



The contribution of Regional Centers of Expertise for the implementation of the 2030 Agenda for Sustainable Development

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ABSTRACT

The implementation of the 2030 Agenda for Sustainable Development and the achievement of the 17 Sustainable Development Goals requires a fully integrated approach between sectors, disciplines, countries, and actors. On the fourth year of its implementation, the uptake of SDGs from non-state actors is increasing around the world, by developing engaging mechanisms for involvement at horizontal and vertical level. Considering that activation of existing partnerships is important for SDGs, in conjunction with creating new ones, this research has analysed the approach of global network of Regional Centers of Expertise on Education for Sustainable Development. An overview of involvement is done based on a survey data, by exploring collaboration in local, national and international scale. Through Hierarchical Classification Analysis, the networks are grouped into clusters with similar characteristics and discussions include challenges and potentialities for intensifying the contribution towards the 2030 Agenda.

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1. Introduction

The implementation of the 2030 Agenda for Sustainable Development and the achievement of the 17 Sustainable Development Goals (SDGs) require a fully integrated approach between sectors, disciplines, and countries, calling for new strategies addressing a wide range of actors, such as civil society, businesses, academia, regional and international bodies (Caiado et al., 2018).

The 2030 Agenda emphasises the role of multi-stakeholder partnerships as a way to engage with and enhance cooperation, explicitly in the Goal 17, “Strengthen the means of implementation and revitalize the global partnership for sustainable development”, and Target 17.16 “Enhance the global partnership for sustainable

development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries”.

Taking into account the importance of partnerships for sustainability, this research analysed the extent to which the 2030 Agenda for Sustainable Development and the 17 SDGs are being implemented by multi-stakeholders networks, specifically among the Regional Centers of Expertise (RCE) on Education for Sustainable Development (ESD).

The United Nations University, in Japan, established the first group of seven RCEs in 2005, as a response to the UN Decade on ESD from 2004 to 2014. There are at present 159 RCEs distributed around Africa, North and South America, Asia-Pacific and Europe (<http://www.rcenetwork.org/portal/rces-worldwide>). They are designed as networks of existing regionally located stakeholders including educational institutions, business, local governments, non-profit organisations and individuals, aiming to translate global objectives to local communities (Mochizuki and Fadeeva, 2008). Governance, collaboration, research and development, and

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transformative education are at the core of each RCE, acting not as physical centers but as institutional mechanisms to facilitate shared learning for sustainable development (UNU-IAS, 2014). RCEs apply different governance structures according to the affiliated organisation, responsible for coordinating the partners. When universities establish alliances with Regional Centers of Expertise on Education for Sustainable Development, their engagement in regional actions for sustainable development is increased compared to others (Sedlacek, 2013).

The scope of the work of RCEs is closely linked to regional sustainability challenges such as sustainable consumption and production, climate change, energy efficiency, vocational training, entrepreneurs' education, eco-tourism, health and well-being, biodiversity and ecosystem services, traditional knowledge, and disaster risk reduction. Within the learning networks, the change of communication during stakeholder learning processes creates conditions for a systemic shift in education to sustainability (Dlouha et al., 2013). RCEs aim to tackle ESD at all levels, especially focused on two important elements such as to consider education as a means towards sustainability and to consider sustainability as an important part of education (UNESCO, 2018).

It is argued that the implementation of the SDGs would require alternative governance frameworks, including sustainable governance, horizontal versus hierarchical, meta-governance, or collaborative governance which crosses sector boundaries for a successful performance and public engagement (Emerson, 2012). Multi-actor collaborations are necessary for sustainable orientation of societies, and often due to the complexity of sustainable development challenges, governance through networks is preferred (Meuleman and Niestroy, 2015). The principles embraced in SDGs can be translated into policy making if, among others, countries are supported by global economic governance (Leal Filho, 2019a). The SDGs offer an innovative approach of global governance, with goal-setting features, which are crucial for the governance strategy (Biermann et al., 2017).

The "indivisibility" is considered a crucial point of the 2030 Agenda, recognizing that human development and prosperity are co-dependent across country boundaries (Nilsson, 2017). In the fourth year of implementation, the uptake of SDGs from different actors around the world is increasing. National governments of the member states have created engagement mechanisms like national councils, inter-ministerial groups, multi-stakeholder committees and sustainable development commissions, in order to fulfil their voluntary commitments. Despite the global dimension, the implementation of the SDGs depends on the degree of commitment of each country and their prioritization of sustainability (Salvia et al., 2018).

Core elements of the 2030 Agenda for Sustainable Development are the follow-up mechanisms that review progress at the national and sub-national levels, and which have to be inclusive and provide a platform for partnerships of major groups and other relevant stakeholders. Paragraph 79 of the 2030 Agenda calls on Member States to conduct regular and inclusive reviews of progress at the national and sub-national levels, drawing on contributions from civil society, marginalized groups and others. Local governments are mobilizing resources for localizing SDGs, and are establishing diversified partnerships, thus applying multi-level governance and multi-stakeholder engagement for greater accountability, ownership, and coherence (nrg4SD, 2017). UN Global Compact through the multi-year strategy "Making Global Goals Local Business" encourages businesses of every size and give support for achieving the SDGs by 2030 (United Nations Global Compact, 2017). Academia and educational institutions can contribute to the SDGs in research, education, operations, governance, and external leadership, according to the Sustainable Development Solutions Network (SDSN,

2017). Key governance challenges, such as stakeholders' collective action and inclusive decision making, trade-offs and accountability, are considered crucial for implementing the SDGs (Bowen et al., 2017).

This research stresses that collaborative action in multi-stakeholder platforms may diffuse the challenges that organisations face with the implementation of the SDGs. Some of the reasons that prevent non-state actors to advance the 2030 Agenda are, among others, weak capacities among some sectors of civil society for national development planning; the fact that many private sector parties perceive sustainability as a barrier to their activities; academia being often disconnected from development planning processes; and the lack of capacities to produce policy-relevant information (UNDP, 2017). The involvement of universities in local and regional development processes requires new collaborative ways for knowledge transfer, which can be determined in collaboration with local and regional societies (Peer and Stoeglehner, 2013) and brings about mutual benefits and synergies on sustainable development (Leal Filho et al., 2019b).

