Responsible production and consumption as a requirement for sustainable development

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Abstract. This paper analyses the role of responsible consumption and production as a requirement for sustainable development as well as the advances in relation to the achievement of the SDG12 of the United Nations 2030 Agenda, then determining potential limiting factors. The analysis is based on the compilation and assessment of secondary data and other documentary evidence, thus providing a useful theoretical-referential framework for future empirical studies. The results suggest that responsible production and consumption appears both a sine qua non requirement and an objective of sustainable development, SDG 12 being a referent in the 10 Year Framework of Programmes on Sustainable Consumption and Production Patterns, the UN Development Programme, and the UN Environment Programme, or in relation to the Principles of the Global Compact, among others. The documentary sources also show progress in the procurement of the SDG12, either globally or in the EU, but combining significant achievements with others that are far from being so, in a context characterised by conditions of previous level of development, available information, or drastic influence of supervening circumstances, such as Covid-19 or the war on Ukrainian territory. From all this, the need to continue making efforts in favour of SDG12 is concluded.

1 Introduction

Ending poverty in the whole world is one of the great challenges –or the greatest one– that guide the actions of the United Nations since its constitution [1]. This key challenge inevitably involves solving the food problem to guarantee the survival of individuals. As indicated in the Universal Declaration on the Eradication of Hunger and Malnutrition, "the well-being of the peoples and the world largely depends on the adequate production and distribution of food as well as the establishment of a world food security system which would ensure adequate availability of, and reasonable prices for, food at all times, irrespective of periodical fluctuations and vagaries of weather and fee of political and economic pressures, and should thus facilitate, amongst other things, the development process of developing countries" [2].

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In most recent times, both aspirations were reflected in the first of the Millennium Development Goals or MDGs (under the purpose of "eradicate extreme poverty and hunger") which were included in the Declaration emanating from the Millennium Summit in 2000 [3], as well as in the two first Sustainable Development Goals or SDGs ('no poverty', and 'zero hunger', respectively) included in the 2030 Agenda for Sustainable Development approved in 2015 [4]. The signatory States of the 2030 Agenda also agreed to promote the necessary conditions for the effective implementation of an economic growth being simultaneously sustainable, inclusive and with future potential, so providing shared benefits in terms of prosperity and progress to all peoples around the world, as well as fair and decent working conditions for all of them, all this as reflected in the corresponding goals, until completion of the 17 proposed.

Among such goals, SDG 12 has become the main guiding reference for policies and actions at a global level related to 'responsible production and consumption', both aspects being postulated at a same time as an objective and a requirement for a truly sustainable development, as well as to achieve the ultimate goal of eradicating hunger and poverty.

Within the context of the United Nations, this SDG is complemented with other instruments, such as –among others– the 10 Year Framework of Programmes on Sustainable Consumption and Production Patterns (10YFP, an instrument specifically designed as support for the achievement of SDG 12), the United Nations Development Programme (UNDP, which, although established prior to the SDG 12 formulation, also constitutes a significant assistance in achieving its targets), and the United Nations Environment Programme (UNEP, also pre-existing and useful for achieving the goal). Additionally, other concrete organisms are playing a key role as guarantors or promoters, such as the Food and Agriculture Organization of the United Nations (FAO).

2 THE SDG 12 in the United Nations 2030 Agenda on sustainable development

The establishment of the SDG 12 of the 2030 Agenda is based on the evidence that both consumption and production are the driving forces of the world economy, being not only closely linked, but also fully depending on the use of the natural environment and the exploitation of natural resources, which are available in greater or lesser quantity and, in any case, limited. From this starting basis, throughout all of human history, and particularly after the successive industrial revolutions, it has become evident how achievements in terms of unprecedented levels of economic progress have been tarnished in most cases –and certainly in an alarming way in recent times– due to the routine consumption of huge amounts of resources without clear awareness of their availability in the future or the true cost of their depletion [5].

All this situation has caused a degradation of the planet and an imminent risk not only for growth and development schemes or systems that are unsustainable, but also to the point of being able to state that, nowadays, what is really at stake is the very survival of the humanity [6].

Suggesting, on the contrary, the adoption of responsible or sustainable models of production and consumption is synonymous with trying to do more and better, at least regarding resources. All of this while trying –as above mentioned– to finally reconsider the objectives of economic growth in such a way that they do not implicitly entail the degradation of the environment or the depletion of natural resources. Rather, the intended purpose is about increasing efficiency in the use of them, based on the promotion of new, more responsible and sustainable lifestyles, respecting the balance and viability of the planet as a whole [7]. In short, the challenge is about promoting a much more long-term orientated and, we could even say, 'rational' approach [8].

