
| 82 | ***0*** Education level  ***0*** Health system  ***0*** Housing conditions  ***0*** Industrial level  ***0*** Social conditions  ***0*** Economic conditions  ***0*** Historical-cultural traditions | SIMEA (Social Impact Method of Energy)  The SIMEA approach is based on “enlarged  environment” definition. considering as environment not only the  natural environment, but also the “human environment”, with so including the economy structure, social organisation, cultural and  historical aspects of the site.  To evaluate the impact of a technology on the site, the effect of each impact indicator on each environmental indicator has been considered assigning a “weight” because, regardless of its value, an impact indicator can have null or relevant effects on  a number of environment indicators. The weights can range from 0 to 1.  The social impact evaluation is done in the same way  described for the impact evaluation. The social impact is  defined as the effects on social indicators of the  impacts calculated. | \* very negative impact  \* \* negative impact  \* \* \* negligible impact  \* \* \* \* positive impact  \* \* \* \* \* very positive impact  The impacts of a technology on the site can be positive or negative, so the range of values is from -9 to +9 |  |
| 83 | Social and ethical indicators (A. Yadoo and H. Cruickshank, 2012)    Key focus within the indicators is put on education, healthcare, and gender; with a notable element of equality also highlighted. Electricity access clearly has a positive impact on education, health, employment, and gender equality. | Surveys, Metering, Proxy  Semi-structured interviews with users and managers, transect walks, photographic evidence, and  observations.  Case studies | - |  |
| 89 | 5 indicators have been used: | in-depth interview, survey and brainstorming | Numeric (percentage, number of hours etc.) | - |

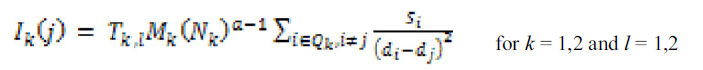
**ID03. A Method for Creating Product Social Impact Models of Engineered Products**

This paper introduces a method for selecting social impact indicators and creating predictive social impact models that can help engineers predict and improve the social impact of their products. The authors advocate the selection of meaningful indicators rather than their development. As a first step in the method, an engineer identifies the product’s users, objectives, and requirements. Then, the social impact categories that are related to the product are determined. From each of these categories, the engineer selects several social impact indicators. Finally, models are created for each indicator to predict how a product’s parameters will change these indicators.

The authors use a table (Ottosson et al., 1991)[[9]](#footnote-9) which indicates, given a category of social impact, the likelihood that other categories of social impact are associated with that category. Another method of identifying which of the 11 social impact categories are pertinent, involves asking a series of questions about the product (see Table III of this study).

**ID9.** **A simple agent-based social impact theory model of student stem selection**

Social science models (Netle, 1999; Rockloff and Latané, 1996) are used to determine the influence (social impact) of others (peers, teachers, labour market) on students when choosing STEM studies.



Nettle, D. 1999. Using Social Impact Theory to simulate language change. *Lingua* 108:95-117.

Rockloff, M. J., and B. Latané. 1996. Simulating the social context of human choice. In *Social Science Microsimulation*, ed. K. G. Troitzsch, U. Mueller, G.N. Gilbert, and J.E. Doran 360-388. London, U.K.: Springer Verlag

**ID18. Application of geographical information system to site selection of small run-of-river hydropower project by considering engineering/economic/environmental criteria and social impact**

4.6.2. Public opinion survey

“A public opinion survey is conducted in the potential areas for project development based on engineering criteria. There are **two groups of samples**. The **first group** is from simple random sampling according to the characteristics of the population: people who live within 2.5 km in radius from the projects, people who are 18 years of age and older, and the leaders of the communities such as teachers, monks, and village headmen. The sample size is obtained from Yamane equation at level of 95% confidence. The population in the Nan province was 477,662 [43], thus by using the value of sampling error equal to 0.05, 400 samples are obtained. However, 1500 samples are collected in this study to obtain more accurate results. For the **second group**, purposive sampling is used. Fifty samples are selected from the representatives from government agencies, mass media, and non-government organizations (NGOs).”

4.6.3. Focus group discussion

“Focus group discussion is used to collect qualitative data on the villagers’ concerns and perceptions about the project. The participants are the representatives of the communities directly affected by the project development. The process of focus group discussion consists of:

(1) Providing project information to the participants by using leaflets, exhibitions, models, and presentation of project detail.

