THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

Perceptions of Bachelor of Education Trainees on Education for Sustainable Development in Kenya: A Case of University of Nairobi

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Abstract:
Education for sustainable development is seen as a process of equipping learners with the right understanding and knowledge, skills and abilities required to work and survive in a way that safeguards the environment and the socioeconomic wellbeing, both in the present and future generation. To this extent, the study aimed to analyze perceptions of bachelor of education trainees on education for sustainable development in line with; Curriculum and sustainable development; Lecture delivery practices and sustainable development; Campus operations and facilities for sustainable development, and Community outreach/ services and sustainable development. Descriptive survey design was employed for study. The study was conducted at the University of Nairobi, Kenya targeting fourth year Students in the Science Pre –service teacher education programme. One hundred and eighty-three (183) trainees participated in the study. Data was obtained using a questionnaire. Quantitative was analyzed by use descriptive statistics while qualitative data was thematically analyzed based on specific objectives. Despite focus on elements of sustainable development in the curriculum, there was limited allowance for individual research project, entrepreneurship practices, field study visits, and limited trainee preparation to teach in a multicultural setting. There was commendable incorporation of case studies in the programme, significant peer support and mutual features and incorporation of global dimension of sustainable development in the curriculum. Lecture delivery practices focused on specific content but failed to encourage thinking and reasoning processes. The major perceived institutional obstacles to achievement of education for sustainable development were: limited hands on activities, inadequate learning support materials for both academic and research activities, limited link with the community to make learning more practical and limited allowance for student-initiated projects. The study concluded that there is need to review teacher programme to align with holistic perspectives of sustainability which consider the wellbeing of social, ecological and economic sub systems.

Keywords: *Curriculum, education, education for sustainable development, sustainability, teacher trainees*

1. Introduction

Education is an essential tool for achieving sustainability. People around the world recognize that current economic development trends are not sustainable and that public awareness, education, and training are key to moving society toward sustainability. Education for sustainable development refers to the use of education as a tool to achieve sustainability. Education for Sustainable Development (ESD) promises to make the world more livable for current and future generations (Shi, 2008). Sustainability: 'focuses on behaviour change and acceptance of responsibilities in a process of goal-setting, decision-making, and evaluation' (Nikel & Lowe, 2010). The role of education in addressing sustainability has also been supported and promoted through international bilateral agreements and conferences driven by the United Nations (UN). Education for Sustainable Development (ESD) was recognized in 1992 by Agenda 21 in the Earth Summit conducted in Brazil with the aim of seeking a balance between "human and economic well-being with cultural traditions and respect for the Earth's natural resources" through educational practice (Barth & Michelsen 2013).

The key function of education is forming sustainable awareness and behavior among people, which is good for future generations. It is indispensable that governments, educational institutions and teachers should examine how to implement Education for Sustainable Development (ESD). Strengthening teacher training is an effective way to help teachers supply valuable theoretical knowledge and practical activities to students for their understanding and practicing of sustainable development. This study aims to explore perceptions of bachelor of education trainees on ESD in Kenya. Teacher training for ESD implies that the government or schools provide lectures, courses, and guidelines to teachers and student-teachers for them to acquire knowledge and skills relevant for teaching about sustainable development issues. It serves two main functions; on one hand, it aims to help teachers and student-teachers possess sustainable awareness and

take sustainable actions, and on the other hand, it enables them to give ESD courses to students or add ESD concepts into various courses for the formation of students' sustainability education (Connelly, 2013; Summers, Child & Corney, 2005). Education for sustainable development is seen as a process of equipping learners with the right understanding and knowledge, skills and abilities required to work and survive in a way that safeguards the environment and the socioeconomic wellbeing, both in the present and future generation. Wals and Kieft (2010,) also see education for sustainable development as the "vision of education that seeks to balance human and economic well-being with cultural traditions and respect for the earth's natural resources." UNESCO (2017a) regards education as "a force for development and progress." In general, Education is the process of acquiring and developing relevant skills, attitudes and competencies. Education therefore becomes a vital tool through which people, a country or the world in general can achieve sustainable development. Education for sustainable development equips learners with relevant skills, knowledge and attitudes for environmental protection, economic development and social integrity for the present and the future. Leicht *et al* (2018)add that education for sustainable development should also encourage changes and modifications in knowledge skills and values so as to be accommodative of the present and future needs. International and national agencies have recognized the role of education in building societies based on values of equity, social justice and sustainability and have developed strategies and action plans. The declaration of the United Nations Decade on Education for Sustainable Development (UNDESD) 2005–2014 represented a lever for the integration of sustainability in all sectors of education across the globe. United Nations Decade of Education for Sustainable Development (DESD, 2005-2014) indicates that education should serve to enable sustainable economy, society, and environment. Strange and Bayley (2008) define sustainable development as a development for both now and the future.They add that sustainable development is threefold: it is a conceptual framework geared towards changing the world view towards a balanced and holistic approach, it is a process of implementing development strategies and decisions, and thirdly, it is an end goal in that it identifies and fixes socio-economic and environmental challenges. Sustainable development requires a collective, universal approach so as to be effective.

