

Transdisciplinary University Cooperation Project for Sustainable Development and Lifelong Learning: Result of a Cameroonian Plastic Waste Management School Project within the Framework of Greening Africa Together CO₂ Compensation

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How to cite this paper: Nanga-Me-Abengmoni, L., Seidler, L., Saatsa Tsefack, M. B., & Pouomogne, F. T. (2022). Transdisciplinary University Cooperation Project for Sustainable Development and Lifelong Learning: Result of a Cameroonian Plastic Waste Management School Project within the Framework of Greening Africa Together CO₂ Compensation. *Creative Education*, 13, 3425-3439. <https://doi.org/10.4236/ce.2022.1311219>

Received: August 29, 2022

Accepted: November 8, 2022

Published: November 11, 2022

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Abstract

This article gives a view of the plastic waste management school project of Greening Africa Together (GATo) and deals with education for sustainable development and lifelong learning in this transdisciplinary university cooperation project. The main questions arising are: how can students become aware of the problem of waste management in their school milieu and, which specific learning response can guarantee a circular economy of waste in schools? The service-learning approach of all GATo-projects consists in an interdisciplinary working group of both local and international students, who together with the community stakeholders, will find a suitable and/or affordable solution to the problem identified.

Keywords

Transdisciplinary University Cooperation, Plastic Waste Management School Project, Education for Sustainable Development, Lifelong Learning, Service Learning Approach, Greening Africa Together (GATo)

1. Introduction

The “Plastic Waste Management at schools—Yaoundé” project exists since 2021

as one of the pilot projects of Greening Africa Together¹ CO₂ compensation schemes. It has been launched with the objectives to raise awareness among students on plastic waste management in schools and introduce them to the separation and recycling of various types of wastes (plastic, organic, electronic, etc.) through training modules and guides. In said project, a special emphasis is therefore laid on education for sustainable development and lifelong learning as students, as well as the local communities 1) Fight climate change and address the Sustainable Development Goals (SDGs) through CO₂ compensation schemes; 2) Develop African based standards for CO₂ compensation projects other than relying on standards developed from outside the continent; 3) Promote collaboration at eye level for all the partners involved (African local communities, universities, local and international student teams and local NGOs) to empower, support and carry out sustainable, integrated solution for climate protection in the school milieu.

The aim of this article is to outline the efficiency of the plastic waste management school project of GATo for a circular economy of waste. As highlighted by Barth et al. (2007: p. 416) a small consideration is still nowadays given to the improvement of key skills for sustainable development in higher education institutions (HEIs) and schools, but also to the realization of both formal and informal learning and their relationship to competence development. More recently, Denuga & Nkengbeza (2022) also emphasized the importance of project-based learning for improving sustainability skills among pre-service teachers, without linking engagement in service-learning to community-based learning, and lifelong learning in educational institutions. For this empirical study conducted by the coordinators and participating students' team with thirty (30) high school learners taking part in the plastic waste management project of GATo, we provided the evidence that a project-based learning approach of sustainable development in schools can contribute to educating communities in SDGs and promoting lifelong learning among all groups of learners.

2. Literature Review and Conceptual Framework

Among the concepts to be developed in this paper, service-learning, Education for Sustainable Development (ESD) and lifelong learning are the most important.

▪ *Service-learning*

Popularised since the 1960s in the USA (Jakob, 2013), the service-learning approach is at the intersection of necessary collaboration between scholars and field practitioners, as well as professionalization of teachers/learners and the future challenges of training (Maigari, 2007). Indeed, service-learning is a teaching/learning modality that combines academic, scientific and heuristic school contents with community involvement within the society. Some well-known

¹Detailed information about the GATo-network can be found via the following link: <https://www.greeningafricatogether.org> [14.08.2022].