(2) Asking probing questions related to the members’ worries about the project.

(3) Separating the participants into small groups for discussion.

(4) Presentation of representatives from each group.

(5) Asking probing questions as to how to reduce participants’concerns about the project, who should be responsible for doing so, and how local people can get involved in the project.

(6) Separating the participants into small group for further discussion.

(7) Presentation of representatives from each group and opening for discussion.

(8) Evaluation and conclusion of the meeting.

The focus group meeting is conducted by the facilitators, who use probing questions to elicit the ideas and experiences of the members in the group. The process begins with broad questions and proceeds to specific questions”

**ID30. Design of remote data collection devices for social impact indicators of products in developing countries**

Use of sensors to continuously monitor a phenomenon that has an impact on the lives of citizens. It speaks again of the 11 indicators mentioned by Rainock et al. (2018) and discussed in the ID03 study. The process for identifying which indicators to select follows that proposed in the ID03 study. Undoubtedly the biggest problem, and one that is solved on an ad hoc basis, is determining how to relate the data to be collected to the selected impact indicators. Clearly it depends on each particular problem.

**ID31. Design, application, marketing, and social impact of non-contact impedance sensor**

Despite the fact that there is a section on social impact "V. APPLICATIONS AND SOCIAL IMPACT" there is no information in the paper on how the social impact has been measured, indicating only whether the impact has been high or not.

**ID32. Development of common quantitative social impact indicator for ICT services**

The social indicator consists of six indexes that translate effects into a monetary value.

Sustainability (aspects):

* Environmental🡪 LCA
* Economic🡪 Life Cycle Costing (puts a figure on the cost-benefit performance of the service)
* Social🡪 Social LCA
  + Safety: degree to which people and/or their belongings are safe. In other words, it involves the risks of accidents, disasters, crimes and aspects of information security
  + Health: deals with topics such as healthcare, the prevention of disease and stress, and medical treatment
  + Comfort: defined by the simplicity and ubiquitousness of a service, as well as its barrier-free nature and its capacity to create or destroy various opportunities such as those related to employment and tourism.

Environmental, safety, health, comfort and economy🡪 evaluated by using public and statistical data and the aim is to be as objective as possible.

Happiness🡪 is a subjective estimation of people’s degree of satisfaction that is obtained through user questionnaires and/or interviews.

**ID41.** **Examining non-representation in engineering notations empirical evidence for the ontological incompleteness of the functionally-rational modelling paradigm**

Although the study has a section on social impact (*4.2. Social Impact*) it is only mentioned without any reference to how it is calculated or the parameters to be taken into account.

**ID43. Factors leading to sustainable social impact on the affected communities of engineering service learning projects**

It is a literature review to extract factors practitioners believe are connected to the success of service learning projects. Neither indicators nor methodologies for measuring social impact are made explicit. Reference is made only to the "universal metric", referencing the work of Stevenson et al. (2018).

Stevenson, P.D., Mattson, C.A., Bryden, K.M., MacCarty, N.A., 2018. Toward a universal social impact metric for engineered products that alleviate poverty. J. Mech. Des.140 (4), 41404.

“the product impact metric (PIM), which quantifies the impact a product has on impoverished individuals - especially those living in developing countries. It measures social impact broadly in five dimensions: health, education, standard of living, employment quality, and security. By measuring impact multidimensionally, it captures impacts both anticipated and unanticipated, thereby providing a broader assessment of the product's total impact than with other more specific metrics. The PIM is calculated based on 18 simple field measurements of the consumer. It is inspired by the UN's Multidimensional Poverty Index (UNMPI) created by the United Nations Development Programme (UNDP). The UNMPI measures how level of poverty within a nation changes year after year, and the PIM measures how an individual's poverty level changes after being affected by an engineered product. The PIM can be used to measure social impact (using specific data from products introduced into the market) or predict social impact (using personas that represent real individuals).”