1.1. What are the Primary Goals of Sustainability?

The sustainable development professional network thinks act and works globally. In 2012, the United Nations Conference on Sustainable Development met to discuss and develop a set of goals to work towards; they grew out of the Millennium Development Goals (MDG) that claimed success in reducing global poverty while acknowledging there was still much more to do. The SDG eventually came up with a list of 17 items which amongst them included:

- The end of poverty and hunger
- Better standards of education and healthcare - particularly as it pertains to water quality and better sanitation
- To achieve gender equality
- Sustainable economic growth while promoting jobs and stronger economies
- Sustainability to include health of the land, air and sea.

1.2. Role of Universities in Advancing ESD

Universities have a key influence on society in a two-fold manner: they train and educate people and they participate in governance at the national and regional level. It is important to focus on universities and how they function to foster sustainable development and fulfillment the 2030 Agenda for Sustainable Development. The roles of Universities in ESD include:

1.2.1. Expanding Human Capital with SDG Perspective

By training students to understand how the SDGs are going to make their work better and more sustainable by embedding sustainable development principles across disciplines. Universities will need to educate their students on the social, economic and environmental implications of their future careers and professional work. Universities will also be part of new training programmes for non-university students through massive open online courses to contribute to continuous and lifelong learning modalities (Capelo& Pedrosa (2014).

1.2.2. Conducting Research

As a universal agenda, researchers should help address the SDGs at the global as well the local level.

1.2.3. Implementing the ESD Agenda

Universities are actors in multi-stakeholder partnerships for the SDGs. University researchers and students are participating hands-on in projects with their expertise, time and financial resources. They can contribute to knowledge transfer and build the tools that the SDGs will require. Universities do indeed invest in development, a trend that is becoming more frequent in the academic world. This "clinical" approach, as it could be defined, facilitates first-hand intervention in the field. However, it is important that university development projects are not isolated and are integrated in larger efforts that include government, civil society and the private sector (Nolet, (2013).

1.3. What is the Issue?

Sustainability is a broad discipline, giving students and graduates insights into most aspects of the human world from business to technology to environment and the social sciences. The core skills with which a graduate's leaves college or university are highly sought after, especially in a modern world looking to drastically reduce carbon emissions and

discover and develop the technologies of the future. Sustainability draws on politics, economics and, philosophy and other social sciences as well as the hard sciences. Sustainability skills and environmental awareness is a priority in many corporate jobs at graduate level and over as businesses seek to adhere to new legislation.

In Kenya, teacher training for ESD has been influenced with the introduction of ESD and DESD. Kenya has made efforts to reinforce teacher training for ESD with students. However, actions are minimal rather than comprehensive, and practice is limited. For example, teacher training includes lectures, where trainees may find it difficult to participate positively and subjectively to know how to deal with their specific teaching challenges. In the context of the main aims of teacher training, which are to introduce theories or practices from schools or teachers, opportunities for teachers to learn particular practices on how to implement ESD are not a major focus. Universities and vocational schools have the most potential to provide systematic courses about ESD for students who want to be teachers in the future, but most do not. Concepts of ESD have not permeated into teacher education, and courses about ESD are in shortage. This may lead to teachers' limited knowledge of and skills in ESD. Second, universities and vocational schools have not taken responsibility in fostering ESD skills and knowledge in students who will become teachers. Third, training includes such methods as lectures or discussions and neglects the importance of including practical process for teachers. As a result, most teachers' practical abilities in ESD are limited. Finally, most training does not provide teachers with skills on how to introduce ESD themes into other subjects.

