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THESES OF THE
DOCTORAL DISSERTATION

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The role of Intentional Communities in achieving the Sustainable Development Goals

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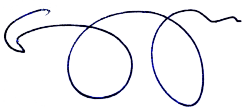

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1. BACKGROUND AND OBJECTIVES

In 2015, the UN compiled 17 goals and 169 sub-goals, which point to the most urgent issues where change is needed to ensure the future of humanity (Figure 1). The Sustainable Development Goals (SDGs) were signed by 193 countries and aimed to be achieved by 2030. It is a utopian vision of a world where humanity can live sustainably. The SDG framework aims to encompass and target all societal actors, and grassroots organizations were already involved in its formulation. It aims to holistically address poverty, climate change, and inequality in developed and developing countries.

The SDG framework is designed to be inherently participatory; it can highlight good practices, influence decisions, and accelerate the sustainability transition, while its targets and indicators can be adapted to the local context. The framework allows grassroots organizations to become prominent actors in the SD transition. In each region, they could actively engage and ensure that their decades of practice and experience in sustainability are integrated into the localization of the SDGs.

Figure 1. The 17 SDGs (UN 2019)

Such grassroots organizations are the Intentional Communities (ICs), whose number, as shown by history, increases in times of turmoil. ICs worked to bring

about the changes needed for human evolution and survival, first within their community and then as a model for their regions. Modern ICs, which have sprung from the present crisis and the responding green movements, focus on environmental issues and sustainability. Their voluntary mission is to create a utopian world similar to the one described by the UN SDGs today.

Often without making this formal and explicit, ICs already contribute to the SDGs in their locality. People of these communities combine ancient wisdom with modern technology to develop sustainable practices. Practices developed and adapted in the ICs can be easily replicated in their closer vicinity due to the local environment's shared place-specific cultural-social systems and geographic and climatic conditions. Scaling up their good practices further to the territorial or regional level would benefit Regional Governments (RegGovs) in tackling the global crisis locally.

Halfway through the SDGs' 15 years agenda, in 2023, we hardly see the ICs' engagement in SDGs, despite their natural affinity for the global goals' overall ethos, guidelines and often even specific details. One could argue that the UN SDGs' principle, "transforming our world and leaving no one behind," is already practiced in the ICs, and the SDGs' guidelines are the very ones the ICs are advocating for. Why are ICs not prominent advocates of SDGs at local or higher levels then? The involvement of all sectors is vital in the sustainability transition, and I wanted to explore the potential role ICs can play in it.

Sustainability is a broad and complex field, and my research aimed to provide a general overview as well as concrete and detailed data. In order to accomplish this, the research followed an hourglass shape, structured by five objectives, hypotheses and their corresponding one to four research questions (Figure 2). I started with broader lenses, first looking at the four dimensions of sustainability in communities (O1), then narrowing down to the 17 SDGs in forty-two ICs (O2). The research then focused on one goal in four ecovillages (O3); the SDG6, its eight targets, fifty-one sub targets and 270 indicators. Once I gained detailed data, I broadened the research scope to draw general conclusions on the ICs' constraints and potential role in achieving the SDGs (O4, O5).

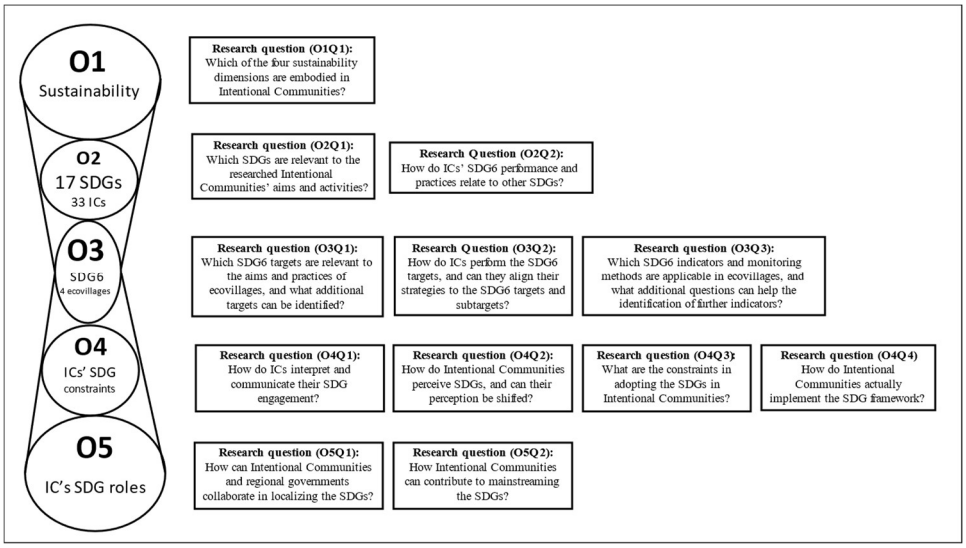

Figure 2. The structure of research objectives and questions

First Objective (O1): To gain an overview on Intentional Communities' relation to sustainability. **Hypothesis (O1H):** Intentional Communities embody the four sustainability dimensions by their inherent purpose and design.

Second Objective (O2): To evaluate the Intentional Communities' relevance with the SDGs. **Hypothesis (O2H):** Intentional Communities' have practices, aims, and activities relevant to the SDGs

Third Objective (O3): To critically analyze if the SDG 6 framework can accommodate ICs' aims and activities. **Hypothesis (O3H):** The SDG 6 framework can accommodate the ICs' contribution to the sustainability transition.

Fourth Objective (O4): To identify potential constraints of ICs SDG interpretation and engagement. **Hypothesis (O4H):** ICs SDG engagement is challenged.