In this regard, it is particularly illustrative the operative definition that, on the occasion of the Oslo Symposium on Sustainable Consumption and Production in 1994, was suggested by the Norwegian Ministry of the Environment. According to this concept, which has become widely accepted, referring to sustainable consumption and production is equivalent to allude to "the use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of further generations" [9].

Other definitions are similar as, for example, the one in the 2030 Agenda in Latin America and the Caribbean. According to this definition, which is wider in its content, "sustainable consumption and production is about promoting the efficient use of resources and energy, the building of sustainable infrastructure, the improvement in access to basic services and the creation of green and decent jobs, This all translates into a better quality of life for all and helps to achieve overall development plans, reduce future economic, environmental and social costs, strengthen economic competitiveness and reduce poverty" [10].

Nevertheless, the 'rationality' or 'logic' underlying these or other alternative definitions does not prevent the target to from being a very difficult objective to achieve, which entails devoting a huge amount of resources, up to the extent of questioning whether it is worth taking on the challenge or which one is the true importance of responsible production and consumption, at least from the view of those who are currently in a position to make decisions about [11]. To answer these questions, we must avoid short-term limitations and assume, instead, a long-term perspective, much more consistent with the well-being of the present and future generations. Organizations as the World Bank and the International Monetary Fund (IMF) provide quite illustrative data, showing that, if the predictions of the population models are fulfilled, and according to the current trend, the world population is expected to reach around 9.5 billion individuals in 2050. What is more, some 70% of the total population will live in urban areas, then demanding a vast number of resources, and requiring the equivalent of almost three planets to be able to maintain the current lifestyle [12].

Consequently, it is evident that the current patterns of production and consumption must change, and they must do so as soon as possible, just as it is not possible to set short-term objectives regardless of the consequences for a time horizon that must necessarily be much longer. Even more so when, as it goes deeper into it, the dimension of the potential consequences is increasing more and more, unlike what could have been imagined just a few years ago [6]. All that despite being appreciated an increasing demand of consumers for responsible/sustainable products, which eventually could come into postulate the possibility of the market being the one that, in a more or less 'neutral' way and in response to such demand could 'self-direct' to new models based on circularity [11].

Being, therefore, a broad and ambitious, as well as a transversal goal, SDG 12 has concreted into 11 much more specific targets, some of which maintain the horizon of the year 2030 as intended time for their achievement, while others are aimed in a shorter time frame. It should also be noted that, although to a lesser extent, the difficulty of the goal is also reflected in the literalness with which these targets are stated, in some cases with a respective or imperative wording ('implement', 'achieve', 'halve'...), while in other cases more lax or imprecise terms are present ('encourage', 'promote', 'support'...). The associated symbology also reflects this diversity (Figure 1), which is not and obstacle to being able to talk about good practices [13].

The great relevance of sustainable consumption and production had also been emphasized by the United Nations High-Level Panel of Eminent Persons on the Post-2015 Development Agenda, a working group established in 2013 at the request of the then Secretary General, Ban Ki-moon, and that has authored a report with recommendations for priorities beyond the date established to achieve the Millennium Development Goals.

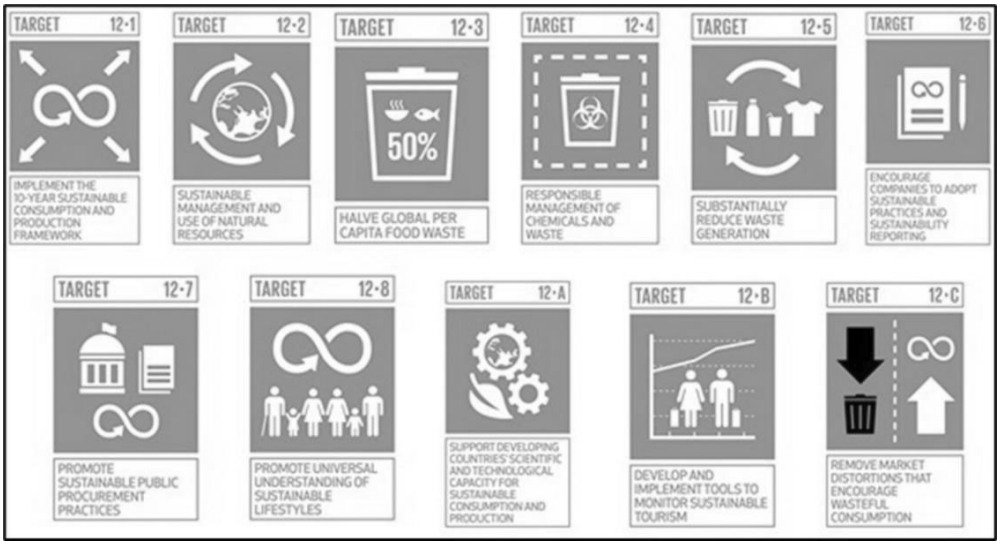

Fig. 1. Symbols associated with SDG 12 of United Nations 2030 Agenda and its targets. Source: own elaboration based on [14].

