The role of entrepreneur cooperation in the implementation of the sustainable development goals

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Abstract. The authors proposed a method for evaluating the level of cooperation among associations for sustainable development and their participants. The indicators of the structure, of the scale and the diversification of cooperation have been selected by expert method. As a result, the method classifies participants, including entrepreneurs, by level of cooperation. Researchers have proposed classes of participants in cooperation for sustainable development. This classification is based on the grouping methods and calculation of the interval. If the participant had higher class, this means the participant had the closer links in the cooperation for sustainable development, and vice versa. This assessment allows us to determine the desire for cooperation of each participant (entrepreneur, NGO, investor, university, government). The method has been tested on the basis of 12 associations for sustainable development, including 951 participants for 2021. Between 1964 and 2020, the importance of large entrepreneurs increased in associations for sustainable development, especially the chemical entrepreneurs. The growth rate and the share of other participants are insignificant compared to large entrepreneurs in the associations. Small and medium-sized entrepreneurs have barriers to entry into associations. It is necessary to form a partnership of all participants for the sustainable development at the same time.

Keywords: sustainable development, cooperation, association, entrepreneur, partnership, green technology.

1 Introduction

The need for sustainable development is now universally recognized. In order to achieve the goals of sustainable development, associations have been established in some countries. There has been an increase in the number of such associations, especially in Europe. The number of members of these associations is also increasing. As sustainable development associations grow, therefore, new issues arise. For example, questions have arisen regarding the evaluation of the effectiveness and role of each member in these associations.

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The purpose of this article is to study the participants of sustainable development associations and the level of scale and diversification of cooperation (taking the example of entrepreneurs).

The object of the study is sustainable development associations operating in 2021 in the world.

The subject of the study is the number of sustainable development associations and their participants.

The hypothesis is based on the following assumption that participation in sustainable development cooperation is a competitive advantage for large enterprises (especially in the chemical industry). In associations, partnerships are needed simultaneously for all sectors of the economy to achieve sustainable development.

A literary review confirmed the relevance of the selected research topic.

According to B. Derqui, sustainable growth cannot be achieved without cooperation [1].

The UN concept of business, government, society should equally participate in achieving sustainable development goals.

N. Wang and M. Ma note the growing popularity of public-private partnerships for achieving sustainable development [2].

M. Porter and M. Kramer emphasize that entrepreneurs have special strengths (e.g., innovation, resources) to achieve sustainable development [3]. T. Gehringer, R. Scheyvens, G. Banks and E. Hughes also believe that partnering with entrepreneurship through their propensity to innovate will increase the scale of sustainable development [4, 5].

The authors of A. H. Rashed and A. Shah, T. Gehringer, I. Barletta and M. Despeisse, S. Hoffenson and B. Johansson believe that entrepreneurship is a key stakeholder in accelerating the implementation of sustainable development goals [4, 6, 7].

According to B. Derqui, the development of cooperation is carried out mainly through entrepreneurs in the supply chain [1].

T. Gehringer, B.E. Kaufman see enterprise participation in sustainable development associations as a way of pooling resources and building partnerships between different sectors of the economy (government, investors, universities) [4, 8].

M. Kawamoto and N. Kanie suggest that the role of entrepreneurs is to improve and accelerate the implementation of international conventions related to sustainable development [9]. The Paris Climate Agreement is an example.

R. Scheyvens, G. Banks and E. Hughes believe that the main role of entrepreneurship for sustainable development is in generating income and employment [5]. These authors have observed that the involvement of entrepreneurs in sustainable development associations affects their reputation and the formation of client loyalty [5]. As a result, business sales are increasing.

P. Hajek and J. Stejskal have identified the positive effects of financing sustainable development associations in the chemical industry. The effect is to increase the external knowledge available only to these enterprises [10]. M. Kawamoto and N. Kanie argue that the involvement of entrepreneurs in sustainable development associations changes their investment behavior [9]. The reason is that for the members of these associations, the principle of positive financing of the United Nations Environment Programme must be fulfilled. This principle means an increase in the proportion of investment in green investment.

T. Gehringer believes that scaling up finance is necessary to achieve sustainable development. He emphasizes the central role of corporate foundations in this scaling-up [4].

D. Gligor, C. N. Jurcut believe that the involvement of entrepreneurs in sustainable development associations affects their competitiveness [11]. Some experts felt that there was a need to develop the region's competitiveness through sustainable development [12-17].

I. Barletta, M. Despeisse, S. Hoffenson and B. Johansson, I.D. Meza-Ruiz, L. Rocha-Lona, M. del Rocío Soto-Flores, J. A. Garza-Reyes, V. Kumar, G. Lopez-Torres suggested

that the level of enterprise readiness for sustainable development should be determined [7, 18]. R. Baumgarther and D. Ebner have identified four stages of sustainability that can occur in enterprises [19]. K. S. Sangwan, V. Bhakar and A. K. Digalwar proposed an integrated enterprise sustainability evaluation system (using the example of the auto industry) [18, 20].