Fifth Objective (O5): To identify roles Intentional Communities can play in achieving the SDGs. **Hypothesis (O5H):** Intentional Communities can have an active role in achieving the SDGs.

2. MATERIALS AND METHODS

Qualitative and quantitative methods were linked to the research objectives, and specific qualitative data were quantified and analyzed with an Excel program.

2.1. Methods of literature review and document analysis

A thorough review studied the literature. The concepts and theories reviewed were used as references in the research. An overwhelming quantity of documents and studies were written on SDGs, and significant research was devoted to locating and studying relevant documents to gain a comprehensive knowledge of the topic.

2.2. Pilot studies

Three pilot studies were used to alter a questionnaire, highlight challenges and assess the applicability of targets, sub targets and indicators. The pilot studies were fundamental to the research.

2.3. Comprehensive research

Comprehensive research examined the 17 SDGs in ICs, using web content analysis and self-assessment questionnaire methods. Forty-two ICs from Hungary and abroad were chosen for the data collection between 2019 and 2021. Some were members of the GEN network, some were members of the Kisközösségi Új Komaháló network, and others were collected through personal and professional contacts.

2.3.1. Web content analysis

The research was conducted with the students of the Ecovillages Around the World subject from MATE University. Preparing for the web content analysis, the students became acquainted with the SDGs' targets and their implications in different Intentional Communities. The researched ICs' online communication materials were reviewed, on their websites, online publications, and social platforms. The ICs' achievements, activities, good practices, and aims were mapped to each SD goal to understand how each researched IC relates to the SDG framework. The harvested information was compiled into Word documents, and qualitative data were quantified into Excel sheets.

2.3.2. ICs' self-assessment questionnaires

The web content analyzed communities were invited to a questionnaire-based self-assessment. Questionnaires were administered either through interviews or sent to the forty-two web content-analyzed ICs via email. The core of the questionnaire was built on the nrg4SD research questionnaire. Based on pilot research, the original nrg4SD questions and answers were slightly altered to suit the ICs, yet to retain the essence of the original nrg4SD for comparison of RegGovs and ICs. Thirty-three ICs responded, revealing how they see themselves in SDG engagement beyond what they communicate about themselves online.

2.4. Developing the SDG6 Monitoring Inventory

The research scope was reduced to one goal, SDG6. The literature on SDGs, particularly SDG6 targets and their monitoring, was studied. An inventory was developed, including eight targets, fifty-one sub targets and two-hundred-seventy-three indicators. The compiled inventory's applicability was assessed in a pilot survey and supplemented with new questions and sub targets.

2.5. Case Studies

Four ecovillages (Auroville, Krishna Valley, Auromag and Nyim Eco Community) were selected from the researched ICs for further investigation on SDG6, two recently established ecovillages and two mature ecovillages, three Hungarian and one Indian. The chosen ecovillages implement a complex ecological lifestyle alternative and serve as community residences, versatile in their aims and activities and can be representative case studies to ICs. The SDG6 Monitoring Inventory was used as a base for the data collection. Data was collected through fieldwork with community engagements, laboratory analysis and action research.

2.5.1. Fieldwork with community engagements

Eleven months were spent in Auroville, India, and the three Hungarian communities were regularly visited during the Ph.D. research period. Semi-structured interviews were based on the developed SDG6 Monitoring Inventory but left space for new targets and indicators to emerge. Water-related documents of the researched ecovillages were collected from interviewees. Observations during site visits complemented the data collected. I participated in various programs in each ecovillage and held specific plenary sessions to discuss and refine my findings.

2.5.2. Laboratory analysis

Laboratory tests were conducted in Auroville and Krishna Valley monitoring the UN SDG indicator 6.3.2. The water collection points were chosen after consulting the communities' experts. Local government-approved laboratories collected and tested water samples, the Environmental Monitoring Service in Auroville and the Synlab Kaposvár in Krishna Valley.

2.5.3. Action Research: SDG6 Localizing Workshops

Full-day workshops were held at the two recent ecovillages encompassing a projector, laptop, camera, various-sized papers, writing and painting tools, and a swinging chime for meditation. The SDG6 Localizing Workshop was built on the collected SDG6-specific local data and included local people in developing an SDG6 strategy. It combined intellectual knowledge (SWOT analysis, FSSD framework, presentations, study groups, plenary discussions, ABCD backcasting) with awakened community wisdom (meditation, music and creative artwork in nature). The workshops were recorded, and mini-interviews collected participants' feedback on the workshop experience.

2.6. Perception shift survey

A short survey was done directly before and after the SDG6 Localizing Workshops to assess how IC members' SDG perception changed when the intricately worded SDG6 targets were translated into local and sectoral aims and actions.

3. RESULTS, CONCLUSIONS AND RECOMMENDATIONS

Thesis 1: I confirmed that Intentional Communities embody all four dimensions of sustainability (ecology, economy, society, governance/culture/partnership), and ecovillage practices on water management impact each dimension. Modern ICs originate from the green movement and engage the ecology dimension through their environmental protection and nature restoration activities. They believe a well-functioning ecosystem provides water for all human needs. ICs approach the economic dimension through eco-local activities, shared ownership, and voluntary simplicity in an entrepreneurial spirit. Regarding the social dimension, interdependence and trust in each other are fundamental to the ICs and their water practices. Regarding the fourth dimension, ICs practice participatory governance, their cultural practices, norms and values are linked to sustainability, and they strive to partner with local and global stakeholders and participate in formal and non-formal educational programs on sustainability.