Specifically, the report highlights such relevance when indicating, as the second of the five required transformative shifts or priorities to "put sustainable development at the core [..., then emphasizing that] developed countries have a special role to lay, fostering new technologies and making the fastest progress in reducing unsustainable consumption" [15, p. 8]. This is justified by the urgency of acting against climate change, an unprecedented threat to humanity. Likewise, when stating, as the third of such shifts, that of "transform economies for jobs and inclusive growth [..., calling for] a quantum leap forward in economic opportunities and a profound economic transformation to end extreme poverty and improve livelihoods. This means a rapid shift to sustainable patterns of consumption and production harnessing innovation, technology, and the potential of private business to create more value and drive sustainable and inclusive growth. [...] This is a challenge for every country on earth: to ensure good job possibilities while moving to the sustainable patterns of work and life that will be necessary in a world of limited natural resources" [15, p. 8].

The report by the High-Level Panel also stresses that ensuring the effective achievement of sustainable consumption and production patterns inevitably and necessarily implies having to respect the biophysical limits of the planet and to reduce current global consumption rates in order to, this way, aiming an adaption to the *de facto* limitations, that is, the existing biophysical capacity itself when it comes to producing ecosystem services and benefits. What is more, with the awareness that it Will be only the adoption of joint social, economic and environmental actions that will make it possible to definitively eradicate poverty in the world [15].

Emphasising the reference character of SDG 12, it is also worth mentioning its reflection not only in the 10YFP, the UNDP or the UNEP, but also, and among many other possible examples, in three of the Ten Principles of the UNE Global Compact, promoted at the 1999 meeting of the World Economic Forum or Davos Forum by the then Secretary General Kofi Annan as the largest voluntary corporate social responsibility initiative at world level. After the approval of the 2030 Agenda in 2015, work is carried out simultaneously both within the framework of the Ten Principles and the 17 SDGs [16]. Regarding SDG 12, signatory companies must (Figure 2) "support a precautionary approach to environmental challenges" (Principle 7), "undertake initiatives to promote greater environmental responsibility"

(Principle 8), and "encourage the development and diffusion of environmentally friendly technologies" (Principle 9).

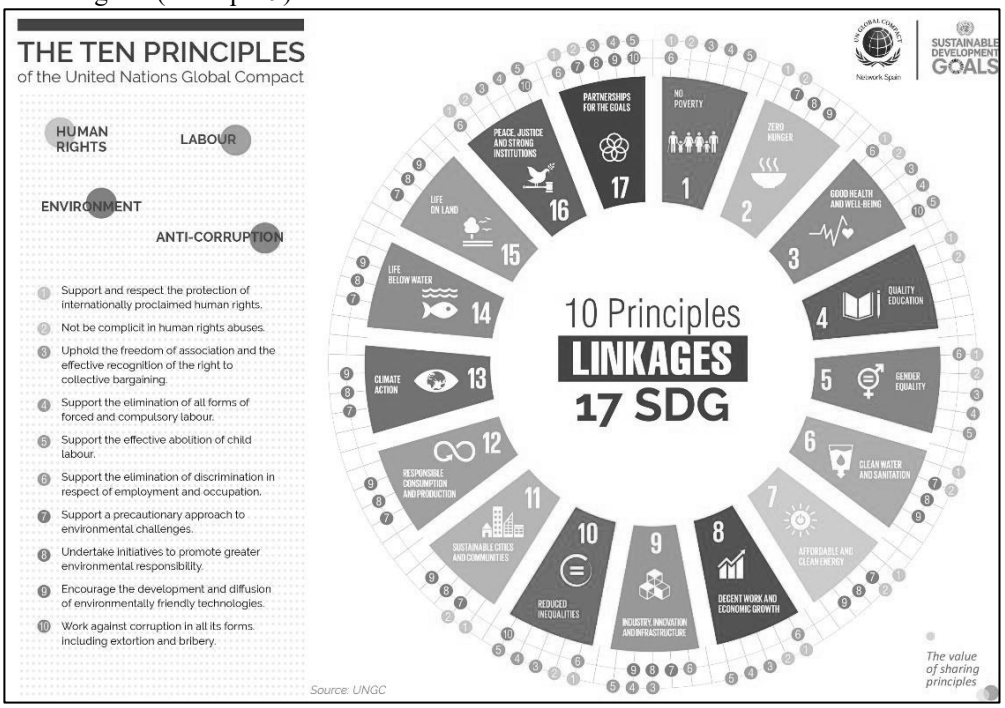

Fig. 2. The Ten Principles of the Global Compact and their correlation with the SDGs. Source: [17].