concepts are semantically close to service-learning such as practical training, which is a phase to apply academic knowledge, or volunteering, given that it is a voluntary commitment of the individual within movements of civil society (Frank et al., 2009). However, in addition to the courses received in a transdisciplinary approach at school, including several disciplines and professional profiles of trainers and students, in the service-learning process, the learner will add a practical application phase of this knowledge in order to solve a social problem submitted by the practitioners (Backhaus-Maul & Jahr, 2021). Consequently, active participants of the didactic intervention in the context of service-learning are recruited both among experts and scholars from the HEIs, who possess the theoretical and scientific knowledge, among practitioners and professionals from Non-Governmental Organisations (NGOs) and communities, who will work collegially with the scholars in order to bring a double theoretical (scientific-heuristic) and practical solution to the problem addressed. A provocative essay of Eby (1998) which answers the question, why service-learning is bad, also argues that service-learning can teach inadequate conceptions of need and service if it is poorly done. Furthermore, the resources of service agencies can be diverted and do real harm in communities. Challenges faced by service-learning is therefore to structure both learning and service, where the service-learning implementation should be done with the same level of rigor, expertise, and critical analysis that has been applied to learning outcomes (Eby, 1998: p. 8).

As far as the GATo-projects are concerned, their service-learning interaction takes place during teaching and during the practical implementation of the project within local communities. Figure 1 illustrates the service-learning model applied in all GATo-projects.

In the context of carbon offset projects, rigorous project management and quality standards—which must at the same time correspond to the learning outcomes of the students—are necessary. GATo is working together with funding partners in Germany (e.g. the Berlin University Alliance and the University Service Center for Development) on a set of standardised documents for the management of small-scale community carbon offset projects that should not only be conducive for the development of community projects but also for their



Figure 1. Service-learning model for GATo-projects (source: GATo-module).

responsible management and monitoring. In addition, these documents serve as teaching materials for the jointly developed teaching module and help students to gain experience in project management and green economy based on a social business approach. This approach refers to a new market dynamics that addresses social issues through the design and implementation of a core product or service (Wilson & Post, 2013). For example, local community organisations, such as women's groups/cooperatives, youth associations, schools, parent associations, community-based mothers' organisations or health centres, are empowered to become the owners of carbon offset projects. They are thus transformed from recipients of donations to providers of climate change services, enabling them to self-finance access to sustainable development.

On the other hand, African HEIs are empowered to develop, fund and implement sustainable projects around climate change issues with local communities and teams of students recruited from various disciplines. Partner universities in Africa, the South and the North can realise their social mission through cooperation in practice-oriented research to ensure the sustainability of these projects. SDGs such as food security, health, education, gender equality, decent work, sustainable communities and peace building are addressed in the community-based projects of GATo and funded through voluntary carbon offsets. Similarly, the employability and entrepreneurial skills of participating students and community organisations as well as the equal collaboration of all partners involved in the service-learning process are enhanced.

▪ *Education for Sustainable Development*

Sustainable development is generally understood as a development in which the satisfaction of the present needs of our generation does not compromise the development possibilities of future generations (Resolution der Generalversammlung UNO, 2015). The sustainable development is historically rooted in the domain of forestry in eighteenth-century, where Hans Carl von Carlowitz first introduced the idea, which stated that we have to find the right balance between resource used and the regeneration of natural capital (Enders & Remig, 2015: p. 8), but we should assume that much more ideas and practices of sustainable use of natural resources have always been implemented in indigenous communities over the centuries (e.g. in the global South, where the concept of "Ubuntu" includes sustainable living). Nowadays, sustainable development goes above the establishment of a permanent, globally practicable and future-capable mode of life and economics to integrate a complex array of problems involving a wide range of social-scientific and humanistic disciplines (Enders & Remig, 2015: p. 2).

In this regard, Education for Sustainable Development (ESD for 2030) is promoted by the current UNESCO Agenda for Education. It is an educational, theoretical and practical concept, in which a change of the curricular political objectives, as well as the methodical and didactical teaching practice, is presupposed both at the international and national levels. The paradigm shift, with regard to ESD, can be traced back to Agenda 21 adopted in Rio de Janeiro in 1992,

in which a new orientation of environmental education was decided in order to look into the problems of justice, socio-economic and cultural implications of human relations within the global context (Barth, 2021: p. 36). Today's general observation motivating the spread of ESD worldwide is the deficient integration of teaching/learning contents on environmental issues, as well as the multiplicity of socio-political and logistical barriers to promoting lifelong learning and sustainable peace and environmental preservation (UNESCO, 2021). Therefore, the aim of ESD is to enable people in all educational institutions—be it at the primary, vocational, secondary and higher education or informal and non-formal learning, to contribute creatively and responsibly to shaping the present and the future in the sense of a sustainable and more equitable world, based on knowledge of global interrelationships (Barth, 2021: p. 36).