The first objective (O1) was to gain an overview of International Communities' relationship to sustainability. Sustainability is described in terms of four dimensions: ecology, society, economy and the fourth dimension, which I called governance/culture/partnership in this research. The four dimensions of sustainability are interrelated and interdependent in complex ways.

Research question O1Q1 examined which of the four sustainability dimensions is embodied in Intentional Communities. The literature review examined theories and concepts linking communities to the four dimensions of sustainability. The four dimensions of sustainability were used as reference points in the case studies. On the ecology dimension, landscape regeneration was fundamental to each ecovillage. The economic dimension includes ecolocal principles, voluntary simplicity and shared ownership. At the same time, the entrepreneurial spirit appeared in their developed products and services created out of necessity but have become income generating by selling the products and services outside of the ecovillages. Regarding the social dimension, their water practices build on interdependence and trust in each other. In the fourth dimension, they practice participatory decision-making processes and collaborate with neighbors and stakeholders while offering practical education on sustainability. There is an additional cultural-spiritual aspect to water in each researched ecovillage. In

Krishna Valley, the religion revered water as sacred; spiritual baths and sanctuaries characterize this ecovillage. In Auroville, water is seen as a healing medium in the aquatic bodywork center. Water related spiritual attitudes also appeared in the two recent communities. The combination of technical and sociocultural design is the basis for sustainable water management practices in the researched ecovillages.

The research proved the O1H hypothesis; ICs, by their very nature, already engaged in and embody all four dimensions of sustainability.

Thesis 2: I identified each Sustainable Development Goal as relevant to the Intentional Communities' aims and activities. ICs' aims and activities are often set without knowing the SDGs, yet, correspond and contribute to SDGs' local and global achievement.

The second objective (O2) was to gain insights into the ICs' SDG relevance. In 2015, 193 countries adopted the SDGs. The 17 Goals of the UN agenda translate the four dimensions of sustainability to the most pressing issues of our time.

Research Question O1Q1 examined which SDGs are relevant to the researched Intentional Communities' aims and activities. The comprehensive research mapped the 17 goals in ICs' aims and activities. Forty-two ICs` web content was studied with trained student researchers, and thirty-three communities carried out a self-assessment with a questionnaire. The web content analysis and self-assessment questionnaires found matching activities, good practices, or ambitions related to each SD Goal (Figure 3). In summarizing the ICs' self-assessment questionnaires, each SDG was found relevant to the ICs' objectives and activities. The researched ICs' aims and works were set without knowing the SDGs, yet, their goals and activities correspond and contribute to the SDGs' local and global achievement.

Research question O2Q2 examined how ICs' SDG6 performance and practices relate to other SDGs. As detailed data was collected on SDG6 only, it was essential to explore how the gained research findings can be translated into general conclusions and help to identify the potential roles of ICs in achieving the SDGs. A study (5.2.10 subchapter) described the synergies of some ecovillage SDG6 practices to the seventeen SDGs, one goal at a time. The study showed that ecovillage water practices contribute to all SDGs.

The research confirmed the O2H hypothesis; ICs have aims and activities relevant to and contributing to each SDG.

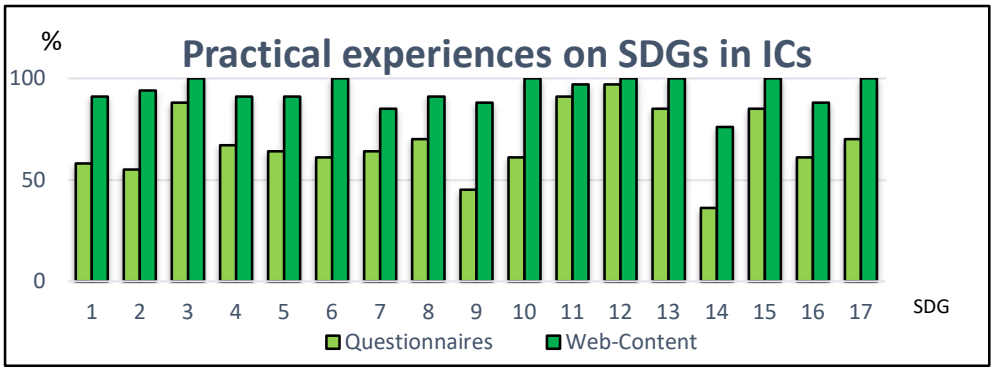

Figure 3. Practical experiences on SDGs in the researched ICs assessed by questionnaire and web content analysis

Thesis 3: I demonstrated that ecovillage practices and aspirations contribute to each SDG6 target. With the action research, I demonstrated that Intentional Communities could align their aims as strategies to the SDG6 framework. Each SDG6 target and sub target described by the UN normative interpretations could accommodate ICs' aims and activities. I defined additional subtargets related to existing ecovillage SDG6 practices.

The third objective (O3) focused on one goal and aimed to critically analyze whether the SDG 6 framework can accommodate ICs' aims and activities. The UN SDG framework comprises 17 goals and 169 targets subdivided by normative interpretations. As it was impractical to examine all targets in detail during the research period, the research scope was narrowed, and four ecovillages were selected from the researched ICs to investigate the practical implementation of one goal: SDG6 and its eight targets. Normative interpretations subdivided the UN SDG6 targets into fifty-one sub targets.

The SDG framework builds on targets and their monitoring. According to the UN, the targets are designed to accommodate the participation of grassroots organizations.

SDG6-specific documents were studied. Targets, sub targets, indicators and monitoring methods were collected from the UN, national, regional and business documents. The found indicators were arranged into the SDG6 Monitoring Inventory framed by the SDG6 targets and sub targets (Annex 4). The inventory was supplemented with additional questions revealed by pilot research.