UNESCO (2012) points out thatfor education to be effective in empowering people, it has to be interdisciplinary in nature to cater for the diverse present and future social, economic, Political and environmental challenges, additionally, education has to be accommodative to the evolving nature of sustainability and that it must use a variety of pedagogical techniques that encourage participation of all stakeholders. Pedagogy in sustainable development should be problem or enquiry based, project driven, foster collaboration and critical thinking. If teachers plan their lessons around these concepts and ideas, then the outcome is likely to lead to sustainable development (Khaliet etal, 2013)

Towards achieving relevant skills and attitudes for a sustainable environment, economy and social life, ILO (2011) identifies among three areas of education: basic education which mainly focuses on building foundational skills, initial training which seeks to the core skills relevant to the current and future social-economic and environmental demands and lastly, a lifelong learning which provides and maintains skills and ensures that they are adaptive to the demands of the changing times.Education for sustainable development requires a comprehensive approach to education reform. It goes beyond boundaries of individual formal subjects and requires the attention of teachers, educational administrators, planners, and curriculum agencies. Experiences of education for sustainable development should be integrated into syllabuses and teaching programmes. It requires both interdisciplinary inquiry and action Learners should be encouraged to transform their views of the world as they develop informed foresight about the 21 Century (Hren and Birney (2004).

Teacher training today is still strongly influenced by the so-called technocratic model, which can be roughly summarized as follows:

- Knowledge is considered by both the teacher and the learner as unproblematic.
- Emphasis in teacher training is on technical expertise and mastering of domain knowledge.
- Curriculum is built around a set of practices which result in measurable learning effects.
- The competences and skills are not connected to the ethical and social context.

Considering these issues, it was necessary to conduct this study.

1.4. Objectives of the Study

> To analyze Bed science programme in the light;

- Curriculum and sustainable development
- Lecture delivery practices and sustainable development
- Campus operations and facilities for sustainable development
- Community outreach/ services and sustainable development

2. Review of Literature

> UNESCO (2004) indicates that Learning should be built around four pillars:

- Learning to know- To provide Knowledge, values and skills required to better understand the word and its complexities, and to provide an appropriate and adequate foundation for future learning.
- Learning to do- Knowledge, values, and skills for active engagement globally. Creating a shift in the mind sets of the students from the micro to the macro, from individual to collective goals is thus imperative.
- Learning to live together- Knowledge, values and skills for social life international, intercultural and enable communities to live in cooperation and peace.
- Learning to be - Knowledge, values and skills for self-reflection and active citizenship.

These four pillars offer a foundation of education to provide both the essential learning tools (literacy, oral expression, numeracy and problem solving) and basic learning content such as (knowledge, skills, values and attitudes) required by human beings to be able to survive, to develop their full capabilities, to live and work in dignity, to participate fully in development, to improve the quality of their lives, to make informed decisions and continue learning. These are the learning outcomes as identified in the World Declaration on Education for all Jomtien, 1990.Delor's report (2001) considers education as an agent of positive change, which needs to nurture and build an attitude of open mindedness and flexibility in the students so that they can effortlessly adapt to the demands of a cut throat competitive world. It states that learning needs to be interactive, experiential, and participatory and be based on emotion and experience; only then will it

cater to the all rounded development of the 'complete being'. The school curriculum in the light of future challenges of the twenty first Century is expected to address these issues seriously. How far have ourschoolsbeenabletoequipthemselvesinthelightoftheguidelinesandissueshighlightedbyvariousNationalandInternationalr eportson Education like UNESCO's- Delor's Report, National Policies on Education, Curriculum frame works etc.? How far have the universities made provision in their curriculum with respect to these Four Pillars? Are the different universities weaving their curriculum and scope of syllabus around these Four Pillars? These are some of the questions which motivated the researcher to undertake this research work.

Education and more specifically, training institutions play a leading role in the implementation of sustainable development. The term education appears in nearly all programmatic documents on sustainable development both on an international and a national level. At a teacher level, this means that they need specific content knowledge as well as pedagogical content knowledge for the implementation of ESD. Both education and training form teacher knowledge which is crucial for successful learning at school and thus a part of professional action competency. Teachers are recognized worldwide as transmitters of knowledge, skills and values to learners at all levels of education system. In his views, Obaya (2007) observes that teachers have traditionally been regarded as professionals that impact positively on learners, on schools and on the larger society. He went on to conclude that teachers make or mar an educational programme. In terms of teacher education, Akinola (2010) sees it as a form of education that is designed to groom those who teach or would like to teach or be engaged in relevant professional services in schools, colleges and ministries of education. In the past, teachers' training was used to describe the preparation of teachers. In the present times however, the use of teachers training has been replaced by teacher education. The former is limited and narrower in scope and depth while the latter is a broader view of teacher education. Teacher education is a much more systematic and all-embracing concept. This is why the essence of teacher education is seen as to provide teachers with the necessary skills, knowledge and competences they require to enable them do their job well and thereby making significant impacts on the education of school children. In doing so, development can be attained. Oyekan (2006) is of the view that the purpose of teacher education is to produce well qualified professionals who can adjust to the changing needs of the students and developmental prospects of the modern society.