3 Progress in the achievement of SDG 12 and its targets

As underlined by a number of studies and reports, both carried out inside or outside the scope of the aforementioned institutions or other similar ones, the world as a whole, and specifically the most developed countries, have followed patterns of destructive production and consumption of resources [18], that have led to a planetary emergency situation [19].

Furthermore, the situation is being aggravated by the implementation in developing countries of the same guidelines and growth schemes in order to satisfy the demands of their growing population. This is due, among other reasons, to the ethical conflict involved in asking them not use models that, although not efficient, have demonstrated their effectiveness in one way or another [20].

Thus, it is necessary to change patterns, guidelines and models, both in countries where it may be relatively easier –because of their higher level of development and their greater means– and in those where it is not. Given the limited quantity of resources in the planet and their interconnectedness in ecosystems [21], it is imperative to dissociate improvements in terms of economic growth and quality of life from the abusive use of resources and its consequences [22].

In other words, it is about taking on the challenges of achieving each and every one of the eleven SDG 12 targets, which will not only help to reduce the pressure on the environment and its resources, but can also be a source of new business opportunities linked to recycling, the circular economy, the safe management of products and processes, the search for cleaner and alternative energy sources, etc. capable of providing considerable economic benefits [23].

Otherwise, insisting on maintaining inefficient models that devour limited resource is, simply, impossible [24]. Schemes based on an incremental and indefinite growth are unfeasible, and the need to work towards a more sustainable future based on a more sustainable, more circular, more ecological or more green economy [25] is as evident as irrefutable [26], thus transcending the concerns of the scientific community towards society as a whole [27]. Faced with this situation, and in view to monitoring the progress in the achievement of the targets of all the SDGs in general –and alerting or praising, as the case may be–, and of SDG 12 in particular, different initiatives have been implemented, such as those mentioned in next subsections at several levels.

3.1 Progress in the achievement of SDG 12 at global level

The United Nations periodically monitors the achievement of the SDG targets, globally and in specifical geographical areas. Among its reports, the periodical Sustainable Development Goals Progress Chart shows an annual picture based on the most up-to-date data available, pointing out those areas where progress is demonstrated or more effort is needed. The 2022 edition [28], with information up to June of that year, and underlying the additional difficulties of collecting data in a context of specific measures against Covid-19, shows a clear deterioration in progress towards many goals (poverty reduction, food security, employment...) due to the effects of the successive crises (pandemic, consequences of the climate change, and armed conflicts), urgent, coordinated and large-scale measures being required to return to the path traced.

For each SDG a chart is elaborated using traffic light colours in order to visually show the progress, stagnation or regression on the way to the intended target (in most cases from 2019 to 2021) regarding a reference year (around 2010 or 2015). A gauge is also used to assess the level of progress towards the achievement of each goal. SDG 12 shows progress and the virtual achievement of targets in developed countries (Figure 3), both in terms of reducing the domestic material consumption per unit of GDP, and rationalizing inefficient fossil fuels subsidies per unit of GDP (then considering both targets achieved or almost reached).

However, the situation is different for both targets (one of them being at a moderate distance and the other close to the objective), and it does not improve due to the lack of progress and general stagnation in the rest of geographical areas, even showing a deterioration in terms of consumption of national material in Latin American and Caribbean countries (this leading to a situation far from the goal), and the same and more significant in terms of rationalising inefficient subsidies to fossil fuels in Sub-Saharan Africa (despite being in a situation close to the achievement of the goal).

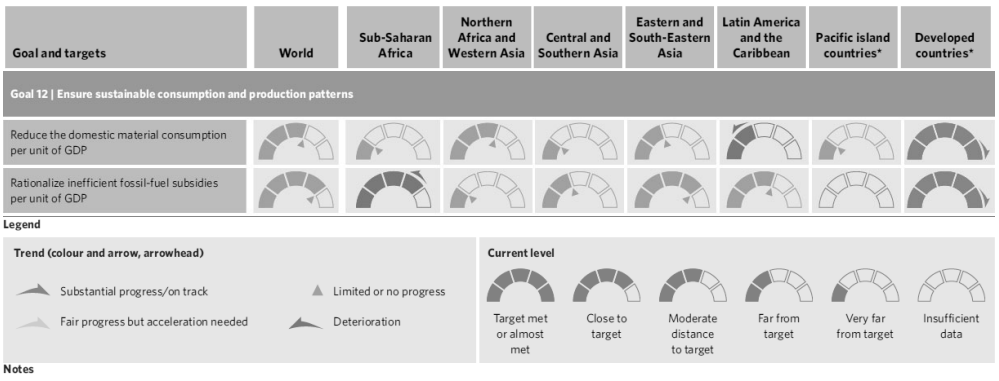

Fig. 3. Progress in the achievement of SDG 12 at world level. Source: own elaboration (extracts) based on [28].