Research questions investigated which SDG6 targets and sub targets are relevant to the aims and practices of ecovillages, what additional sub targets can be identified (O3Q1), how ICs perform the SDG6 and if they can align their strategies to it (O3Q2).

The developed SDG6 Monitoring Inventory was used in the fieldwork to collect data through site visits, interviews, community engagement, laboratory analysis, and theme-specific documents of the researched ecovillages. Two of the four ecovillages were recently founded with fewer practical results but high commitments to sustainability. The action research method was used to identify and align the SDG6-related aims as strategies in these recent ecovillages.

The data collection revealed practices and objectives related to each SDG6 target. The research showed each SDG6 target and sub target applicable in ICs. Six additional sub targets were discovered in the researched ecovillages, and these could be added to describe the diverse work of ICs in a sector-specific target document (Table 1). Further research is suggested to explore additional sub targets describing the ICs' SDG-related practices.

The research confirmed part of the O3H hypothesis; the SDG6 targets and sub targets can accommodate the ICs' SDG6 contribution. However, as new subtargets emerged, additional research for IC sectoral targets is suggested.

Table 1. Comparative analysis on SDG6 sub targets

SDGs	6.1	6.2	6.3	6.4	6.5	6.6	6.A	6.B	SUM
Sub targets	8	8	8	6	5	10	3	3	51
Applicability	8	8	8	6	5	10	3	3	51
Discovered additional sub targets	1	1	0	0	0	3	0	1	6

Thesis 4: I classified the available SDG6 indicators and determined that not all are suitable for monitoring the ICs. are suitable for monitoring the ICs. Available indicators cannot monitor each target and sub target in ICs, and the overall monitoring may become biased and lead to tradeoffs. Therefore, a sector-specific monitoring system is needed to highlight the ICs' achievements, good practices and aspirations on SDG6.

The third objective (O3) focused on one goal and aimed to critically analyze if the SDG 6 framework can accommodate ICs' aims and activities.

The first element of the SDG framework are the targets, and Thesis 3 has stated that each SDG6 target is relevant to the ICs.

The second element of the SDG framework is monitoring. SDGs are interlinked in complex interactions, creating synergies and tradeoffs. Monitoring is essential to identify and avoid the tradeoffs and accelerate the synergies and sustainability transition. According to the UN policies, monitoring aims to highlight the good practices of ICs. In reviewing the SDG documents, I comprehended the crucial importance of monitoring. The goals, targets and sub targets define the destination, but the path is not yet paved. As we walk the path, the bricks are being laid down step by step. However, the conflicting targets can lead us off the track. Avoiding tradeoffs requires constant adjustment and feedback. Monitoring determines where to put the next brick on the road to reallocate resources and develop new policies. It is essential to have monitoring methods to highlight ICs' good practices and involve them in the sustainability transition.

Research question O3Q2 investigated which SDG6 indicators and monitoring methods are applicable in ecovillages and what additional indicators can be identified. Table 2 shows the found data on SDG6 indicators' applicability. The indicators were divided into three categories, Measurable, not measurable and challenged. I categorized as "challenged" indicators that required expertise and resources lacking in the ecovillages studied. While 100 indicators were found measurable, these did not measure all targets and sub targets. To tackle this problem and to highlight the good practices, 161 additional questions supplement the inventory. These questions translate the targets into already existing practices. It is important to note that even if there are measurable indicators, their distribution is not even, e.g., there are sub targets and even targets that cannot be monitored, and the overall monitoring may become biased and lead to tradeoffs. Monitoring SDGs is a complex task. Currently, available SDG6 monitoring systems are unsuitable for highlighting the good practices of ICs. However,

monitoring the SDGs in each sector and on the smallest possible scale would be essential to allow individual approaches to flourish.

The research did not confirm the O3H hypothesis, but it did point to a weakness in the SDG6 framework. Existing indicators and monitoring methods, although many in number, are limited in their capacity to highlight good practices of ICs. The development of an IC sectoral monitoring system is suggested.

Table 2. Comparative analysis on SDG6 indicators

SDGs	6.1	6.2	6.3	6.4	6.5	6.6	6.A	6.B	SUM
Indicators	39	28	49	51	12	59	4	31	270
Measurable	13	20	16	6	0	36	0	11	100
Challenged	17	7	16	10	0	15	1	15	81
Not measurable	9	1	17	35	12	8	3	5	90
Added questions	34	29	26	17	12	26	6	13	161

Thesis 5: I recognized that many ICs do not interpret and communicate their aims and activities in terms of SDGs. One reason behind this phenomenon could be the empty signifier perception. I proved that ICs' perception changes when SDGs are identified and filled with local contexts.

The fourth objective (O4) aimed to identify potential constraints of ICs' SDGs engagement. Thesis 1 and 2 concluded that ICs have aims and activities corresponding to and contributing to the SDGs. Nevertheless, and although we are already halfway through the 2015-2030 SDGs agenda, ICs' SDG commitments are poorly publicized. This observation has raised the hypothesis that there are constraints preventing ICs from implementing the SDGs.

To investigate the O4 objective, research question O4Q1 explored how ICs interpret and communicate their SDG engagement. The research compared web content analysis and self-assessment results and revealed that most ICs are unfamiliar with the SDGs, and even those familiar with them do not use them to communicate their aims and achievements (Figure 4).