The governance and sustainability aspects of the SDGs require coordination at different levels. Each level contains complications and limitations, i.e. coordination at the central level is somehow influenced by the degree of independence of other stakeholders and their focus agendas. Insufficient interactions among stakeholders in national networks, and insufficient coordination of actions may not support integration of sustainable development to educational organisations (Vargas et al., 2019). International coordination risks remaining at higher levels, excluding the enormous actions and connections that exist at other, or lower levels. Coordination of the partnerships mainly exists in a horizontal level, but depends on the will, availability and interests of the partners. Networks as an instrument of modern governance can lead to joint policy making, where autonomous members partially interact according to their different interests (Ruggie, 2002).

Although the impact of scale is complex, because action taken in one spatial scale can have diverse impacts on other scales (Scharlemann et al., 2016), RCEs allow for a distinct definition of scale, perceiving the local level as a wider geographic and knowledge space for practice dissemination (UNU-IAS, 2010). Public, private and civic sectors, in order to identify challenges and direct financial resources can use the data and metrics as a useful management tool in the SDGs context (Mulholland, 2018).

The identification of SDGs with regional sustainability challenges for RCEs is a work in progress. Sustainable Development Goals can contribute to better understand sustainability challenges but it is necessary to have a continuous consideration for this mutual link otherwise too much effort will be used for SDGs implementation without addressing in practice the sustainability (Leal Filho, 2019a).

The 17 SDGs, adopted in 2015 to implement the 2030 Agenda for Sustainable Development, contain 169 Targets and 234 Indicators. While Goals are ambitious, transformational and limited in number, Targets are more specific and measurable and contribute to achieving one or more Goals (SDKP, 2014). The indicators create the framework for monitoring and assessment in order to communicate the results to all the sectors of society (Janouskova et al., 2018). The interactions among the SDGs are context dependent and their effects are highly influenced by application of appropriate governance (Nilsson, 2018).

This study analysed the collaborations for the SDGs in a horizontal and vertical level, at regional, national and international scales, and identified clusters with similar characteristics in tackling specific Goals. In addition, it aimed at addressing the question: **"What is the role of the multi-stakeholder networks for the implementation of the SDGs in the local level?"**, thereby

providing an overview of the current involvement of the RCEs global network.

2. Methodology

To approach the research question, the authors used a quantitative, descriptive method of data collection. A survey was developed and conducted (April–July 2018) within the global network of 159 RCEs, using a list-based sampling frame. Details about it were published in the RCEs e-bulletin 82: June 2018 ([Global RCE Network](#), 2018) and on the Facebook Page of the Global RCEs Network. The survey was voluntary and anonymous and consisted of 25 questions divided into four sections: 1) RCEs and their involvement with the SDGs, 2) networks links within regions and countries, 3) network links in the international context, and 4) barriers, challenges and opportunities, as presented in [Appendix A](#).

Despite diversities, such as years of establishment, number of partners, intensity of actions, and variety of sustainable regional challenges, the general design of RCEs is based on common features and functionalities that are crucial for their establishment. In this aspect, the study takes into consideration the similar features that characterise RCEs, and the analyses are based on the total number of respondents, independently from their continental divisions.

The analysis of the results is divided into three sections, as summarised in [Table 1](#) and presented as follows:

The purpose of section (a) is to answer research questions related to involvement of RCEs with the SDGs and their connection in national and international levels, giving a general overview of current involvement of RCEs with sustainability.

Section (b) classifies RCEs into groups by using the statistic method of Multiple Correspondence Analysis (MCA) combined with a Hierarchical Classification Analysis (HCA), with support of the Software R ([R, Core Team, 2013](#)).

MCA allows converting nominal data to quantitative data that can be used for hierarchical clustering. The advantages relay in extracting the most relevant information by combining different survey answers, and in identifying similarities of the participants from a multidimensional perspective. It is appropriate to perform clustering on principal components, because MCA associates quantitative variables that summarize all categorical variables ([Husson and Josse, 2014](#)) and allows for minimum loss of information when aims to reduce dimensionality ([Lautsch and Plitichta, 2003](#)).

The data from survey contained only nominal responses. No higher order of data was used for the MCA analyses. Survey data were uploaded into Excel and analysed in software R. The first step of MCA is to recode the data, so the data were elaborated accordingly (for instance by indicating the missing values in the data set, from the unanswered questions, with N.A, and coding the answers with values 0 and 1).

A limitation of this approach is that it is a descriptive one. The results cannot be generalized to the whole population since they concern only the sample that has answered the survey. Thus no inference or generalizing to the whole population is made. The purpose is to answer the research question connected to similar

characteristics among RCEs and work with the SDGs.

Section (c) analyses responses from the survey and builds upon the previous sections in order to present challenges and opportunities in dealing with the SDGs in order to indicate the areas of intervention and to give a guideline on how to strengthen the contribution and further involvement of RCEs for the 2030 Agenda for Sustainable Development.

3. Results and discussion

There were in total 31 replies to the survey (19.5 percent response rate), belonging to the four RCEs continental groups, respectively 14 from Europe, 8 from Africa and Middle East, 5 from Asia-Pacific, and 4 from the Americas. The total response rate for answers of the 24 questions was 93 percent.

The results are structured in 4 sections, as presented in the methodology: a) RCEs involvement with the SDGs in a regional, national, and international context; b) RCEs clustering according to similarities in dealing with the SDGs; and c) challenges and opportunities of RCEs dealing with the SDGs.

a) RCEs involvement with the SDGs in a regional, national, and international context

RCEs networks consist of about 10–70 regional partners, where “region” means part of a country or borders between countries. The governance structure of an RCE differs according to the host or affiliated organisation responsible for the partners’ coordination. The host organisations belong to educational institutions, non-profits or civil society, but also to enterprises/companies or local/central governments. At a global scale, most of the RCEs are facilitated by a higher education institution, which also applies to participating RCEs in this study. Approximately 60 percent of them are hosted by educational institutions, 42 percent by non-profit organisations, 16 percent by local governments, 16 percent by businesses, 6 percent from central governments and in 6 percent of the cases they are independent of any host institution.

The partners’ constellations and types differ (see [Fig. 1](#)).

Based on self-perception, 87 percent of the RCEs believe they are strongly involved with the SDGs. The core focus of RCEs, Education for Sustainable Development (ESD), is a crucial part of the 2030 Agenda for Sustainable Development. ESD is explicitly mentioned in Goal 4, Target 4.7, “By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through Education for Sustainable Development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and nonviolence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development”.

Consequently, the results of the survey indicate that Goal 4 was used by 84 percent of the respondents, although prioritization of the SDGs locally appears to be strongly connected with efforts to contribute to the entire 2030 Agenda. Consequently, 48 percent of respondents deal with the 2030 Agenda as a whole, 58 percent of them with several Goals and only 10 percent deal with Goal 4

Table 1

Overview of how the results were structured and the research questions which guided the analysis.