3.2 Progress in the achievement of the SDG 12 at the European Union

Despite what has been indicated by the United Nations for 'developed countries' (i.e., Europe, Northern America, Australia and New Zealand), the European Union is not so optimistic, although progress is evidenced (not surprisingly, as SDGs constitute a long time ago a priority benchmark in European policies, being firmly rooted in key treaties, programmes, policies and initiatives).

Specifically, the EU Statistical Office, Eurostat, has been publishing since 2017 an annual report on sustainable development and the progress towards SDGs in the community context. The seventh edition of 2022 [29], revised based on an adaptation to the proposal of the Eight Environment Action Programme and the new objectives of the European Pillar of Social Rights Action Plan, a part of the six priorities of the Commission for the period 2019-2024, as considering the United Nations Biodiversity Conference (COP 15) in Montreal (December 7th to 19th, 2022) as a future benchmark, due to the ambitious objectives and goals established for 2030 and 2050 [30]. It also analyses collateral effects, including CO_2 emissions, footprint on land and materials, or gross value added (GVA) generated outside the EU by internal consumption, and includes a specific analysis on the impact of Covid-19 in achieving the SDGs.

In terms of results (Figure 4), the report points to the achievement of the greatest progress in the case of SDG 16, and other equally significant achievements for SDGs 1, 8, 7 and 9, all of them if compared to neutral progress (almost equal number of sustainable and unsustainable developments) registered in relation to SDGs 17 and 6, and the slight deviation produced in the path towards SDG 15. As regards SDG 12, it is located by the middle zone of a wide group of SDGs in relation to which moderate progress can be appreciated (SDGs 3, 14, 5, 11, 10, 12, 13, 4 and 2).

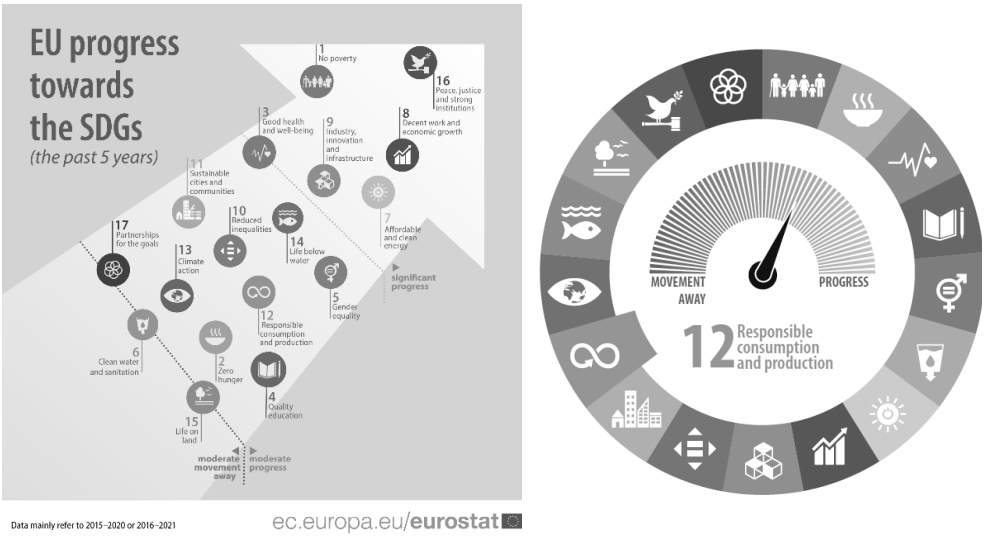

Fig. 4. Progress in the achievement of SDGs and SDG 12 at EU. Source: [29, pp. 10, 217].

Looking in more detail at SDG12 (Figure 5), the greatest progress that can be seen is in terms of energy productivity, gross value added in the environmental goods and services sector, and circular material use rate, both in the last 5 and the last 15 years, while the

moderate progress that had been taking place during the last 15 years in terms of consumption of hazardous chemicals, material footprint, and average CO_2 emissions from new passenger cars has been cut short in the last 5 years, by experiencing a moderate or even significant setback in some of such aspects (namely, the material footprint). Regarding the generation of waste excluding major mineral wastes, the previous moderate setback has now become significant. This is so because economic activity has been more limited by Covid-19 and the war in Ukraine than for other reasons, that is, a set of circumstances not accompanied by a better use of natural resources and a lower environmental impact despite the reduction of greenhouse gas emissions that had been taking place, and the war conflict in particular leading to a return to the use of more polluting fuels as a measure –aimed as circumstantial– of necessity.