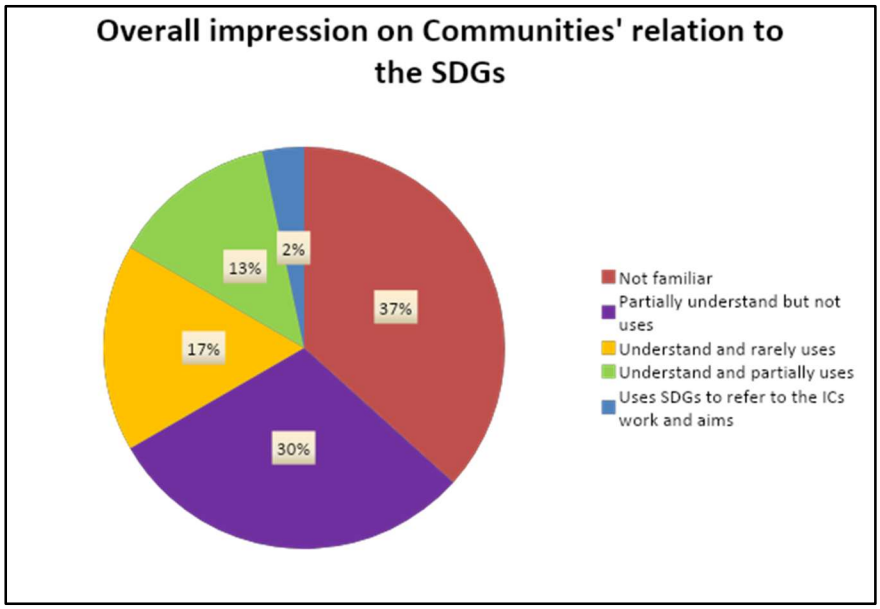

Figure 4. ICs relation to the SDGs

Research question O4Q2 explored how ICs perceive the SDGs and whether their perception can be altered. ICs are created by concerned citizens spontaneously gathering and organizing from the bottom up while challenging the existing hegemonic regimes. This organizational structure questions whether ICs can willingly devote time and energy to adopting the top-down defined SDGs. The literature review explored the challenges inherent in the SDG framework itself, and the possibility of an empty signifier emerged. Interactions with IC members further supported the literature findings. During the SDG6 Localizing Workshops, all eight targets of SDG6 were discussed in their local context. The detailed learning on SD Goal 6 has significantly changed the IC's members' SDG perception, not only on the 6th but on each SD Goal. A perception shift survey before and after the SDG6 Localizing Workshop demonstrated that ICs' SDG perception changes when SDG targets are interpreted in their local context (Figure 5).

The research confirmed the O4H hypothesis. There are inherent constraints in ICs to implement the SDGs. Awareness-raising programs translating local concerns to SDGs are needed to amplify ICs' engagement.

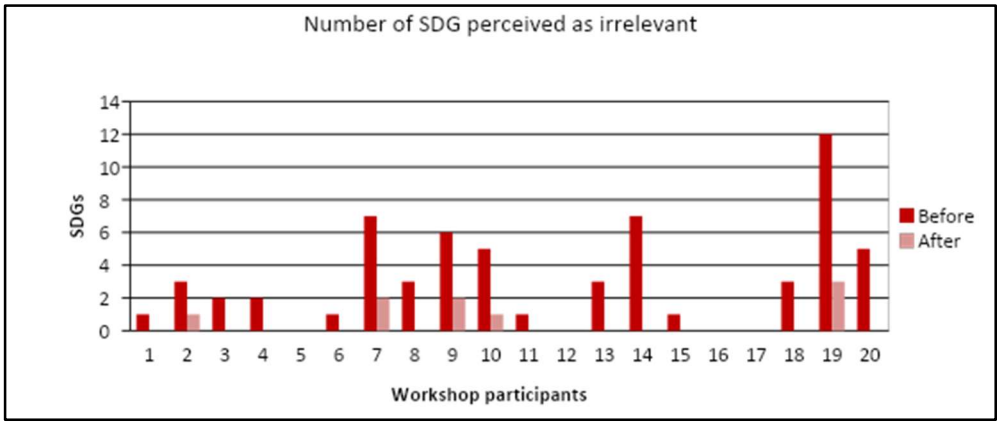

Figure 5. Change SDGs perception before and after the SDG6 localizing workshop

Thesis 6: I demonstrated that ICs lack the expertise, resources, and commitment to implement the SDG framework. They need assistance interpreting and applying the intricate and complex framework and allocating time among their pre-existing priorities. Tools need to be developed which enable ICs to adopt the SDGs.

The fourth objective (O4) aimed to identify potential constraints of ICs' SDGs engagement. Thesis 5 indicated that the ICs have perceptual constraints on SDGs, while Thesis 6 suggests that the SDGs framework's complexity constraints ICs' engagement. The SDG agenda allows ICs to become actors in the sustainability transition. However, examining whether the current framework is suitable for ICs is essential. The SDG framework is complex, and its implementation requires expertise, resources and commitment. Sector-specific assistance tools, such as the monitoring system highlighted in Thesis 4, are yet to be formulated.

Research question O4Q3 sought to identify constraints that exist within the SDG framework. The literature and the case study confirmed that the SDG framework is complex and requires commitment, and the current SDG6 monitoring system is not applicable in ICs.

Research question O4Q4 examined how prepared ICs are to implement the SDG framework. Information gathered through the self-assessment questionnaire revealed that although they already have good SDG practices, ICs are not ready

to implement the SDG framework. They do not have the required tools, expertise, resources and commitment (Figure 6, Figure 8).

The research confirmed the O4H hypothesis. There are inherent constraints in SDGs, and tools, expertise, resources, and commitment are needed to amplify ICs' engagement.