▪ *Lifelong learning*

Lifelong learning (often called in German *Bildung über die Lebensspanne*) is a concept of learning that takes place regardless of age, gender, social origin, background, school institution, marital and professional status. This way of learning is almost as unconscious as breathing (Alheit & Dausien, 2010: p. 713), because the educational processes take place independently of time and place, while watching TV, reading books, browsing through catalogues or surfing the internet. Lifelong learning therefore refers to functionalist learning activities that take place throughout life just as diffusely as learning itself. Here, learners need to develop strategies that also strengthen their ability to evaluate their own learning processes, so that it unfolds the so called lifelong learning spiral, which progresses from cradle to grave and does not stop throughout life (Divjak et al., 2004: p. 11). However, a distinction should be made between the three components of lifelong learning. That is: 1) formal learning, which takes place in school as a classical educational institution and issues a certificate of completion with the associated social recognition; 2) informal learning or learning that is not necessarily intended in everyday life, at home with the family and with immediate relatives; 3) and non-formal learning, i.e. the learning processes that take place beyond the established educational institution in associations and clubs, communities, workplaces, civil society initiatives and activities (UNESCO Institute for Lifelong Learning, 2022: p. 18). However, these different forms of learning can be synergistically complemented so that there is an interconnectedness that influences learning horizontally and vertically. Thus, in addition to the concept lifelong, which rather refers to an age-based learning process, the term lifewide in relation to lifelong learning is characteristic of this complementarity of formal, non-formal and informal forms of learning (Commission of the European Communities, 2000: p. 9).

Nowadays, every country, HEIs and schools should work on implementing lifelong learning, which has been pointed out as a sustainable educational policy objective since the 2000s, particularly advocated by UNESCO with the Institute for Lifelong Learning (UIL). HEIs, including universities, colleges, polytechnics and vocational schools, are therefore key players in the promotion of lifelong

learning, not only because of their capacity to develop learners' skills and foster knowledge, but also because of their potential to mobilise educational resources and provide learning opportunities for all (Orazbayeva, 2017). One of the main shortcomings of African universities is that they do not sufficiently promote lifelong learning and sustainable development despite the important assets of the higher education sector. This is partly due to a lack of awareness within HEIs of the role that lifelong learning can play in enabling them to better meet the current and future challenges of students training. Furthermore, many institutions continue focussing on academic excellence in teaching and research, rightly or wrongly seen as the "ivory tower of the university", and pay less attention to widening access and providing lifelong learning opportunities for all (Brennan & Magness, 2019). This should be the "third mission" recognised for academic institutions in addition to the usual teaching and research objectives namely, to contribute to the economic, social and cultural life of the communities they serve (Fongwa et al., 2014). Moreover, there is still no unified and standardised approach to the promotion of lifelong learning in HEIs, leading to a diversity of provision that obscures the progress made in this area (De Viron & Davies, 2015). The next paragraph focusses on the GATo-learning initiative.

3. GATo-Project

The international African higher education and NGOs service-learning network "Greening Africa Together" was initiated in 2016 with the objective of bringing together universities and other partners to address climate change and promote sustainable development. This approach is guided by the idea of universal fraternity and service-learning. GATo supports active cooperation between students and local communities from different cultures and nations. In the spirit of a united world, all projects aim at creating sustainable positive change for people and nature across cultural, religious and social boundaries. In addition, GATo aims at promoting cooperation in training, research for development and implementation. Within this framework, groups of students participating in the module prepare socio-environmental projects, which are then implemented by the students and local communities. This process includes the collection of local development needs from communities and social institutions, the sharing of skills between actors (HEIs, civil society and local communities) and the capacity building of beneficiaries.