**ID46. Hierarchical life-cycle design of reinforced concrete structures incorporating durability, economic efficiency and green objectives**

“For bridge structures, a simplified social evaluation indicator system is developed herein by considering the major characteristics of bridges, such as public accessibility, human health and safety, and local development”

**ID50.** **Interaction analysis for dynamic sustainability assessment of manufacturing systems**

No comments

**ID58. Multi-Criteria Decision Approach for a Sustainable Reverse Logistics Network under Fuzzy Environment**

The paper presents a unifying perspective of sustainability by developing a framework of performance indicators for measuring reverse logistics performance based on the Triple Bottom Line approach. Three types of objectives or impacts are defined, namely economic, environmental and social. As the authors stated, qualitative and quantitative criteria were weighted in a two-stage model and objective functions were derived. Environmental, economic and social impacts of the chosen criteria are evaluated using a hybrid method involving Analytical Hierarchy Process (AHP) and the Fuzzy Technique for Order Preference by Similarity to Ideal Solutions (TOPSIS) resulting in the determination of importance (weights) of the triple bottom line (TBL) aspects, i.e. economic, social and environmental development. It has been assumed that for every 150 products, 10 skilled jobs are created at DMC while for every 1000 components, 20 skilled jobs are created.

**ID60. Multi-indicator assessment of a water-saving agricultural engineering project in North Beijing, China**

The objective of this study was to make a comprehensive assessment of the Paddy Land-to-Dry Land (PLDL) program based on multiple-methods and models. Firstly, an energy efficiency analysis was conducted using an input-output methodology. Secondly, LCA was used to estimate environmental effects of the transition from cultivation of paddy rice to maize. Thirdly, the economic benefits of the changed systems were estimated using an input-output balance approach. Fourthly, both ecological service value and social impact were analyzed based on surveys involving questionnaires and interviews. Finally, an integrated indicator was created to assist in interpretation of the overall change.

Two indicators were used to assess the social impact: One indicator was the change in household income, including agricultural and non-agricultural sources of income. The second indicator was participation in employment outside the agricultural sector.

Following Zhong (2014), the integrated indicator included four components: EUE (energy use efficiency), weighting LCA score, net profit and ecological service value. The indicator was calculated using Eq. (4):

(4)

Where, is the integrated indicator; W is the coefficient of weighting and the value of the four aspects is 0.25, respectively (Zhong, 2014); Vmi and Vpi are the values of ith impact of maize and paddy production, respectively; and Ri is the reference value of *i*th impact. The reference values were the average values across the period 2009–2011, which for EUE, weighting LCA score, net profit and ecological service value were 2.64 (Liu et al., 2013), 7.15 (Liang, 2009), 6,195 Yuan ha−1 (Luo et al., 2017) and 6,114 Yuan ha−1 (Li et al., 2016), respectively.

**ID75. Resisting and assisting engagement with public welfare in engineering education**

The work does not attempt to measure the social impact generated by the students' activities but to analyse the reasons why engineering students find it difficult to integrate the social impact aspect into their work as engineers.

“interviews with engineering students (n =26) and ethnographic observations of program events, classes, presentations, and social groups (n = 60) at two engineering programs that focus on engagement with public welfare and foreground learning about the social context and social impacts of engineering. We analyzed these data to identify areas in which students experienced challenges integrating considerations of public welfare into their work.”

Engineers have a great capacity to impact society, and training engineers to understand and take responsibility for the social implications of their work is a crucial challenge of engineering education today.

**ID76.** **Results of Community Deliberation About Social Impacts of Ecological Restoration: Comparing Public Input of Self-Selected Versus Actively Engaged Community Members**

Data collection: citizens' views on the environmental impact of proposed alternatives for recovering wild salmon in the Pacific Northwest US: no action, fish bypass improvements, and dam removal. The results affirm that deliberative methods for community-based impact assessment involving both AE and SS residents can provide a more complete picture of perceived impacts of proposed restoration activities. A 5-step composite method is used. It is then analysed using content analysis (scores are categorised) and the results of the different groups are statistically compared.

**ID81: Social impact assessment using the grey clustering method: A case study on a mining project**

In this paper, the authors applied the grey clustering method to SIA, which is based on grey systems theory.

7 criteria were used to assess social impact. A structured questionnaire, which had five grey classes, was applied: S1= Decrease noticeably, S2= Decrease, S3= No effect, S4= Increase, and S5= Increase noticeably; which S1= [0;2>, S2= [2;4>, S3= [4;6>, S4=[6;8>, and S5=[8;10].