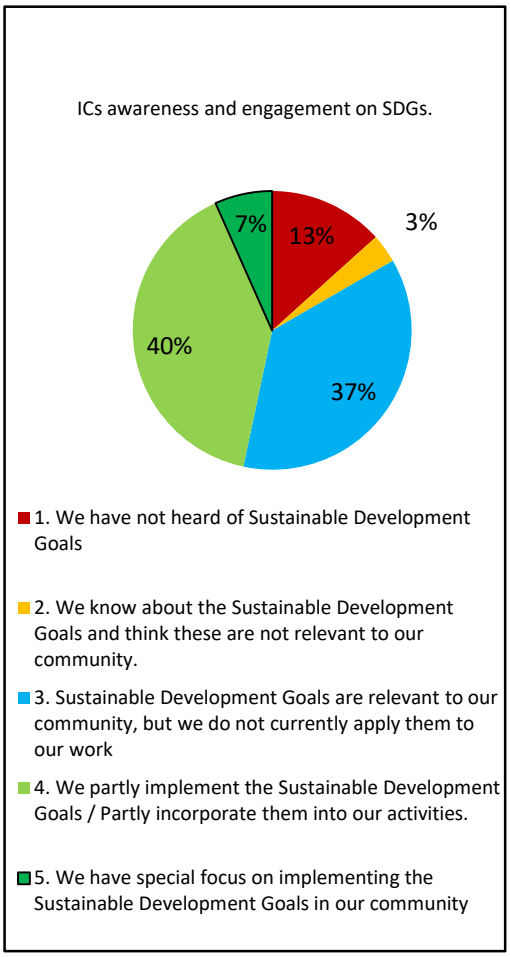

Figure 6. ICs' awareness and engagement on SDGs

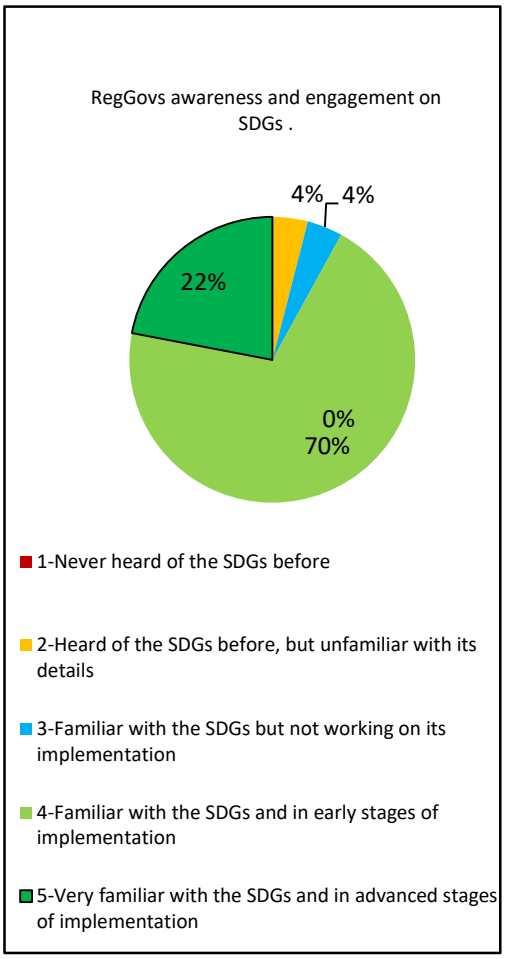

Figure 7. RegGovs awareness and engagement on SDGs, Source: (nrg4SD 2018)

Thesis 7: I revealed that Intentional Communities' good practices contribute to the SDGs and are worth promoting in their local geographic and socio-cultural context to accelerate the territorial transition to sustainability. I demonstrated that Intentional Communities and Regional Governments could collaborate in localizing the SDGs. Intentional Communities are keen to act as local sustainability catalysts, providing practical experience to regional stakeholders. Regional Governments are entitled to guide the SDG localization and have the tools and expertise to develop a regulatory and support system to disseminate the ICs' good practices at the regional level.

The final objective (O5) aimed to identify potential roles ICs can play in achieving the SDGs. The literature review, interpreting ICs' potential roles in a four-level crisis response framework, identified the SDGs as top-down crisis management. The SDG framework aims to engage all actors in the sustainability transition and can promote ICs' good practices in their territorial regions. The SDGs' global approach can be adjusted to territorial issues. This process is called localization, and the Regional Governments (RegGovs) are entitled to guide and promote the process in their regions.

Research question O5Q1 explored how ICs and RegGovs can collaborate in localizing the SDGs. The literature review explored the nrg4SD's 2018 High-Level Political Forum research report: "SDG Localization, Regional Governments Paving the Way." Following pilot research, the nrg4SD questionnaire was adapted to Intentional Communities. A comparison of the questionnaire results suggests that ICs have more practical experience with the SDGs, but Regional Governments are ahead in the SDG framework policy implementation (Figure 7, Figure 9). However, neither ICs nor RegGovs have sufficient capacity to implement SDGs at the local level (Figure 10). Due to their other priorities, they cannot devote sufficient time and energy to this task, and it would be equally beneficial if ICs and RegGovs could work together to localize the SDGs. The literature and the research revealed good examples and opportunities for ICs to collaborate in the top-down SDGs framework.

The research confirmed the O5H hypothesis; ICs can have an active role in SDGs' localization.