Section	Associated research question	Questions from the survey
(a)	1) To what extent are the RCEs networks involved with the SDGs implementation? 2) What is the degree of interaction between actors of different types of organisations in horizontal scale? 3) To what extent are these networks connected at national and international levels?	1–12; 15–20
(b)	4) What are similar characteristics of RCEs that deal with specific goals?	All
(c)	6) Which are the challenges and opportunities in dealing with the SDGs?	13, 14, 21–25

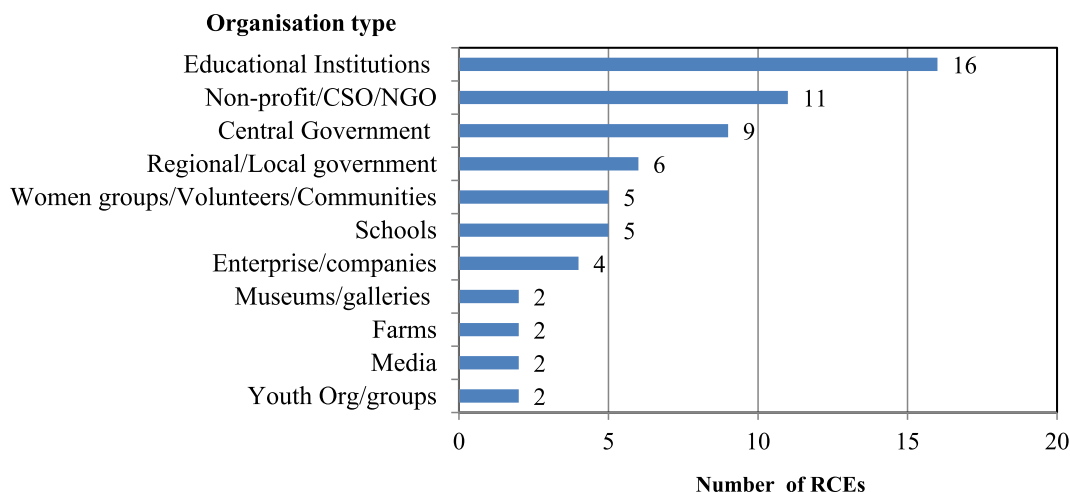


Fig. 1. Types of partner organisations of RCEs and number of RCEs that contain these partners in their network.

separately. Ranking of most used Goals from RCEs is shown in Fig. 2. No clear involvement with Targets and Indicators was identified at this stage, except for Targets of Goal 4 (the most selected, target 4.7, used by 84 percent, targets 4. c, by 55 percent, and targets 4. a by 45 percent of respondents). The most underestimated Goals appear to be SDGs 1, 9 and 10.

The degree of involvement was analysed at three levels as follows:

Level 1 - Regional: Strong features of RCEs enable horizontal cooperation, aiming for equal partnerships assured by organisational structures and decision-making processes. Regarding the actions for SDGs, 77 percent of RCEs operate in a horizontal or bilateral consortium, 32 percent of them are leading the process

and in approximately 26 percent of the cases, collaboration is vertical, depending on the funding source.

Survey results show that RCEs are currently involved with projects and actions for SDGs, ranging from 1 to 14 for each respondent. The initiatives consist of research for SDGs (45 percent of the respondents), development projects (71 percent), advertising campaigns (39 percent), but also lectures at universities, SDGs books designed for teaching and community development. Nevertheless, the outreach of cooperation is not limited to their partner organisations. Seventy-four percent (74 percent) of RCEs are collaborating with other multi-stakeholder regional networks and 55 percent with sectoral networks, i.e. the networks of educational institutions, universities or schools.

Level 2 - National: No strong involvement in national processes for SDGs was identified in this survey. Only 39 percent of RCEs participate in local governments' actions toward the 2030 Agenda and consultation processes to respective national/local governments, and 23 percent are part of national committees, 23 percent collaborate only for SDG4, and 19 percent in monitoring and tracking of SDGs progress. Since 2016, according to the [Sustainable Development Knowledge Platform](#), 112 countries have conducted voluntary national reviews (VNRs), 22 in 2016, 43 in 2017, and 47 countries in 2018 (SDKP, 2018). Additional 36 countries are expected to conduct them by 2019, and all countries to complete the VNRs around three times during the 15 years. The aim is to facilitate the sharing of experiences, successes, challenges, and lessons learned, in order to accelerate the implementation process, but also to strengthen policies and mobilize multi-stakeholder support and partnerships for the implementation of SDGs. Our results indicate that only 26 percent of RCEs have so far been part of a VNR country process, 52 percent were not involved and 19 percent intend to be involved in the coming years.

Level 3 - International: Non-state actors should engage in the 2030 Agenda for Sustainable Development not only through national governments. Regional stakeholders can effectively collaborate with similar organisations and networks outside their country boundaries. RCEs collaboration in the international arena for the SDGs is mainly within the RCEs global network. About 61 percent of RCEs collaborate within global RCEs network and the RCEs coordination Centre at UNU-IAS in Japan, but especially in continental clusters. Further collaborations are with international networks and organisations such as UNESCO, UNDP, Copernicus Alliance, ESD Expert-Net, Erasmus + Program, Learning Cities, Joint Programming Initiative Urban Europe, and Global Consortium for

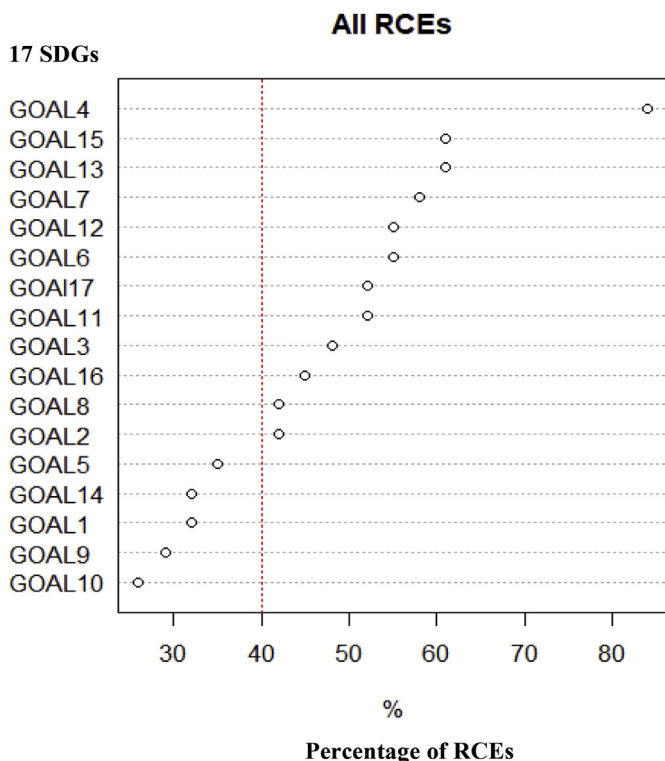


Fig. 2. Ranking of the 17 SDGs, (from the least to the most used) according to the number of RCEs expressed in percentage.