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)
Decoupling environmental impacts from economic growth		
Consumption of hazardous chemicals	↗	↘
Material footprint	↗	↓
Average CO_2 emissions from new passenger cars	↗ (1)	↘
Energy productivity (*)	↑	↑
Green economy		
Gross value added in the environmental goods and services sector	↑	↑
Waste generation and management		
Circular material use rate	↑	↑
Generation of waste excluding major mineral wastes	↘ (2)	↓ (3)

(*) Multi-purpose indicator.
(1) Past 13-year period.
(2) Past 14-year period.
(3) Past 4-year period.

Fig. 5. Indicators for measuring progress towards SDG 12 in the EU. Source: Source: [29, p. 218].

The measurement of progress in the achievement of SDG 12 is clearly different when carried out at national level. For example, if we take the situation in Spain as a reference, the Action Plan for the Implementation of the 2030 Agenda emphasises the role of businesses, public bodies and consumers to achieve the goal, as well as in the "producer-distributor-consumer relationship [...as a promoter of] the measures adopted from the regulatory and planning fields by the different Public Administrations" [31, p. 51], just like the Progress Report edited by the Office of the European Union and Cooperation of the Ministry of Foreign Affairs in 2019 [32]. However, it is difficult to determine a concrete progress for each SDG in this document, as there are no specific sections devoted to them, but only mention of public policies (at national, regional or local level) or actions by non-governmental actors and civil society linked to the different SDGs.

Considering the monitoring carried out by the National Institute of Statistics (INE) between 2019 and 2022 [33], it is not very illuminating when referring to SDG 12, as no information is provided (but the message "exploring data sources") regarding many of the targets. To be precise, data are only shown for some indicators: in case of 12.2.2 (on the

achievement of sustainable management and efficient use of natural resources), with an improvement trend, but erratic in terms of internal material consumption; in case of 12.4.1 (on the achievement of a rational management of chemical products and waste), with a clear improvement in the generation of hazardous waste per capita; in case of 12.5.1 (on the lower generation of waste through prevention, reduction, recycling and reuse), with an increase in terms of the percentage of recycled waste compared to the total; in case of 12.6.1 (on the encouragement to businesses to incorporate sustainable practises and introduce them into their reports), and here for 2020 and 2021, there is an increase in the number of licenses and in the number of Organizations with the Community Environmental Management and Audit System, EMAS; and in case of 12.A.1 (on helping developing countries), a decline in appreciated in 2017 compared to 2016 in terms of the aid provided by Spain. In short, it is a set of data/indicators both limited in number and, at the same time, dissimilar in terms of the reference time periods used.

4 Information and training as additional explanatory factors of the progress towards the achievement of SDG12 and its targets

Regardless of what the statistics show, we must keep in mind that consumption is, beyond an economic phenomenon originated in the desire of an individual, a social and cultural process to express one's own identity within society [34]. In this sense, having a relevant and adequate information to be able to materialise their wishes to carry out responsible consumption practises has been revealed as a concern of consumers [35], namely the members of the new generations, including millennials [36], the first individuals born in a global and interdependent world. They are people with an open character and receptive both to ethical ideals and to the maxims of sustainability and responsible consumption, thanks to a great extent to their access to all kinds of information due to their extensive technological knowledge [37]. This situation leads these young consumers to be very demanding with brands, which has forced them to improve their marketing, communication and corporate social responsibility strategies [38]. Thus, the use of labels to publicise the initiatives of manufacturers and producers linked to sustainability and responsibility in compliance with the 12th Sustainable Development Goal (SDG 12) has become quite a common practise [39]. However, while these are people who tend to reward those companies which are consistent with their mission, vision, and values they also openly censure possible greenwashing behaviours once detected [40].

Concern has become such that millennials have promoted Online Brand Communities (OBCs), as virtual spaces where they interact and share principles and common values towards brands [41], which undoubtedly constitute a new and great showcase for companies to position their messages on sustainability and responsible consumption, then resulting in an improvement in the perception of attributes and brand awareness [42, 43].

4.1 The role of information in promoting sustainable consumption

Although previous studies have tried to explain the gap between the attitude and the real behaviour in practices of consumers who want to be responsible in their purchasing and consumption actions, some doubts can be raised about their ability to adequately 'classify' offered alternatives. Such reflection leads to postulate the relevance of analysing the function and the useful content of labelling as a communication tool for the sustainable nature of a product.

As one of the research initiatives aimed at assessing and explaining the attitude of consumers towards the SDG 12 in Spain, we can find the successive editions of the study by

the Observatory on Local Production and Sustainable Consumption (OPLCS). Reiterating the results obtained in the first three editions, the report for the fourth one points out that, while certain groups of consumers make a significant effort to be socially aware, and a minority do not consider it, the vast majority of individuals 'want', but 'do not know', 'cannot' or 'do not see themselves as capable' to do it, then acting much more on impulse than with awareness of what has been done [44]. A similar conclusion derives from other studies, for example, in case of young individuals as, although they state that they prefer eco-labelled products, they also show little tendency to contrast the validity and provenance of said statements [45].