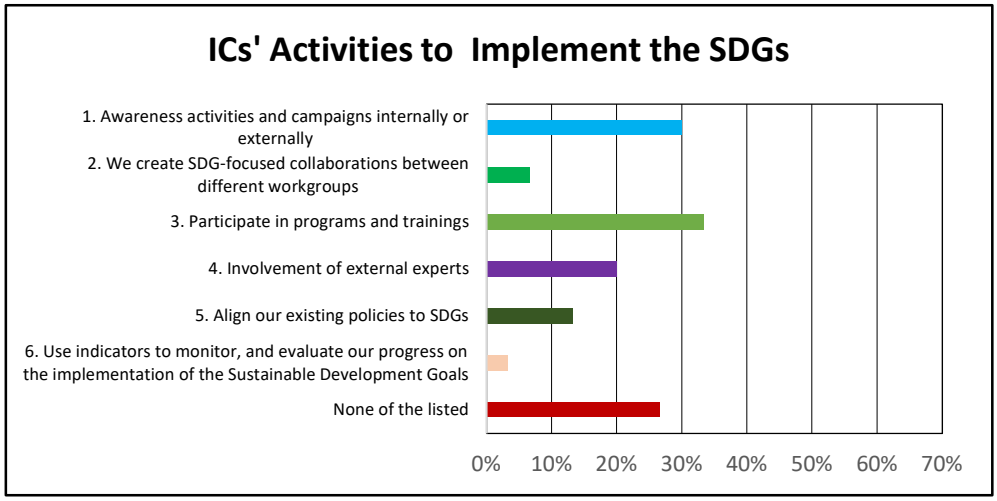

Figure 8. ICs' actions to implement the SDGs

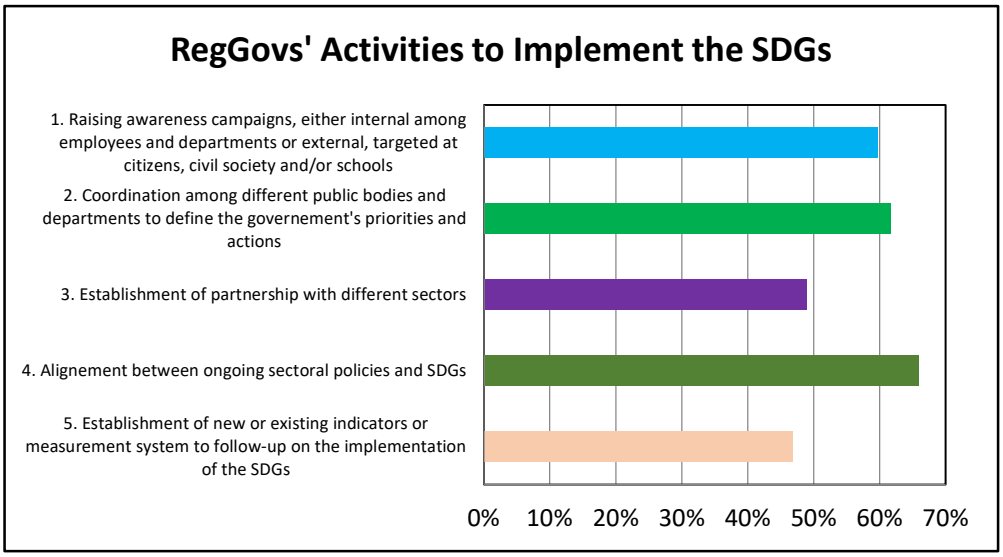

Figure 9. RegGovs adopted actions to implement the SDGs (nrg4SD, 2018)

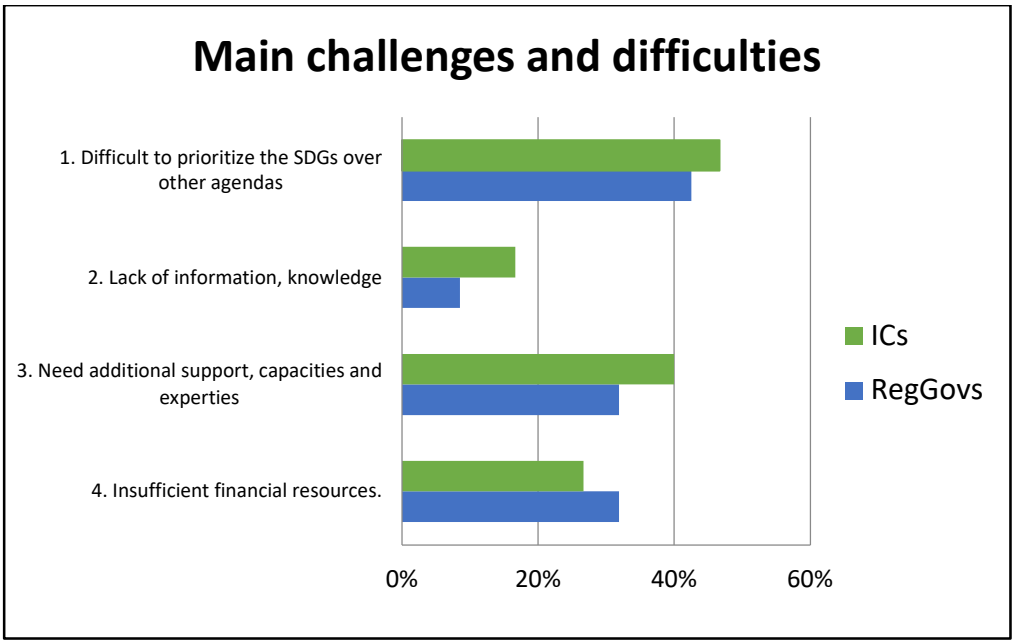

Figure 10. The challenges in adopting the SDG framework ICs and RegGovs (nrg4SD 2018)

Thesis 8: I demonstrated that ICs could be Living Laboratories for complex SDG research and instrument development. The SDG6 tools developed in Auroville were applicable beyond regional, national, and even continental borders, illustrating that ICs can play an active role beyond their localities. ICs can assist in adapting the SDG framework to the community sector and the wider society. ICs could also accelerate the sustainability transition of the social sector by initiating community-led, non-governmental social processes, disseminating their knowledge and good practices, and changing values, norms, and worldviews on sustainability.