3.1. Teaching-Learning Module

In the framework of the module "Global Climate and SDG engagement" launched in 2022, GATo is working with other partners from the Global South to tackle climate change and Sustainable Development Goals (SDGs) through a joint service-learning module. Not only students from Benin, Burkina Faso, Cameroon, Columbia, Ghana, Kenya, DR Congo, Senegal, Tchad, Togo, Turkey, Uganda and Yemen, but also from Germany and Spain, are participating in the module. The common language of instruction is English with the participation of several

experts from African countries on various topics related to sustainable development such as photovoltaics, intercultural communication, organic agriculture, biogas and carbon offsetting. Aspects of language use between actors from different research disciplines in the GATo-project are nevertheless not considered in this paper, even though the latter could provide information on whether and how this language use manifests itself and contributes to the development of a transdisciplinary jargon. We assume that the questions surrounding language constructions and communication strategies in the GATo-project will be considered in future scientific contributions.

According to Bringle et al. (2016) benefits of service-learning are not just found in civic engagement through the interaction between teaching, research and service, but also in a various range of positive consequences for the societal development and qualitative enhancement of the learning outcomes. These advantages are e.g. the civic learning, the partnership development, the interdisciplinary and transdisciplinary learning, the student-centered learning, the social justice, the democratic civic engagement, etc. **Figure 2** presents the components of the GATo-module.

Offered both during the winter and summer semester, the Global Climate and SDG engagement module seeks to equip students and scholars with the capabilities to promote sustainability and knowledge on how the higher education curriculum can be changed to facilitate the paradigm shift in HEIs (Barth, 2015). Apart from the weekly workshops and student team meetings on *Zoom* platform as the dedicated Learning Management System, another important element is the field trips and stakeholders meeting, where students' team exchange with the community and identify the needs in relation to CO₂ compensation. Besides, the service component should sum up a total of 30 hours during the semester. It can be fulfilled in different forms for example during weekends or single day activities like in environmental trainings, step-by-step implementation and fundraising events. The total workload of the module sums up to 180 hours and contains 6 credits that can be earned from the "Technische Universität Berlin" and the partner universities.

Module Components

Course Name	Type	Number	Cycle	SWS
Global Climate and SDG Engagement I	IV		WS/SS	6

Workload and Credit Points

Global Climate and SDG Engagement I (Integrierte Veranstaltung)	Multiplier	Hours	Total
Weekly International workshops	15.0	2.0h	30.0h
Weekly International student team meetings	15.0	2.0h	30.0h
FIELD VISITS + MEETING STAKEHOLDERS Exchanging with community Establishing the needs of the community Supporting community with the CO ₂ compensation contract	5.0	7.0h	35.0h
SHORT SERVICE ELEMENTS Weekends and single day activities (environmental trainings, step-by-step implementation, fundraising events)	6.0	5.0h	30.0h
Preparing Presentations and Project Planning Elements	7.0	5.0h	35.0h
Personal/Literature research	1.0	20.0h	20.0h
			180.0h

The Workload of the module sums up to 180.0 Hours. Therefore the module contains 6 Credits.

Figure 2. Components of the GATo-teaching-learning module (Source: GATo-module).

3.2. Transdisciplinary University Partnership

Barth et al. (2019) define transdisciplinary learning as follow:

We see the concept of transdisciplinary learning as particularly important. Learning, in that sense, is a broad concept that encompasses many forms and needs to be further clarified. This can be done based on a distinction between two main dimensions: the area of societal interaction and the level of reflection informing learning processes (...). For the social dimension of learning, we can distinguish three distinctive forms ranging from individual learning in a group, to learning as a group, to learning as social change process that transcends group boundaries. Learning in all three areas can happen in three forms of learning, that is, single-, double- and triple-loop learning (Barth et al., 2019: p. 382).

