Sustainability Human Factors

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Sustainability is the result of a complex combination of factors. Social, cultural and personal elements are key for the pursuit of a sustainable future. Beyond the existing, very broad program on sustainability studies, additional research should contribute to specify how those social and human factors affect sustainability indices. General beliefs, values, attitudes, habits, assumed lifestyles or even meaning systems projecting purpose on one's own life have an impact on sustainability as well. Our aim in this paper is to describe these factors, which we group under the label of 'sustainability human factors'. This task requires a multidisciplinary effort involving anthropology, psychology and social sciences, covering cognitive, emotional or cultural dimensions. First, we set the stage describing the expected network of features and traits that could describe the human factor. Second, we propose a model which can help to assess it through multiple scales and surveying instruments. These instruments can provide valuable data that could expand the current indices. It is important to connect our program with the ongoing research in this field and to develop a broad model that highlights the human factor and its central role when planning for a sustainable future.

Keywords: sustainability ; beliefs ; values ; attitudes ; behaviour

1. Introduction

Building a sustainable future represents one of the greatest challenges humanity needs to address, after becoming aware of the fragility that affects many natural and social systems we inhabit. Such an endeavour requires a joint effort from very diverse areas: politics, economy, science and technology, as well as education and culture. It is an open question to what extent what we call 'human factors' play an important role in the pursuit of sustainable programs and, hence, how much they call for greater attention beyond technical developments and economic considerations.

Understanding this human factor is a complex challenge, but many academic disciplines are tackling the issue of understanding human behaviour and our interaction with the environment. A joint effort from these disciplines is needed. In addition, valid instruments are needed to help us assess this human factor, with its different involved dimensions, and to figure out its influence in various settings under exam, such as organizations, firms or general populations that can be surveyed.

2. A Model for the Assessment of Human Factor in Sustainable Programs

The following list of relevant human factors in sustainability were identified:

- Environmental concern, which reflects attitudes of caring and commitment for nature and ecological causes. Milfont provides an extensive disaggregation of this item.
- Equity, or concern for availability and fair distribution of resources. For instance, the importance given to energy poverty will fit in this item.
- Equality, respect for diversity; efforts to overcome discrimination for any reason, and to apply fairness in social relationships. For instance, gender inequality has been shown to lead to lower cooperation in sustainability actions [1].
- Austerity and waste avoidance vs. the need to display social status by consumption. This is a cultural trait that varies widely across nations and has a deep impact on sustainability.
- Value given to tradition and traditional forms of living. This might have a negative impact, such as in the consumption of traditional products with undesirable environmental consequences (such as eating shark) or a positive one, such as protecting nature as the traditional way of living.

- Intergenerational dependence, as a variable that accounts for responsibility for past and future generations, beyond present self-interest.
- Confidence given to devices of the market vs. the need for regulation and institutions. This could deeply impact the environmental actions that obtain social support.
- Similarly, the balance between individual freedom vs. collective action might dictate whether rules to protect the environment are promulgated or exist only at the level of recommendations.
- Consideration of the individual vs. the community vs. the national or supranational. The different accent given to each of these levels can lead to diverging actions and policies. For instance, a higher accent on the local levels might more likely protect local natural resources rather than sacrifice them for the higher utility of the country (i.e., in the construction of a dam).
- The importance of independence/autonomy regarding energy and other strategic resources. Related to this, it is important to acknowledge the role of collaboration or a disposition to share and exchange with other areas or nations.
- Perceptions of risk and responsibility. This may be one of the factors involved, for instance, in the consideration of nuclear energy.

Proposed Operative Instrument

Defining the elements that the human factor comprises is not enough; it is necessary to also develop the means to measure them. Herein proposed to expand the best available framework (Milford's) in order to accommodate all the elements that, as identified in our review, should be taken into account when projecting a sustainable future. Indeed, many more instruments and scales have been developed to assess such other aspects, for instance, for risk assessment or for intergenerational concern [2][3][4]. What is needed now is to apply and adapt such other instruments into a general framework, to cover the designed human factor in its multiple dimensions. Herein proposed to summarize or concentrate in a few items each relevant issue in order to render them operative and to assist in collecting useful data in a practical way. Here, our proposal is presented to add these items to the short version of the Environmental Attitudes Inventory. All these elements should be evaluated from completely agree to completely disagree.

To assess social equity:

- Governments should engage in reducing huge income disparities.
- Riches that result from common effort should be better distributed among all those involved.
- Nobody should be left behind because of misfortune or disgrace.
- Progressive taxation is the best mean to reduce inequity levels.
- Those who are poorer in material or cultural means should be assisted to offer them better chances.

To assess equality:

- Nobody should be discriminated against for his or her race, gender, religion, ideology or economic condition.
- Treating everybody equally helps to build a better society.
- No privilege or preference should subsist to access any public service beyond sheer needs.
- Those who are in weakest social conditions deserve more attention and help from the State and society.
- Women should have the right to be equally paid for equal work.

To assess freedom and human rights:

- Each human being should be recognized just because he/she is a human being, irrespective of credit or behaviour.
- People should be free to express any opinion whatsoever.

- People without criminal intent should have the right to associate, however extreme they may be.
- People should be free to discuss all moral ideas, no matter what.
- The state should not interfere with missionary activities in both the majority and minority religions.

To assess austerity:

- Education campaigns should discourage useless consumption.
- People able to spare energy and other costly means should be rewarded.
- Those generating more waste should be punished with higher taxes.