The final objective (O5) aimed to identify potential roles ICs can play in achieving the SDGs. The SDG framework aims to engage all actors in the sustainability transition. The framework's global approach can be translated to sectoral issues. The community sector can contribute to the SDGs' achievement by engaging the whole society. Scholars refer to ICs as Living Laboratories of sustainability. The Living Laboratory concept incorporates innovation and research methods into a user-friendly environment, where the research setting allows sensing, prototyping, testing, and refining complicated solutions in various complex real-

world scenarios. Research question O5Q2 explored how ICs can contribute to mainstreaming the SDGs. The literature review, the comprehensible research and the case study research indicated that ICs could accelerate the sustainability transition by initiating community-led, non-governmental social processes, disseminating their knowledge and good practices, and changing values, norms, and worldviews on sustainability. They can actively contribute to developing sustainable neighborhoods, the building blocks of urban sustainability. The spirit of experimentation and prototyping was the base of the developed water systems in the researched ecovillages, proving that ecovillages already act as Living Laboratories.

The literature review found no IC-specific tools for SDG engagement, while the business sector has developed several tools to engage the business actors. New tools are required to translate the complex SDGs into community-specific actions. I developed IC-specific tools for the case studies.

The developed SDG6 tools: the awareness-raising video, the SDG6 Monitoring Inventory, and the SDG6 Localizing Workshop, are suitable to amplify ICs' role in achieving the SDGs.

The tools were developed in India but were successfully used in Hungarian ecovillages and small settlements of Hungary and Serbia after the research period, and the documentary won first prize in an international film festival. ICs developed tools could be cross-regional, adapting the SDGs to the community sector.

The research confirmed the O5H hypothesis; ICs could have an active role in mainstreaming the SDGs as key members of the social sector and as Living Laboratories.

4. NEW SCIENTIFIC RESULTS- CONTRIBUTION TO SCIENCE

Throughout the research, my primary quest was to identify the potential challenges preventing the ICS' participation in achieving the SDGs. I was looking for tools to support ICs in adopting the SDGs and to reframe the SDGs in a way that is attractive and understandable for ICs. Since I could not identify such instruments, I developed tools based on my findings and applied them in the research.

Throughout the research, I developed three tools introduced below. These tools can build on each other and be used in any locality to identify the SDG6-related local problems and good practices and define strategy. After the dissertation research finished, I had the opportunity to use these tools in ICs and small municipalities in India, Hungary and Serbia.

4.1. Educational Video

Many Intentional Communities perceive Sustainable Development Goals as empty signifiers. The video attempts to explain the political agenda of the UN's Sustainable Development Goals (SDGs) in a meaningful and engaging way to the ICs and the general public.

A Stichting de Zaaier grant sponsored the shooting, and the manuscript and voice-over were written in collaboration with professional filmmakers and language tutors. It interprets the intricately worded SDG6 targets into tangible results and good practices, highlighting some of the good practices of Auroville. It has an English and a Tamil voice-over version and a Hungarian subtitled version; further translations are in the process. The documentary won the Handle Climate Change International Film Festival in 2022. It is available on YouTube: https://www.youtube.com/watch?v=dteNLfkc0kA

It is openly accessible and aims to inspire Intentional Communities, grassroots organizations and citizens to engage in the global and local discourse on SDGs. After the research phase of this dissertation, it was used for awareness raising in various localities. A two-hour discussion with the viewers followed the 30 minutes long documentary, identifying the local problems and local opportunities for achieving SDG6.

4.2. SDG6 Monitoring Inventory for ICs and small settlements

The SDG6 Monitoring Inventory for Intentional Communities is a work in progress.

The developed inventory is an excellent resource of indicators for SDG6 monitoring. It contains 270 indicators obtained from the UN, voluntary national reviews, voluntary local reviews, and the business sector. It has 161 additional questions, as the indicators found were insufficient to highlight the SDG6-related good practices of the researched ecovillages. Annex 4 contains the inventory.

The inventory was used in Indian, Hungarian and Serbian ICs and small municipalities. It will be further developed into an inspiring, easy-to-use digital self-assessment tool for non-expert citizens, communities, stakeholders, organizations and municipalities. People without specialized knowledge of SDGs could evaluate their SDG6 performance. The online tool would automatically generate a detailed report, highlighting the good practices and areas for improvement. Such reports will encourage territorial cooperation and accelerate regional sustainability transitions.

4.3. SDG6 localizing workshop for ICs and small settlements

The SDG6 localizing workshop is a complex participatory planning workshop with additional research and organizing work before and documentation work after the program. It aims to empower and include local people in developing an SDG6 strategy. It combines intellectual knowledge (SWOT analysis, FSSD framework, presentations, study groups, plenary discussions) with awakened community wisdom (meditation, music and creative artwork situated in nature). By applying this structured planning system, participants learn to strategically approach local water challenges in our unsustainable world. The workshop highlights good local practices and fosters cross-sector collaborations. It provides information on the current progress and challenges and the necessary adaptations and resources to achieve SDG6 locally.

The SDG6 Localizing Workshop was developed in two ecovillages to assess their SDG6-related achievements, aims and to develop local SDG6 strategies. As it turned out, with the perception shift research, the workshop is an excellent tool to bring more understanding and awareness on the importance and potential of SDGs to the participants. I intend to develop further the workshop into a training program accompanied by a toolkit.

5. LIST OF PUBLICATIONS

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