This definition which is very closely linked to the problem- and solution-oriented research practice stipulates that transdisciplinary learning is a mutual learning process among different scientific disciplines for actively contributing to the implementation of Sustainable Development Goals (SDGs). Individual learning interaction occurs when the learner actively participate in shaping sustainable development within transdisciplinary settings. Through the experience-based collaboration groups of learners discuss learning and organizational process that could contribute to the establishment of community practice. They also discuss about diversity and plurality of theoretical and methodological perspectives, backgrounds and world views that could enable a specific solution to a problem identified this for the establishment of sustainable local and regional communities of practices. Through social interaction, transdisciplinary learning “go beyond individuals and well-defined social entities and their ability to initiate systemic change for sustainable development. Through a special focus on the role of universities on the one hand and the mutual learning processes between science and society on the other, insights on the implementation of the SDGs shall be gleaned” (Barth et al., 2019). The sustainability strategy of projects that are being carried out is based on CO₂ offset certification which aims at: 1) Combating climate change and implementing SDGs through CO₂ offsetting schemes; 2) Developing African standards for CO₂ offsetting projects, rather than relying on standards developed outside the continent; 3) Empowering and supporting local African communities, universities, local and international student teams as well as local NGOs to carry out sustainable and integrated climate protection and development projects in order to get them funded as carbon offset projects.

3.3. Plastic Waste Project at School in Yaoundé

The project to recycle plastic waste has been launched under the coordination of the authors since the 2021 second term in a secondary school in Yaoundé, the capital of Cameroon. The project involves an interdisciplinary team of students from the Higher Teachers Training College Yaoundé and Bertoua and other lo-

cal and international students from the departments of Physics, Chemistry, renewable energy, environmental science and political science of the Universities of Dschang and Yaoundé 2 in Cameroon and the “Technische Hochschule Bingen” in Germany. As the problem of plastic waste in the Cameroonian society is a major challenge for the communities, given the large quantities of plastic dumped in the environment every day; and given the fact that there is no content in schools that teaches learners how to collect and use waste for recycling, the project aimed at introducing education for sustainable development training modules in schools. The team of students works within educational communities, where they raise awareness on plastic waste management. They also introduce students to waste separation (separation of plastic, organic, electronic and other waste). The project contributes in sustainable development by promoting the following goals:

- 1) SDG3: Ensure healthy lives and promote well-being for all at all ages;
- 2) SDG4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all;
- 3) SDG5: All genders are treated equally on the field during and after the training modules;
- 4) SDG8: Creating decent work opportunities within the community;
- 5) SDG11: As a result of the SDG 11, CO₂ emissions and ecological footprint are reduced for fostering sustainable cities and communities;
- 6) SDG13: Address the needs of the community to adapt to climate change and also to invest in low-carbon development;
- 7) SDG14: With collection and waste recycling, the project aims at protecting life below water, e.g. rivers and ground water;
- 8) SDG15: Through plastic recycling, the biodiversity of the soil is preserved;
- 9) SDG17: The project strengthens the international network by connecting the ideas from all around the globe in order to reduce CO₂ emissions globally and locally.

During the summer school, which took place from 18th March to 1st April 2022 in the pilot high schools, the learners were able to experiment and evaluate different plastic recycling concepts such as making flower pots and pillows. For example, in the manufacture of the pillows, recycled plastics are used for the filling of the pillow while old clothes are used for the cushion. The recycling process starts here with the collection of plastic waste that is cut up and used as filling material. Besides, plastic bottles can be recycled for decoration by making flower pots. The bottles are cut into the shape of a vase and glued to an old CD that serves as a support. For aesthetic purposes, the flower pots can be painted with different colours.

4. Research Questions, Data Search and Methods

The methodological elements of the study conducted in the Cameroonian capital city Yaoundé between February and April 2022 at one pilot high school of the

plastic waste management project are presented below.

4.1. Research Questions

The main questions from this research paper are the following:

- 1) How can students become aware of the problem of waste management in their school milieu?
- 2) Which specific learning response can guarantee a circular economy of waste in schools?

4.2. Methods

The study is part of a descriptive approach with data processed on the Excel software. A data source triangulation with geographically different locations of survey has been used for this field research. Two questionnaires were submitted to the thirty participants of the project (among them seventeen girls and thirteen boys) in the pilot high school. The age of the participants, who were recruited in all the classes, varied between eleven and eighteen. The most significant group of age is thirteen (with 20%) as presented in **Table 1**.