Moreover, a similar situation has also been evidenced by studies in other countries, as France, United Kingdom, Czech Republic, Denmark, Germany, Italy, Switzerland or United States [46-49], as well as at European Union level, as part of the preparatory actions towards the Proposal for a Directive of the European Parliament and of the Council on substantiation and communication of explicit environmental claims (Green Claims Directive) [50].

In this sense, it is concluded that environmental or eco-social labelling and other elements present in products (or their packaging) should appear as a primordial tool to help consumers, by increasing awareness of their purchase act. Sustainability labels are symbols accompanying the product that can reveal information in a useful, simple, and credible way about the responsible components of products, which, together with the visual appeal, makes them an important search attribute that must be appropriately weighted by consumers [47]. These symbols aim to facilitate decision-making [48] and generate a greater trust towards the brand [49].

However, the data obtained indicate that only a few individuals understand them properly, then resulting in a decrease of their effectiveness and giving chance to doubts about whether the information is reliable or whether it is just greenwashing. Additionally, the common and recurrent use of other unofficial or non-regulated symbols or claims has ended up causing great confusion, and the frequency with which the lack of experience and the time required to obtain accurate information prevent an adequate analysis of the offered products before purchasing [46]. Therefore, a clear legislation appears more and more as a requirement [50]

4.2 Training as a requirement to promote sustainable consumption

Hence, it can be stated that we are not facing a lack as much as an excess of data, which misinforms and discourages those who want to understand what is related to what they are buying, and due to this reason, help is not being provided in this way to the consumers who want to be consistent with their predisposition and/or way of thinking to achieve SDG 12 through their behaviour [35].

The possibility of using a Type I environmental label –also simply called eco-labelling– derives from the favourable result of an independent evaluation of the sustainability standards and criteria used by a productive entity. Compliance with them allows the achievement of the qualification or consideration of organic for the products, which results in greater credibility and trust towards them on the part of consumers [51].

Such ecolabels are present in international markets on a global scale. In any case, they share a series of basic characteristics that can be systematised, as: they are based on a voluntary multi-criteria programme developed by an independent body; they establish their environmental preference based on various aspects of the life cycle; they respond to a series of traits or criteria that serve to classify products by categories; they ensure compliance with the conditions imposed by a concrete environmental legislation; its different values are measurable, achievable and exact in determining a specific range or number; they provide for the standardization of a periodic and indefinite review mechanism; and their granting derives from a transparent decision process with the participation of all interested parties.

A good example of eco-label is the one accompanying the organic products in the European Union. The logo of this Type I label –the 'green leaf'– stands out for its unique visual concept, built around two symbols of broad and collective knowledge: the European flag (i.e., the EU official symbol since 1986), and the shape of a leaf, which represents nature and the concept of sustainability.

However, the effectiveness of initiatives such as the one described is clearly limited by the fact that they share space on the shelves with those of other categories and, in particular, other possible advertising claims that can be found on the packaging of products and that, without incurring in illegality of fraud, lack the support of any certification or standard thus consisting of self-declarations by companies about their own products [52].

Such coexistence affects the decisions of some consumers who experience serious difficulties in discerning which sustainability attributes are really verified and which are no more than a mere commercial instrument [53]. What is more, some studies conclude that they al converge on the same or very similar value by consumers, which goes against the ultimate goal of rigorous labelling such as that of the aforementioned European green leaf [54].

What is more, purchasing decisions are not made in isolation, but in contexts affected by innumerable stimuli, many of them of a commercial nature, as well as in situations of pressure and overloaded environments where there is no space for reflection and it is common to resort to heuristics or simple rules to minimise the effort of assessing the attributes of a product and to establish simple connections between the labels and their ecological value [55, 56]. Due to this reason, the concept of sustainability inferred by consumers tends to respond more to holistic affective assessments than to strict and justified reasoning processes [57].

The two elements that most tend to activate this kind of heuristic thinking area, on the one hand, the use of green colour; on the other one, the use of words which are generally linked to sustainability. Companies take advantage of such superficial treatment of information by individuals [58] and use unregulated terms (such as 'natural' or 'artisan'), which lead to associating a product with ecological properties and values when what is actually happening is an erroneous inference from the label [59].

Therefore, stimulating more reasoned and systematic thinking in consumers becomes essential to promote better purchasing decisions [60], and acquiring the necessary and available knowledge is an essential condition for it [61].

Then, the 'real' problem does not seem to be as much the 'information', but the 'lack of training' to properly understand the information provided. In this regard, and taking again the situation in Spain as one of possible references at country level, we can find that the Action Plan for the Implementation of the 2030 Agenda points out the fundamental nature of "providing information to the consumer so that he/she, with his/her decisions, favours changes in the productive sectors [...and that] another important area action comes from the educational field. Introducing in the educational curricula all the aspects related to sustainability and the ways of sustainable production and consumption supposes a major challenge. In this field, it is important to introduce these aspects also in professional training and in the continuous training of workers" [31, pp. 50-51].