Sustainability Outcomes Network, European Consortium of Universities for Innovation, IPBES, Living Knowledge, Earth Charter, and LAG-21, KYUSYU, EPO.

b) RCEs clustering according to similarities in dealing with the SDGs

Hierarchical clustering and factor map analyses enabled the grouping of RCEs into three clusters with similar characteristics, by extracting information from the survey answers (see Fig. 3). The cutting is done into 3 clusters. The cutting into 2 clusters is considered insufficient to explain the diversity, while for more than 3, clusters would contain a very small number of respondents.

Cluster 1 is the biggest with 55 percent of respondents. It is named “ESD focused RCEs”, because respondents of this cluster are particularly focused on Goal 4, Target 4.7 on Education for Sustainable Development. Additional parts of their work include Goals 13, 14 and 15 as well. These RCEs are equally distributed among continents and affiliated to diverse organisations but mainly educational institutions and non-profits ones. They are self-perceived as “moderately involved” with SDGs. Their collaboration in vertical scale is weak. They mostly operate in development projects for SDGs, in horizontal or bilateral collaborations. For these RCEs, changes in leadership and governance are considered crucial, in order to adapt to the new global objectives. They favour the bottom-up approach to deal with SDGs and consider the networks informality as a factor which fosters collaboration. The major challenge of the participants of this cluster is lack of resources and

funds.

Cluster 2, named “Thriving RCEs”, belongs to 19 percent of respondents. They are mostly located in Europe and affiliated to educational institutions. Their focus is on Goals 17, 4, 16, and 11 and Targets 4.1, 4.5, 4.7 and 4. c. They are self-perceived as “strongly” to “very strongly” involved with the SDGs, mainly through research and advertising/campaigning. They contribute in national level through participation in VNRs, and in consulting national/local government for the SDG. These RCEs are characterized by long-term financial stability. Collaborations between network partners are horizontal, bilateral or vertical depending on funding scheme. They favour a focus-oriented approach for SDGs and consider informality of networks to have a passive impact to their work.

To Cluster 3, of “Polyvalent” RCEs, belong 26 percent of respondents. Fifty percent of them are located in Europe and 50 percent in other continents. They are affiliated by diverse organisations. Their actions for SDGs cover Goals 1 to 15, and specifically Targets, 4.3, 4.4, 4.5, 4.7, 4. a, 4. c, and range from research and advertising/campaigning to development projects. Self-perceived as “strongly” involved with SDGs, they operate in horizontal or bilateral collaborations but also as leaders of the actions for the SDGs. In vertical level they contribute in national committees for the goals, to VNRs, local government actions. These RCEs are more active in cooperating with international organisations. Their approach towards the SDGs is a combination of bottom-up and top-down, and they consider the 2030 Agenda as a method to measure impact. Funding for SDGs remains a challenge.

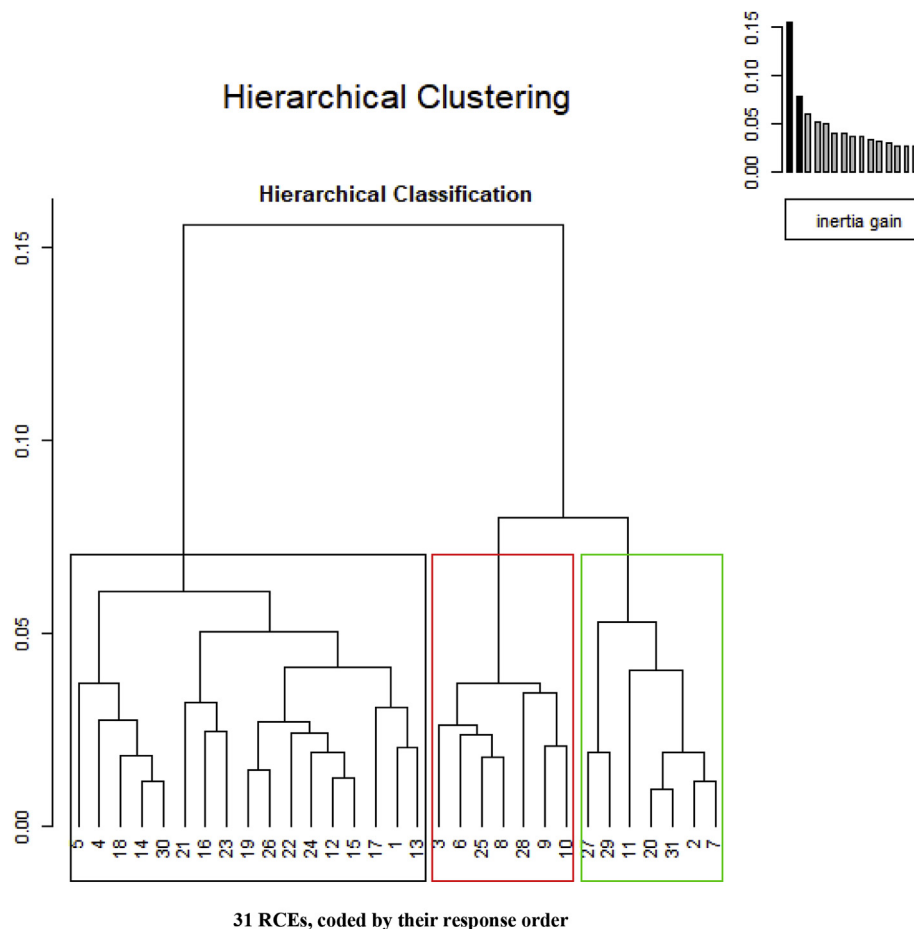


Fig. 3. Hierarchical Clustering of RCEs. Numbers horizontally correspond to the 31 respondents. Cluster 1 shows respondents in black colour, cluster 2 in the green and cluster 3 in red. The cut is performed at the level of 0.075 (inertia gain) as suggested by the Software R. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

In Fig. 4, are displayed the most used Goals by the RCEs, according to the three clusters. The analysis shows that “ESD focused RCEs” clearly focus on Goal 4, and very few of them are involved with Goal 17. On the other hand, SDG 17 appears to be strongly at the focus of “Thriving RCEs”. Based on the characteristics of the clusters described above, the Polyvalent” RCEs, which are characterized by very diverse partners, are focused in almost all 17 Goals, while the RCEs that are based in Europe have a stronger commitment to their country processes.