The first questionnaire assesses the needs of the school communities during the first part of the service element, which is the field trip and stakeholders meeting in February 2022. The objective was to measure the prior knowledge of learners on the environmental issues and also their representation(s) of a sustainable strategy of waste management in their school milieu. Data collection took place under the supervision of the coordination and students' teams, as well as the members of the local NGO "Association Jeunesse Verte du Cameroun" (AJVC), which is responsible for the sustainability of the project.

The second survey was made in April 2022 during the summer school; this was after the intervention in the school, where the coordination and students' teams implemented training modules and guides on the separation and recycling of various types of wastes (plastic, organic, electronic, etc.). The questionnaire

Table 1. Age of the test persons (Source: own survey).

Ages	Percentage
11 years	16.7%
12 years	16.7%
13 years	20%
14 years	16.7%
15 years	10%
16 years	13.3%
17 years	3.3%
18 years	3.3%
Total	100%

was made of multiple choice and open-ended questions to asset the learners' awareness on the problematic of waste and sustainable development, but also their knowledge of plastic recycling methods. The combined results of the two surveys are highlighted in the next paragraph.

5. Analysis and Results

The answers given by the participants to the question “what are the impacts of plastic waste on the environment?” show a good knowledge of the issue of environmental protection. For example, the negative impact of plastic waste on soil degradation and the destruction of fauna and flora represented each 23.3% of responses. In addition, the damage of plastic waste to water, the environment and biodiversity (20% of respondents), as well as to people's respiratory health due to air pollution, received attention from 33.4% of learners.

Two solutions seem appropriate from the learners' point of view for reducing plastic waste in the society. These are the use of biodegradable packaging (80%) and recycling (20%). According to them, the recycling of plastic waste contribute to cleaning up the environment by reducing pollution and CO₂ emissions, by giving a second life to old used materials and by fertilizing soils, for example with organic waste. Another economic advantage of plastic recycling is the reduction of the cost of materials, as there will be no need to fetch the raw material, the waste being directly reintroduced into the consumption circuit. This creates a circular economy of waste.

With regard to ESD and lifelong learning in school, 73.3% of the participants in the survey think that these two components are effective in the Cameroonian education system, while 16.7% do not think that ESD and lifelong learning are effective in Cameroonian schools. The remaining 10% say they do not know. In **Figure 3**, the learners express their opinions concerning the efficiency of ESD in school.

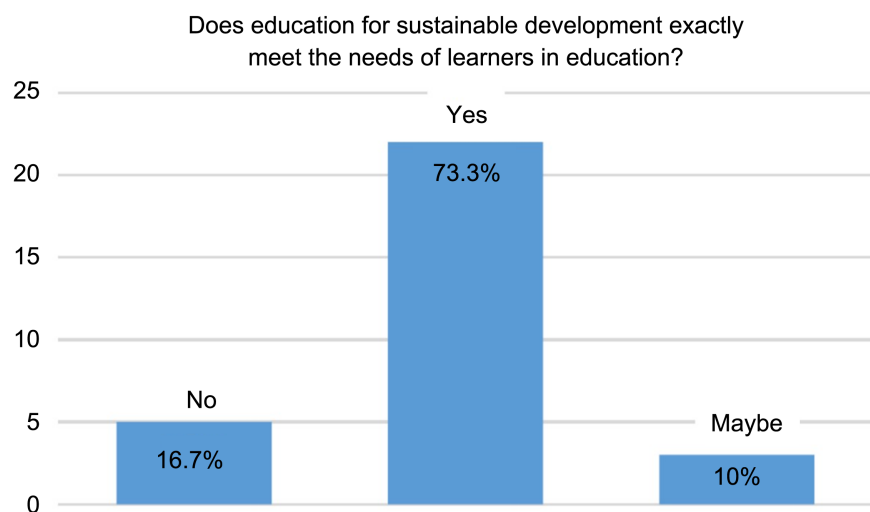


Figure 3. The role of sustainable development in education (source: own survey).

The results are similar to the previous question. The majority of learners felt that it was important to promote ESD in school, as it helps to take into account and qualitatively enhance the needs of learners. For 10% of the test persons, the role of ESD is still unclear and 16.7% rejected the point of view of the majority.