L. Eyraud, B. Clements and A. Wane, E. A. Inigo see the problem of low participation in associations for the sustainable development of small and medium-sized enterprises compared to large enterprises [21, 22]. In their view, the lack of financial resources was a barrier to participation in associations of small and medium-sized enterprises. At the same time, small and medium-sized enterprises are more inclined and flexible to engage in external cooperation than large enterprises.

B. Derqui, observed that business participation in sustainable development policies had increased significantly, due to external and internal factors, between 2013 and 2019 [1]. R. Scheyvens, G. Banks and E. Hughes note that extractive industries play an active role in sustainable development associations [5]. These authors see a risk that the number of commercial organizations in sustainable development associations will exceed the number of non-commercial organizations [5]. According to E. A. Inigo it is necessary to create mixed organizations. It is a mix of commercial and not-commercial organizations, with the main objective of their activities – sustainable development [22]. Bakhareva O.V., Romanova A. I., Safina R. S., Kursina I. M., Shindina T. A. consider «long investments» in the context of sustainable development infrastructure in the region [23], as well as Romanova A.I. etc. develop the idea of formation and transformation of capital in the market of information services in the regional economy [24].

R. Scheyvens, G. Banks and E. Hughes have identified a number of problems that arise when members of sustainable development associations interact. The first is the duplication of initiatives by various sustainable development associations. The second problem is that entrepreneurs in associations simultaneously pose problems and propose solutions. The third challenge is the need to move from short-term to long-term planning for sustainable development in associations [5].

2 Materials and methods

The study consisted of the following 4 stages.

In the first stage, the authors selected sustainable development associations operating for 2021 in the world. Indicators for the evaluation of cooperation by expert method have been defined.

The second phase of the study identified stages in the formation of cooperation within the framework of sustainable development. This has been achieved by systematizing, in chronological order, all sustainable development associations. The level of cooperation of each association on sustainable development is determined by counting the number of participants in each association.

In the third stage, criteria have been developed to determine the level of cooperation of each participant. The method used is to calculate the total number of associations in which a member is registered. The level of cooperation of each member of the association for sustainable development is calculated for 2021.

In the fourth stage of the study, each association was assigned a category for each of its members (entrepreneur, NPO, investor, university, government). All participants are grouped by category and their relative weight in the total number of participants is calculated.

3 Results

In the first stage of the study, 12 sustainable development associations were identified in the world for 2021 [25-35]. For the evaluation of cooperation, the following indicators were chosen by expert method: structure, scale and diversification of cooperation.

In the second phase of the study, the stages of formation of cooperation within the framework of sustainable development are defined (Table 1).

Table 1. Stages in the formation of cooperation within the framework of sustainable development.

Year of education	Name of the association	Number of participants
1964	European Plastics and Rubber Machinery (EUROMAP)	7
1995	The World Business Council for Sustainable Development (WBCSD)	182
2009	E. MacArthur Foundation	154
2011	Global Plastics Alliance (GPA)	76
2013	WIPO Green	30
2016	Plastic Europe	55
2017	European Plastics Converters	39
2018	Global Commitment «The New Plastics Economy»	263
	Europe Plastics Recyclers (PER)	94
	World Plastics Council (WPC)	21
2019	Alliance to end plastic waste	60
2020	European plastics pact	139

The level of cooperation of each association on sustainable development is determined by the method of counting the number of participants in each association (Table 1).

In the third phase of the study, criteria for determining the level of cooperation of each participant have been developed. The method used was to calculate the total number of associations in which a member was registered (Table 2). The authors calculated the arithmetic mean size of the interval for each of the four levels of cooperation.

Table 2. Criteria for determining the level of cooperation of the participant.

Number of associations	Level of cooperation
5-6	High
3-4	Average
1-2	Low
0	No cooperation

The level of cooperation of each member of the association on sustainable development is determined on the basis of the author criteria for 2021 in the world (Table 3).

In the fourth stage of the study, each association was assigned a category for each of its members (entrepreneur, NPO, investor, university, government). All participants are grouped by category and their relative weight in the total number of participants is calculated (Table 4).

The proportion of each category of participants in the total number of participants in all associations in 2021 in the world is calculated.

Table 3. Level of cooperation of members of associations in the framework of sustainable development.