Since 2015, RCEs networks have experienced difficulties in explaining their unique concept to local stakeholders, in securing long-term financial stability, in promoting and making visible their work. Despite that, additional issues are identified by this study, which can affect their approach towards the SDGs. The challenges and opportunities discussed in this section derive from the results of the survey and analysis from the previous sections.

Due to the timeline of the 2030 Agenda for Sustainable Development, a sense of urgency is needed for RCEs to adopt to changing global objectives. Although the majority of respondents (48 percent) consider the process a continuation of their work on the Millennium Development Goals, 69 percent of RCEs agree that changes are needed for adapting to SDGs and only 3 percent of respondents believe this is not part of their focus.

The complexity of the 2030 Agenda, the ambiguity about Targets and Indicators, and the lack of sufficient indicators for some of the Targets increase difficulties to measure and scale down. Although 29 percent of RCEs find the SDGs Indicators framework useful for measuring their impact, our analysis indicates an active involvement of RCEs with Goals in general but with no clear connection to specific Targets and Indicators.

Governance challenges are related to issues such as vertical outreach, horizontal outreach, equal partnership and access in the decision process, and need for structural changes. Autonomy from the hosting organisation is considered as an obstacle only by 19 percent of RCEs. The majority of respondents are hosted by educational institutions, but despite that they are more involved in

development projects for SDGs. Consequently, in general no clear link was identified between the hosting organisation and the SDGs actions which assure for positive impact of RCEs outside the hosting organisations. It is also an indication of the expansion of the activities of educational institutions with a broader focus when it applies to the SDGs. The necessity to expand the network with new partners for SDGs is stressed by 74 percent of RCEs. But these networks are voluntary and flexible, thus not always can choose the most influential stakeholders. As a consequence, the network expansion does not always apply to the most effective regional actors with a stake in the SDGs.

Another identified challenge is to engage existing partners in long term commitments for SDGs. The results of our survey indicate RCEs partners deal independently with the SDGs in 65 percent of respondents, those not involved are 13 percent, and 19 percent might get involved in the future. Despite the fact that the contribution of RCEs can be comparatively modest to the requirement of the regions, these networks can act as agents for directing and orienting partner organisations towards the SDGs. Attempts to include SDGs in the large industry and business sector are more successful compared to small-medium size enterprises. The mobilisation of such enterprises, which are often partners of RCEs, can facilitate localizing the SDGs.

Vertical outreach requires a stronger involvement in the country processes and Voluntary National Reports. Vertical integration is considered crucial for the implementation of the 2030 Agenda, depending on among other factors from the political will at central level, resources and capacities to deal with Targets and Indicators, and the degree of involvement of the non-state actors. Although additional efforts are required for participating in countries SDGs processes, it can be a means to increase RCEs visibility, and contribute to the accountability of these processes. Furthermore, by participating in the SDGs monitoring RCEs can align their internal evaluation processes with the SDGs metrics and data management tools.

Regarding structural changes, only 10 percent of RCEs perceive

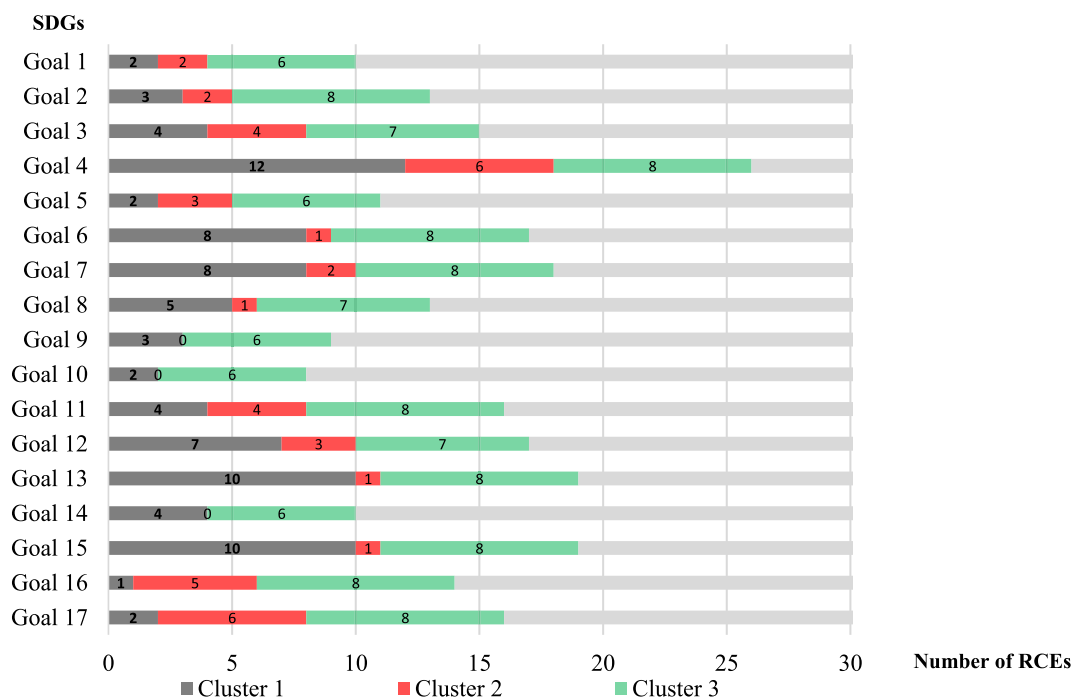


Fig. 4. Number of RCEs working with each of the SDGs ordered by clusters.

c) Challenges and opportunities of RCEs involvement with the SDGs

changes in leadership and governance structures to be necessary for the SDGs process. For future involvements, they prefer mutual coordination (top-down and bottom-up approaches). A majority of them (55 percent) believe in a bottom-up approach led by their networks to be more effective for SDGs implementation, while 32 percent of respondents believe in a top-down approach, preferably led by national or international organisations. Forty-five percent of RCEs prefer to use a focus-oriented approach for selected Goals, only when intersected with their thematic issues.

For a bigger involvement in the international context, participants stress the need for stronger cooperation within the global RCEs network and other international networks, as well as the provision of guidance and resources from the RCEs coordination centre.