6. Discussion and Perspectives

The project “Plastic Waste Management at school, Yaoundé” highlighted the role of service-learning in achieving the university’s three objectives of training, research and development aid. Indeed, service-learning enables African students to fight against climate change in Africa through peer-to-peer cooperation, but also South-South and North-South academic exchanges. Students reflect on concrete development problems in their living environment and apply their theoretical, scientific-heuristic knowledge of education, renewable energy, energy efficiency, agriculture, organic forestry, monitoring and evaluation of CO₂ offsetting, etc. to projects they initiated themselves. Thus, they move from being job seekers to creators of wealth and innovation by combining scientific research with the socio-economic needs of communities. School communities gain access to sustainable development services (sustainable waste management, income generation training, etc.) and can substantially improve the education quality of the learners. The impact of the GATo-module on sustainable development and lifelong learning can therefore be summarised in six main points:

- 1) Combat climate change in Africa;
- 2) Enable students to apply their theoretical knowledge in various fields of socio-economic life;
- 3) To promote interaction and experience sharing between higher education teachers, civil society professionals, students and communities;
- 4) Enable students to propose projects related to sustainable development for entrepreneurship training;
- 5) Develop soft skills (intercultural teamwork) and hard skills (technology and inter-/transdisciplinary knowledge);
- 6) Students earn credits (they get 6 credits and a certificate from the “Technische Universität Berlin” and the partner universities.

On the other hand, thanks to the recycling carried out, the project has contributed to reducing CO₂ emissions. The concept developed contributes to the three dimensions of sustainability. 1) Firstly, it addresses social issues and thus contributes to SDGs. 2) Through workshops on waste and recycling, the project contributes to knowledge transfer and education in society. 3) By empowering boys and girls at school, who are the main actors in this project, a big step is taken towards gender equality. The learners will have to take ownership of the project and ensure its sustainability. In addition, the different clubs in the schools will be able to implement new sustainable ideas for plastic waste management and create a long-term network of clubs to ensure the sustainability of the project through the exchange of experiences and the continuous involvement

of national and international stakeholders (universities, companies, local NGOs and other partner schools).

7. Conclusion

The GATo-experience in the plastic waste management school project is already producing valuable results. However, increasing pedagogical productivity of service-learning is still needed for better integration of sustainable development and lifelong learning objectives in the training curriculum of all educational institutions—whether in primary, vocational, secondary, and higher education or in informal and non-formal learning. These strategies should include 1) Adapting learning formats to meet diverse learning needs and include degree and non-degree programmes and different delivery modalities; 2) Diversifying curriculum and especially “decolonising” knowledge to make learning relevant to non-traditional students; 3) Developing approaches to lifelong learning on an institutional scale, so that it meets the objective of a holistic building of learners.

These perspectives are considered the subsequent goals of the plastic waste management school project, which are developed since the 2022 second term and whose outcomes could be presented in further research contributions: 1) The creation of a Fabric Laboratory (FabLab) of Plastic Waste Management in high schools; 2) The set-up of a garbage collection system; 3) The multiplication of training seminars on recycling in addition to pillow, flower pot, broom and bracelet; 4) The calculation of CO₂ emissions based on the waste management in the school milieu; 5) The fundraising for a sensitization of CO₂ in the whole community.

Acknowledgements

We acknowledge the international and national coordination team of Greening Africa Together Ms. Lilly Seidler, Dr. Rachel Awum Sonkin and Dr. Nanga-Me-Abengmoni Léonel. We also thank the following local and international students team of the 2021-2022 winter semester, who participated in the practical implementation of the project (summer school) and particularly helped for the data collection of the empirical part: Varel Temate, Christelle Tamoifo Fouagoum, Reine Michelle Sufo Toukam, Angelo Ouzabisa, Brice Fanmoue Tchanmoue, Grace Abessolo Tabitha, Rabiadou Pancha, Cindy Tajo, Franck Thierry Pouomogne, Merlin Brice Saatsa Tsefack, Credo Augustin Fontecounon.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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