Therefore, the necessity of promoting SDGs at the level of early childhood, primary, secondary, vocational or university education is concluded and, specifically, in relation to cognitive and non-cognitive skills to be achieved by students regarding economic, social, environmental and personal issues, having for this purpose adequate facilities and materials, as well as trained teachers [62] and support from the educational institution [63]. This is not a novelty, nor is the willingness to act, which has been concluded in different studies, for example as part of the Education for Sustainable Development (ESD), through indicative proposals on intended purposes, learning content, methodologies and evaluation criteria to be used [64].

Moreover, previous regulations in Spain, such as the Organic Law of Education of 2006 (LOE) made an allusion to sustainable development, and other norms, as the Royal Decree 1105/2014, included concrete aspects as transversal subjects. After the establishment of SDGs, the text of the current Organic Law of Education of 2020 (LOMLOE) includes 21 mentions of sustainable development and 4 of responsible consumption.

Other studies have analysed SDGs addressing in primary and secondary schools, concluding that between 50% and 80% of primary schools and between 10% and 25% of secondary schools regularly emphasise issues dealing with food waste, sustainable human development, responsible consumption and ethical purchasing [65]. Additionally to the need to place greater emphasis on the secondary stage, it should be pointed out that these studies use to refer to the teaching-learning processes linked to formal education, while educational centres are more reluctant to address either these or other contents when they are not included in the official curriculum [66].

So all these results indicate that the approach to content related to sustainable development and the SDGs –and specifically SDG 12– is linked to a great extent to the culture and decisions of each educational centre and particular members of the teaching staff, also as far as professional training is concerned [67], thus forming a 'hidden curriculum' which is, at the same time, decisive in terms of the transmission of specific knowledge and values [68].

At the university level, the Conference of Rectors of Spanish Universities (CRUE) had already approved in 2005 some Guidelines to Curricular 'Sustainabilization' and, despite having experienced the difficulty of their implementation [69], it has stressed the need for the treatment and evaluation of such content with the Sectoral Commission for Environmental Quality, Sustainable Development and Risk Prevention in Universities [70], both in terms of teaching, research, knowledge transfer and involvement of the university community. This has led to a situation in which a good number of faculty members 'involved' with this cause consider the inclusion of issues related to sustainable development as an imperative [71], as well as to the promotion of specific offices or webs, or even the development of European networks of higher education institutions (European Universities) on this topic, as EURECA-PRO, "The European University on Responsible Consumption and Production" [72].

Conclusions

Based on the analysis of documentary sources and data, and according to what has been reflected in previous sections, we can conclude that, in the context of sustainable development, responsible production and consumption are effectively postulated at a time as a *sine qua non* requirement and as a purpose in itself. A clear example of this is their specific inclusion as one of the 17 Sustainable Development Goals of the United Nations 2030 Agenda and the role of SDG 12 as a reference for the development of the Ten-Year Framework of Programmes on Sustainable Consumption and Production, the United Nations Programme for Development, and the United Nations Environment Programme, or in relation with the Ten Principles of the Global Compact (specifically Principles 7, 8 and 9), among others.

This same analysis makes it possible to verify progress with respect to the achievement of SDG 12 and its eleven targets, both globally and in the European Union or at country level, as in case of Spain. However, the situation combines significant milestones with others that are far for being so, in a context conditioned by determining factors such as the previous levels of development (the greater advances occur in the most developed countries, that is, Europe, Northern America, Australia and New Zealand), disparity in terms of available information (not equally up-to-date, nor with the same level of accuracy for all indicators

related to each one of the targets), and drastic influence of supervening circumstances, such as the Covid-19 pandemic and the war on Ukrainian territory. From all this derives the need to continue making efforts in favour of SDG 12 and, therefore, sustainable development.

On the possible link between the attitudes and behaviours of consumers and the fulfilment of SDG 12 and its targets, several studies point to the growing willingness or predisposition of individuals in this regard, not always materialized due to not having adequate training to understand the available information when making their purchase decisions. Given the progressive incorporation of content related to SDG 12 in educational curricula, the training problem seems to become progressively solved, especially in the case of the younger generations of consumers (who are more predisposed than their elders to responsible consumption).

The situation is, however, more problematic in the case of adults and in the short term, since the proliferation of information through formal labels, initially conceived as an aid to consumers (of all ages), makes it difficult or prevents, in practice, their adequate interpretation, something to which contribute both the lack of adequate knowledge and the coexistence of such symbols with commercial claims of dubious credibility (some of them, in fact, clear examples of a greenwashing purpose that is far away from reality).

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