The informality of the networks can have adverse effects in the SDGs processes. RCEs are often informal (not necessary legally registered in their countries), ranging from loose networks to, in some cases, solid organisations. This has played a role in their flexibility to deal with regional challenges. The networks' informality is perceived to have a positive impact in their current work for SDGs by 65 percent of respondents, negative impact by 35 percent (i.e. by weakening work visibility) and passive impact (difficult to measure) by 26 percent of them. Only 10 percent of respondents consider it a factor that can undermine their involvement in the SDGs processes.

The results of the survey identify the lack of financial resources for the SDGs as the biggest obstacle. Establishing long term financial mechanisms, need for additional resources are considered a major challenge by 94 percent of respondents. SDGs financing require multiple channels not only from member states and international organisations but other sectors as well. Effective private sector engagement can be a considerable additional source. Usually, to encourage joint commitments, multi-stakeholders' networks deal with more financial difficulties than lone sectors (society, business, public sector, academia), thus securing access to "funds for SDGs" which can be an approach to revive networks cooperation.

4. Conclusions

RCEs are acknowledged as an interface of education, research, policy and practice for sustainable development. Their position between regional-international allows for a promising contribution toward SDGs, beyond national commitments. The results of the study show that, despite a slow process and an overall confusion about the 2030 Agenda, RCEs in cooperation with their regional partners, are dealing with most of the Goals. Stronger cooperation with international organisations active in SDGs would secure them a better position in international arena. In addition, participating more actively in national processes for SDGs would increase work visibility and vertical outreach.

Since networks are dependent on their regional contexts and other circumstances, despite unique aspect of the global RCEs network, it is difficult to generalize the results based on the total number of the respondents. Clustering the RCEs has shown that characteristics such as governance styles, leadership, number and type of partners, hosting organisations, can define their overall approach and focus on specific Goals. RCEs are dealing with the 2030 Agenda as a whole, confirming its indivisibility, despite their universal aim to influence policies through Education for Sustainable Development. Only one of the clusters was clearly focused on Goal 4, Target 4.7. Existing networks and platforms active in sustainable development need additional efforts and resources to commit to new global objectives. Engagement in innovative mechanisms for localizing SDGs can facilitate revitalization of these

formal or informal networks.

In order to help RCEs redefining objectives and setting priorities for the future, the study suggests the following recommendations:

- Create a sense of urgency for adopting to the 2030 Agenda.
- Increase the participation of the business sector for joint commitments for the SDGs.
- Increase horizontal outreach by extending network with new influencing partners with interest in SDGs related issues.
- Increase partner's access to network decision making process.
- Engaging the existing partners in long term commitments for the SDGs.
- Increase vertical outreach, by bigger participation in SDGs national processes, such as national committees for SDGs and in preparation of NRVs.
- Align SDGs monitoring framework with the internal evaluation processes.
- Encourage collaborations for SDGs with other RCEs through RCEs global network.
- Establish collaboration with the international organisations active in SDGs processes.
- Encourage joint financial commitments among the network partners for the SDGs.
- Identifying and secure access to financial channels for the SDGs.

Some limitations of this study are the extent of participation from the global RCEs community, especially those outside Europe, and the lack of information on their work with specific SDGs Targets and Indicators for enabling a more in-depth results on their interactions.

5. Implications for theory and practice

Theoretical contribution of the paper consists of a review of the literature about the governance and partnerships for sustainable development, and state of the art on the work of the RCEs. The practical contribution is related to the fact that the study addresses the operation difficulties and issues to approaching the SDGs as part of the work of the RCEs, thus filling a research gap in this aspect and adding a degree of novelty to the work. Multi-stakeholder partnerships can positively address global change, but to evaluate, understand and improve it, remains a challenge for researchers and practitioners (Pattberg and Widerberg, 2016). Ambiguity regarding the goals and monitoring mechanisms challenge the link between the output and impact of multi-stakeholder partnerships for sustainable development, asking for testing of their advantages toward the SDGs (Pattberg and Widerberg, 2014).

Scholars from different perspectives have analysed the role of networks and partnerships for sustainable development. From the policy perspective, networks contribute to the creation of a benchmark for policy development, by increasing consistency among member institutions (Dlouha et al., 2018). Complex social and environmental issues call for cross-sector social partnerships, where partner diversity, and especially non-profit sector involvement, activates transformative social change (Yan et al., 2018). Although, there is a necessity to identify the circumstances under which multi-stakeholder partnerships can be effective, they can represent a fundamentally innovative approach to achieving the SDGs with substantial results when certain conditions are met (GIZ, 2017).

Declaration of interest

None.

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Appendix A. Survey “Role of networks in SDGs implementation”

Section 1) RCEs and their involvement with SDGs

1. Where is your RCE located?
 - Africa and Middle East
 - Asia - Pacific
 - Europe
 - The Americas
2. What is your affiliated organisation?
 - Educational Institution
 - Local Government
 - Central government
 - Business
 - Non-profit
 - Other
3. Thematic focus of your RCE belongs to? (Subdivision of the Goals according to the UNSSC list of Goals in questions 6)
 - MDG's Unfinished Business (Goals 1–5)
 - New Areas; Water, Energy, Economic Growth, Industry, Inequality, Urbanization (Goals 6–11)
 - Green Agenda (Goals 12–15)
 - Governance (Goal 16)
 - Partnership (Goal 17)
4. Based on your opinion to what extent is your RCE involved with SDGs? (Not involved) -1-2-3-4-5 (Strongly involved)
5. Do you deal with?
 - The 2030 Agenda For Sustainable Development, as a whole
 - Several Goals
 - Only Goal 4. Ensure inclusive and equitable quality education
 - Other
6. Please select which specific Goals
 - GOAL 1: No Poverty
 - GOAL 2: Zero Hunger
 - GOAL 3: Good Health and Well-being
 - GOAL 4: Quality Education
 - GOAL 5: Gender Equality
 - GOAL 6: Clean Water and Sanitation
 - GOAL 7: Affordable and Clean Energy
 - GOAL 8: Decent Work and Economic Growth
 - GOAL 9: Industry, Innovation and Infrastructure
 - GOAL 10: Reduced Inequality
 - GOAL 11: Sustainable Cities and Communities
 - GOAL 12: Responsible Consumption and Production
 - GOAL 13: Climate Action
 - GOAL 14: Life Below Water
 - GOAL 15: Life on Land
 - GOAL 16: Peace and Justice Strong Institutions
 - GOAL 17: Partnerships to achieve the Goal
7. Do you work with specific targets and indicators? There are 161 targets and 244 indicators approved (232, +9 indicators repeat under 2 or 3 targets), classified into Tier I,II,III, on the basis of their level of methodological development and the availability of data at the global level. (if yes, please name from the list <https://unstats.un.org/sdgs/indicators/indicators-list/>)
 - Yes
 - No
8. Please select which of SDG4 targets you work with? (7 outcome targets, 3 means of implementation)
 - Target 4.1
 - Target 4.2
 - Target 4.3
 - Target 4.4
 - Target 4.5
 - Target 4.6
 - Target 4.7
 - Target 4.a
 - Target 4.b
 - Target 4.c
 - None
9. Is your RCE involved in?
 - Research for SDGs?
 - Development projects for SDGs?
 - Advertising/Campaigning for SDGs?
10. In how many projects or actions? (Please divide according to question 9 if possible)
11. With how many partners for each? (Please mention the type of partner organisations if possible)
12. What kind of collaboration?
 - RCE is leading the process
 - Horizontal consortium or bilateral
 - Vertical, depending on funding organisation
13. In the light of 2030 Agenda, will your RCE undertake changes as?
 - Expand number of partners
 - Change Leadership forms
 - Change governance structure