To assess traditional living forms:

- Very often, traditions help to preserve the environment in a more effective way.
- Traditional ways of living still help many populations to reach a good social balance.

To assess intergenerational concern:

- We need to accomplish more to protect and care for the elderly.
- Our current policies should take into account their consequences much more for future generations.
- We are not entitled to enjoy available resources neglecting their scarcity for our children.
- Investing in education is the best way to preserve solidarity with those that come after us.
- We need to make several renounces to ensure good prospects for next generations.

To assess collaborative attitude:

- Sharing our resources and technologies with other people and countries would benefit everybody.
- Those countries or societies which have more should make greater efforts to help those less well off.
- A sharing economy offers better prospects for development than the traditional model based on self-interest.

To assess independence at different levels:

- The State should encourage each household to produce its own needed energy.
- Investments should be addressed to ensure less energetic external dependency.
- Energetic independence is an unattainable goal.
- It is important that a country has strong, powerful companies.

To assess risk perceptions:

- Avoiding unnecessary risks in all activities helps to develop a better future.
- Without assuming certain risk levels, no progress in science and technology is possible.
- Some risks are unavoidable when trying to introduce changes at different social or economic levels.

To assess efficiency and the confidence in market mechanisms:

- More investments should be devoted to reach greater energetic efficiency.
- Investments should be carefully and transparently assessed in order to avoid wasteful decisions.

- Our future depends upon a more efficient use of our material, social and cultural resources.
- A free market is always more efficient in its use of resources than a centralized scheme.
- Subsidies tend to be wasteful.

This instrument requires to be answered through a Likert scale of five levels, from most to less agreement with the proposed items. Obviously, the present suggested instrument needs to be checked and standardized with sufficient cases to assess its reliability and internal consistence. The idea is to obtain a coefficient—for instance, from 0 to 100—after calculating the means of all those involved in the survey, members of a corporation, society or even a bigger social entity, such as a region or nation. Such a coefficient would be added or counted together with other indicators when trying to estimate the final and global ESG (environmental, social and governance) index.

3. Concluding Remarks

A good assessment of sustainability, following the broadly accepted ESG model, requires paying more attention to its human factor: those beliefs, values and attitudes that clearly influence sustainability policies and strategies. It's a need to understand how beliefs determine attitudes and decisions, and so it is important to account for them in the most accurate way, after a detailed study, to assess their effective impact in a range of indicators related to sustainability.

Research into beliefs and the believing process has grown exponentially in the last few years [5]. A central point in that program has been to show how believing is unavoidably present in most social systems, such as the economy, politics, education, morals and even science [6]. Plans aimed at designing a more sustainable future are not an exception, and so we need to connect the current effort at better understanding beliefs and the policies and concerns for sustainability. The point is that neglecting the human factor in a process will miss an important variable and risk the unfeasibility of current programs. Ours was just a first approach, since the huge amount of published literature on beliefs and believing, their dynamics and functions, requires a more accurate assessment and application to the field of sustainability studies.

The proposed model intends to build on a solid theoretical basis and then move to the practical field, where any assessment becomes a great challenge. As a consequence, we need to design instruments that could offer some approach or a proxy for the relevant beliefs, and which could help to develop more accurate certifications for sustainability in a broad range of organizations, and to establish international rankings based on such beliefs and attitudes.

The undertaken effort knows some difficulties we cannot ignore. The first regards the suggested instrument, still in an exploratory and work-in-progress state. It is not easy to describe which subscales should be integrated and what they want to measure, or to what extent what is measured is really relevant when trying to design sustainable systems. Indeed, some of the pointed criteria could work in an ambiguous or even contradictory way. For instance, locality vs. globality; in some cases, more locally minded attitudes help more towards sustainable goals; in others, they are just disruptive and prevent more sustainable measures. This last case is the movements broadly identified as “not in my back yard” (NIMBY), which often opposes projects that could benefit a big population but harm a local minority. Something similar happens with some traditional uses, which could be positive or negative for some natural and social balances.

The second difficulty has to do with the very subjective nature of beliefs and values, whose assessment becomes very challenging compared with more objective and easier to assess indicators. Indeed, those collecting data through self-assessing questionnaires are used to the limits such an approach presents: many biases are at work, such as social desirability, and even more manipulative strategies, such as instructing staff about filling questionnaires in a more flattering way. It is indeed relatively easy to fake those attempts to obtain true data on subjective means. It's a need to be aware of such limits. In any case, the empirical research developed in recent years means to address such flaws and spot contradictions or biases that could mask the true beliefs and attitudes members of a corporation could hold.

The third difficulty is related to the former: it is not clear what role beliefs, values and attitudes play in a model to assess ESG criteria. Being of subjective nature, but playing probably a big role, such beliefs could weight very much—about 50% in the resulting index—or very little, as less than 10%, compared with other indicators that become more objective and easier to account, such as energetic sustainable production or environmentally friendly waste treatment or transparency and accountability in management.

The point is that, even if the suggested instrument is still in its first steps and imperfect, the described limitations should not dissuade the need to engage on both: first, to integrate human aspects such as beliefs, attitudes and emotions in any sustainability program; second, to build instruments that assist in assessing such human variables and to follow their

weight in such programs. In this way, we could integrate aspects which would render a more complete and accurate view on the advances and obstacles in the way to design a more sustainable future for all.

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