Member	Country (headquarter)	Number of associations in which the participant is registered	Level of cooperation
BASF	Germany	6	High
Henkel AG & Co. KGaA	Germany	5	High
Suez	France	5	
Total	France	5	
Veolia	France	5	
Berry Global	USA	4	
Borealis	Austria	4	Average
CeDo	Great Britain	4	
Chevron	USA	4	
Covestro Deutschland AG	Germany	4	
Dow	USA	4	
Sabic	Saudi Arabia	4	
Shell	Netherlands	4	
Tomra	Norway	4	
Other	17 participants	3	Average
	920 participants	from 1 to 2	Low

Table 4. Structure of participants in the sustainable development cooperation for 2021.

Category of member	Number of participants. units	Weight in the total number of participants, %
Enterprises (commercial and non-commercial)	760	80
Associations	122	13
Investors (banks, funds)	11	1
Universities	20	2
Government	38	4
Total	951	100

4 Discussions

Among the 12 sustainable development associations, the largest number of participants is registered in the Global Commitment «The New Plastics Economy» (Table 1). This represented 28 % of the total number of participants in all associations. Global Commitment «The New Plastics Economy» has been distributed since 2018.

The World Business Council for Sustainable Development ranks second in the number of participants in sustainable development associations (Table 1). The organization was registered in 1995. Membership in this association accounted for 19 % of the total number of participants in all associations.

The E. MacArthur Foundation ranks third in the number of participants in sustainable development associations. The Fund was established in 2009 and represented 16 per cent of the total number of participants in all associations (Table 1). European plastics pact ranks

fourth in terms of number of participants in association. The association was established in 2020 and represented 15 % of the total number of members of all associations (Table 1).

The remaining 8 sustainable development associations have up to 100 members in each association (Table 1).

The number of participants in sustainable development associations increased from 2018 to 2020. The growth rate of membership of associations was 175 % in 2020 compared to 1964-2018.

BASF has the largest number of member associations of all 951 participants of sustainable development associations (Table 3). These are 6 associations in which BASF (Germany) was registered.

Companies from Germany (Henkel AG & Co) and France (Suez, Total and Veolia) ranked second in the number of associations in which the participant was registered. These are the five sustainable development associations in which each of these companies is registered (Table 3).

In the third place in the number of associations in which the participant is registered are 9 companies from the USA, Austria, Germany, Great Britain, Netherlands, Norway, Saudi Arabia. These are the four sustainable development associations in which each of these companies is registered (Table 3).

On the basis of table 3, it can be concluded that most of the participants in sustainable development associations are from Europe. Participants with a high or medium level of cooperation in sustainable development associations were the leaders in sales in the chemical industry according to the Global Top 50 Chemical Companies Report [36].

The level of cooperation among the majority of participants in sustainable development associations (97 % of all participants) is rated as low for 2021.

According to our study, entrepreneurs did not participate in 4 sustainable development associations:

- Global Plastics Alliance;
- European Plastics and Rubber Machinery;
- WIPO Green;
- European Plastics Converters.

These sustainable development associations were mainly attended by associations or governments.

Entrepreneurs participated in 8 of the 12 sustainable development associations:

- The World Business Council for Sustainable Development;
- E. Macarthur Foundation;
- Plastic Europe;
- Global Commitment «The New Plastics Economy»;
- Europe Plastics Recyclers;
- World Plastics Council;
- Alliance to end plastic waste;
- European plastics pact.

Among of all the participants in sustainable development associations:

- enterprises (commercial and not-for-profit) ranked first 80 %;
- second place - associations 13 %;
- third place - governments 4 %;
- fourth place - universities 2 %;
- fifth place - investors 1%.

The hypothesis put forward by the authors that participation in sustainable development cooperation is a competitive advantage has thus been confirmed. This hypothesis is true for large enterprises represented by the chemical industry. Small and medium-sized enterprises are not represented in sustainable development associations. This means that they do not

have this competitive advantage in the market. At present, the conditions for achieving sustainable development are not complete as there is no balance in the partnership of all participants. This requires the activation of the role of other participants in sustainable development associations (e. g., universities, investors, governments).

5 Conclusions

The scientific novelty of the study is the development of an author's methodology to classify entrepreneurs according to their level of cooperation in order to achieve sustainable development goals.

The practical significance of the study is as follows to use the author's methodology for the annual monitoring of existing sustainable development associations. These monitoring results can be published for world public opinion. This information is offered by the authors in the form of a ranking of the level of cooperation of each sustainable development association. The maximum rating should be given by an association in which all categories of participants (entrepreneurs (large, medium and small), NPIs, investors, universities, governments) are present. This is necessary to ensure that all voices are heard in sustainable development decision-making.

The study's finding that a high level of business cooperation to achieve sustainable development is a competitive advantage can be applied to competitiveness analysis. For example, it is possible to include the level of cooperation in factor analysis to determine competitiveness.

The outlook for the study lies in a future study of the level of cooperation among members of sustainable development associations, grouped by country. And we have the opportunity for each of the four strategies at the entrepreneurial cooperation level to predict the impact of the chosen strategy on the level of sustainable development.

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