(continued)

Section 1) RCEs and their involvement with SDGs

- Adopt your programme and strategies to include the SDGs
- No Changes

14. Are your affiliated organisation or partners organisations independently involved in SDGs?

- Yes
- No
- Maybe

Section 2) networks links within regions and countries

15. Is your RCE collaborating with other networks in your region, for the 2030 Agenda for Sustainable Development?

- Networks of the same type of organisation (Ex. The networks of Educational institutions, universities or schools)
- Multi-stakeholder Networks (ex. business, public institutions, civil society, communities, educational institutions etc)
- Other

16. Are you part of the national review process of your country? As part of its follow-up and review mechanisms, the 2030 Agenda for Sustainable Development encourages member states to “conduct regular and inclusive reviews of progress at the national and sub-national levels, which are country-led and country-driven”

<https://sustainabledevelopment.un.org/memberstates>

- Yes
- No
- Maybe

17. In country level, do you contribute in?

- National committees created by your central government for SDGs
- Committees created by Responsible Ministries for SDGs
- Local government's actions toward 2030 agenda
- Monitoring and tracking of SDGs progress
- Consultancy for SDGs to national/local gov.
- Only for specific Goals of your focus. i.e SDG 4
- Other:

18. Have your National/Local Government, allocated accessible funds for SDGs?

- Yes
- No
- Maybe

Section 3) network links in the international context

19. Do you collaborate with international organisations or networks for SDGs? EX. Sustainable Development Solutions Network, Global Compact, European Sustainable Development Network, UNDP, SDGs Watch, European Union Institutions, etc

- Yes
- No

20. Within the RCE global network, do you collaborate for SDGs with?

- Other RCE-s for SDGs implementation
- RCE coordination Centre and UNU
- RCEs within continental groups

21. Do you think RCEs involvement with SDGs should be?

- Top down process (from international or national level)
- Bottom up (from individuals, organisations, local networks)
- Focus oriented (only when intersected with your own thematic focus)

Section 4) barriers challenges and opportunities.

22. Your involvement with SDGs is compromised by?

- Lack of funds
- Lack of resources and staff
- Lack of time
- Not on your focus
- Lack of autonomy from affiliated organisation
- Your Government is not active in 2030 Agenda
- You are not involved in national/local Gov actions
- Other

23. The informality of the networks can influence SDGs by?

- Foster collaboration
- Undermine the process
- Difficult to measure and evidence the work
- Weakens the visibility
- Passive contribution
- Other:

24. Do you find the 2030 Agenda for Sustainable Development?

- A method to measure impact of your network and organisation
- Ambiguous about targets and indicators
- Difficult to measure and scale down
- Very useful for your work
- A continuation of your work for MDG on ESD

25. Please add other problems/barriers for your involvement with SDGs

References

- Biermann, F., Kanie, N., Kim, R.E., 2017. Global governance by goal-setting: the novel approach of the UN Sustainable Development Goals. *Curr. Opin. Environ. Sustain.* 26, 26–31. <https://doi.org/10.1016/j.cosust.2017.01.010>.
- Bowen, K., Craddock-Henry, N., Koch, F., Patterson, J., Häyhä, T., Vogt, J., Barbi, F., 2017. Implementing the “Sustainable Development Goals”: towards addressing three key governance challenges—collective action, trade-offs, and accountability. *Curr. Opin. Environ. Sustain.* 26–27, 90–96. <https://doi.org/10.1016/j.cosust.2017.05.002>.
- Caiaado, R., Leal Filho, W., Quelhas, O., Nascimento, D., Ávila, L., 2018. A literature-based review on potentials and constraints in the implementation of the