Grey clustering method based on center-point triangular whitenization weight functions (CTWF) method, due to the fact that the CTWF method enables to classify observed objects into definable classes, called grey classes. The CTWF method would have as main advantage to be more effective than other classical multi-criteria methods, as it considers uncertainty within its analysis; in addition, the CTWF method would have a lower cost than other statistical approaches during its application, as it needs small sample size.

**ID82: Social Impact Method of Energy Analysis: improvements and results**

The paper presents a new methodology called SIMEA (Social Impact Method of Energy). An important feature of the SIMEA methodology is the enlarged environment approach considering as environment not only the natural environment, but also the “human environment”, with so including the economy structure, social organisation, cultural and historical aspects of the site. Two iterations of the methodology conducted to an improved versión.

**ID83: Social Impacts of Mini-grids: Towards an Evaluation Methodology**

The paper presents the results of a literature review. Consequently, various frameworks, indicators, and methods are discussed and a synthesis is proposed in table III (see below). The authors emphasize the idea of Ilskog (2008) that ‘in an ideal scenario, sustainability indicators should be designed in consultation with project stakeholders such as users, government, local electricity service providers, project workers, financing bodies, etc.’

When discussing the social and ethical indicators, the authors pointed out that a key focus within the indicators is put on education, healthcare, and gender; with a notable element of equality also highlighted.

Text

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**ID89: The Social Return on Investment of Young Scientist Competition (YSC): Thailand Case Study**

This paper offers the comprehensive **social impact evaluation framework** that includes a design of social outcome and financial proxy from the stakeholder and the secondary data sources. To evaluate the impact of the Young Scientist Competition project the authors selected the Social Return on Investment (SROI). A before-after comparative situation is presented. The Logic model was chosen which shows the logical relationship between resources, activities, outputs, stakeholders, outcomes and impacts. Additionally, the SROI model for measuring financial value was selected. The model defines indicators, deadweight, attribution, replacement, drop-off, and evaluates qualitative data by financial proxy of each indicator.

Texto

Descripción generada automáticamente con confianza media

The methods of study are based on in-depth interview, survey and brainstorming with stakeholders including students and teachers.

1. Rainock, M., Everett, D., Pack, A., Dahlin, E. C., and Mattson, C. A., 2018. “The social impacts of products: a review”. *Impact Assessment and Project Appraisal*, pp. 1–12. [↑](#footnote-ref-1)
2. Khandker, S. R., Koolwal, G. B., and Samad, H. A., 2010. Handbook on impact evaluation: quantitative methods and practices. World Bank Publications [↑](#footnote-ref-2)
3. Diprose, R., 2007. “Physical safety and security: A proposal for internationally comparable indicators of violence”. Oxford Development Studies, 35(4), pp. 431–458 [↑](#footnote-ref-3)
4. Samman, E., 2007. “Psychological and subjective well-being: A proposal for internationally comparable indicators”. Oxford Development Studies, 35(4), pp. 459–486 [↑](#footnote-ref-4)
5. Ana Lugo, M., 2007. “Employment: A Proposal for internationally comparable indicators”. Oxford Development Studies, 35(4), pp. 361–378 [↑](#footnote-ref-5)
6. Ibrahim, S., and Alkire, S., 2007. “Agency and empowerment: A proposal for internationally comparable indicators”. Oxford development studies, 35(4), pp. 379–403 [↑](#footnote-ref-6)
7. Zavaleta Reyles, D., 2007. “The Ability to go About without Shame: A proposal for internationally comparable indicators of shame and humiliation”. Oxford Development Studies, 35(4), pp. 405–430 [↑](#footnote-ref-7)
8. Zavaleta, D., Samuel, K., and Mills, C., 2014. “Social Isolation: A Conceptual and Measurement Proposal”. OPHI Working Paper 67(January), pp. 1–62 [↑](#footnote-ref-8)
9. Ottosson, H. J., Mattson, C. A., & Dahlin, E. C. (1991). Analysis of Perceived Social Impacts of Existing Products, With Implications for New Product Development. *ASME J. Mech. Des.*, *64*(4), 573-610. [↑](#footnote-ref-9)