- sustainable development goals. *J. Can. Pharm. Hosp.* <https://doi.org/10.1016/j.jclepro.2018.07.102>.
- Dlouhá, J., Barton, A., Huisingh, D., Adomssent, M., 2013. Learning for sustainable development in regional networks. *J. Can. Pharm. Hosp.* 49, 1–4.
- Dlouha, J., Henderson, L., Kapitulinová, D., Mader, C., 2018. Sustainability-oriented higher education networks: characteristics and achievements in the context of the UN DESD. *J. Can. Pharm. Hosp.* 172, 4263–4276. <http://doi.org/10.1016/j.jclepro.2017.07.239>.
- Emerson, K., Nabatchi, T., Balogh, S., 2012. An integrative framework for collaborative governance. *J. Public Adm. Res. Theory* 22 (1), 1–29. <https://doi.org/10.1093/jopart/mur011>.
- GIZ, 2017. Multi-stakeholder partnerships in the context of Agenda 2030. <https://www.partnerschaften2030.de/wp-content/uploads/2018/10/Multi-stakeholder-partnerships-in-the-context-of-Agenda-2030.pdf> accessed on April 2019.
- Global RCE Network of Education for Sustainable Development, <https://www.rcenetwork.org/portal/node/3352> (accessed on May 2019).
- Husson, F., Josse, J., 2014. Multiple Correspondence Analysis. The Visualization and Verbalization of Data, Chapter: Multiple Correspondence Analysis. CRC/PRESS.
- Janouskova, S., Hak, T., Moldan, B., 2018. Global SDGs assessments: helping or confusing indicators? *Sustainability* 10 (5), 1540. <https://doi.org/10.3390/su10051540>.
- Lautsch, E., Plichta, M., 2003. Configural frequency analysis (CFA), multiple correspondence analysis (MCA) and latent class Analysis (LCA): an empirical comparison. *Science* 45, 298–323.
- Leal Filho, W., Tripathi, S.K., Andrade Guerra, J.B.S.O.D., Giné-Garriga, R., Orlovic Lovren, V., Willats, J., 2019a. Using the sustainable development goals towards a better understanding of sustainability challenges. *Int. J. Sustain. Dev. World Ecol.* 26 (2), 179–190. <https://doi.org/10.1080/13504509.2018.1505674>.
- Leal Filho, W., Vargas, V.R., Salvia, A.L., Brandli, L.L., Pallant, E., Klavins, M., et al., 2019b. The role of higher education institutions in sustainability initiatives at the local level. *J. Clean. Prod.* 233, 1004–1015.
- Meuleman, L., Niestroy, I., 2015. Common but differentiated governance: a meta-governance approach to make the SDGs work. *Sustainability* 7 (9), 12295–12321. <https://doi.org/10.3390/su70912295>.
- Mochizuki, Y., Fadeeva, Z., 2008. Regional centres of expertise on education for sustainable development (RCEs): an overview. *Int. J. Sustain. High. Educ.* 9 (4), 369–381.
- Mulholland, E., 2018. The Implementation of the 2030 Agenda and the SDGs in Europe: Overview and Updates, ESDN Quarterly Report 49, July 2018, ESDN Office, Vienna. https://www.sd-network.eu/quarterly%20reports/report%20files/pdf/2018-July-The_Implementation_of_the_2030_Agenda_and_the_SDGs_in_Europe.pdf accessed 4 April 2019.
- Network of Regional Governments for Sustainable Development, 2017. SDGs at the subnational level: regional governments in the voluntary national reviews. https://www.regions4.org/wp-content/uploads/2019/06/R4_SDGsSubnationalLevel2017-1.pdf accessed 13 July 2019.
- Nilsson, M., 2017. Important Interactions Among the Sustainable Development Goals under Review at the High-Level Political Forum 2017. SEI Working Paper 2017-06. Stockholm Environment Institute, Stockholm.
- Nilsson, M., Chisholm, E., Griggs, D., et al., 2018. Mapping interactions between the sustainable development goals: lessons learned and ways forward. *Sustain. Sci.* 13 (6), 1489–1503. <https://doi.org/10.1007/s11625-018-0604-z>.
- Pattberg, P., Widerberg, O., 2016. Transnational multi-stakeholder partnerships for sustainable development: conditions for success. *Ambio* 45, 42–51. <https://doi.org/10.1007/s13280-015-0684-2>.
- Pattberg, P., Widerberg, O., 2014. Transnational Multi-Stakeholder Partnerships for Sustainable Development: Building Blocks for Success. Available at: SSRN 2480302.
- Peer, V., Stoeglehner, G., 2013. Universities as change agents for sustainability-framing the role of knowledge transfer and generation in regional development processes. *J. Can. Pharm. Hosp.* 44, 85–95, 10. <https://doi.org/10.1016/j.jclepro.2012.12.003>.
- R Core Team, 2013. R: A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, Vienna, Austria. <http://www.R-project.org/>.
- Ruggie, J.G., 2002. The Theory and Practice of Learning Networks: Corporate Social Responsibility and the Global Compact, vol. 5. JCC, pp. 27–36.
- Salvia, A., Leal Filho, W., Brandli, L., Griebeler, J., 2018. Assessing research trends related to Sustainable Development Goals: local and global issues. *J. Can. Pharm. Hosp.* <https://doi.org/10.1016/j.jclepro.2018.09.242>.
- Scharlemann, J.P.W., Mant, R.C., Balfour, N., Brown, C., Burgess, N.D., Guth, M., Ingram, D.J., Lane, R., Martin, J., Wicander, S., Kapos, V., 2016. Global Goals Mapping: the Environment-Human Landscape. A Contribution towards the NERC, the Rockefeller Foundation and ESRC Initiative, towards a Sustainable Earth: Environment-Human Systems and the UN Global Goals. Sussex Sustainability Research Programme. University of Sussex, Brighton, UK and UN Environment World Conservation Monitoring Centre, Cambridge, UK.
- SDSN Australia, New Zealand & Pacific Edition, 2017. Getting started with the SDGs in universities: a guide for universities, higher education institutions, and the academic sector. www.ap-unsdsn.org/wp-content/uploads/2017/08/University-SDG-Guide_web.pdf accessed on 10 July 2018.
- Sedlacek, S., 2013. The role of universities in fostering sustainable development at the regional level. *J. Can. Pharm. Hosp.* 48, 74–84. <http://doi.org/10.1016/j.jclepro.2013.01.029>.
- Sustainable Development Knowledge Platform, 2014. Tenth session of the open working group on sustainable development goals. A definitional note on goals and targets. <https://sustainabledevelopment.un.org/owg10.html> accessed on 13 July 2019.
- Sustainable Development Knowledge Platform. <https://sustainabledevelopment.un.org/vnrs/> (accessed on 18 July 2018).
- UNDP, 2017. Institutional and coordination mechanisms. Guidance Note. <http://www.undp.org/content/undp/en/home/librarypage/sustainable-development-goals/institutional-and-coordination-mechanisms-guidance-note.html> accessed on 28 June 2018.
- UNESCO, 2018. Issues and trends in education for sustainable development. <https://unesdoc.unesco.org/ark:/48223/pf0000261445> accessed on 13 July 2019.
- United Nations Global Compact, 2017. Making global goals local business: a new era for responsible business. <https://www.unglobalcompact.org/library/4321> accessed on 27 June 2017.
- United Nations University, Institute of Advanced Studies, 2010. Five years of regional centres of expertise on ESD, 124 pp. <https://www.rcenetwork.org/portal/sites/default/files/brochures/5%20years%20of%20RCEs.pdf> accessed on 13 July 2019.
- United Nations University, Institute of Advanced Studies, 2014. Building a resilient future through multi-stakeholder learning and action: ten years of regional centres of expertise on education for sustainable development. http://www.rcenetwork.org/portal/sites/default/files/public_resource/01_UNU_10yearsBook_web.pdf accessed on 13 July 2019.
- Vargas, V.R., Lawthom, R., Prowse, A., Randles, S., Tzoulas, K., 2019. Sustainable development stakeholder networks for organisational change in higher education institutions: a case study from the UK. *J. Can. Pharm. Hosp.* 208, 470–478.
- Yan, X., Lin, H., Clarke, A., 2018. Cross-sector social partnerships for social change: the roles of non-governmental organizations. *Sustainability* 10, 558. <https://doi.org/10.3390/su10020558>.