The success of pedagogy in sustainable development will be determined by whether teaching is problem or enquiry based, project driven, fosters collaboration and critical thinking. If teachers plan their lessons around these concepts and ideas, then the outcome is likely to lead to sustainable development (Capelo &Pedrosa2014; Khali et al., 2013; & Treare et al., 2013). Furthermore, if teaching is planned and focused on problem solving and is practical as happens when projects are used, then it can be described as ecologically relevant. It has practical application to solve problems in the environment and a clear link is established between teaching, learning and the environment. Such an approach encourages learner interaction, and for the learner, teacher and the content/curriculum interaction too. This deepens the learning experience involving everyone including the community in which the school is located. Brundiers, Wiek and Redman (2010) investigated opportunities to link classroom activities with the real world, key competencies such as problem-solving and collaborative skills needed for sustainability. The study demonstrated the importance of linking knowledge to action, collaborative work and application of concepts and methods from the classroom to the field for sustainability. By integrating classroom activities with real world activities, acquisition of key competencies in sustainability is enhanced. Kearney and Zuber-Skerritt (2012) endorsed the idea but referred to it as extending learning organisation to learning community. This meant that not only should the focus be on the learners in the school or college but the entire community should be involved through lifelong learning especially in disadvantaged communities. Such an education approach would bring about change at personal, professional, team and community levels through participation, action learning and action research (PALAR).

In their study, on how transformative sustainability learning could be achieved, Sipos, Battisti and Grimm (2008), reported the need to engage the head, hands and heart as key organizers of learning for sustainability. They argued that use of head, hands and heart as organizers of learning enabled the integration of trans disciplinary studies. They expounded the learning framework as follows; trans disciplinary study involved the head (planning and concept building), development of practical skills (hands), translation of passion and values into behavior in life and work situations (heart). While this happens, the cognitive landscape for understanding the transformative sustainability learning framework would be enhanced as a unifying framework as part of the pedagogy. This would be followed by inter-disciplinary, practical and/or place-based evaluation of any course or programme based on appropriate learning objectives. Employing a learning framework such as this will ensure achieving a balance between cognitive, psychomotor and affective domains, key to education for sustainable development embodied in transformative sustainability learning principle. This approach is probably the missing link in Kenya's education system leading to outcries over irrelevant education system. The teacher, among other elements is the key to the success of implementing education for sustainability. Outcomes of education are clearly visible to the community and is viewed as relevant hence complementary to sustainable development (Diamond, 2005).

Similarly, in their planning teachers should ensure that learning and instruction is learner-centered. In other words, focus should be on maximum learner involvement with the teacher giving direction and support. Curriculum should be packaged up in such a way that a learner-centered approach is possible hence the relevance of project based, problem solving and enquiry-based learning approaches. Strong components of fieldwork, practical work will achieve the objective of teaching and learning for sustainable development. However, this can only take place effectively where an integrated education system is in operation, that is, education and industry working together (Dearing, 1999). This can happen if the policy framework is supportive of such integration and is well co-ordinated in the way it is implemented and

practiced. This form of teaching enjoys the benefit of stimulating learner motivation, being more meaningful, easy to understand while the purpose of education is easily appreciated by both learners and the community since knowledge and skills can be seen in application for problem solving (Capelo et al., 2014; Treare et al., 2013).

Kitamura and Hoshii (2010) in their study of ESD found out that implementation of ESD lacked coherence with education reforms at school and local levels. This meant it was irrelevant. They reported that emphasis was given to environmental sustainability hence very narrow. Wider issues such as climate change and an integrated curriculum were neglected. Practitioners did not agree on how to effectively implement ESD.Guidance for learners to acquire cross-disciplinary perspectives was inadequate. While much has been done to demonstrate implementation of the ESD programmes, not much has been done to highlight the constraints individual teachers and institutions were facing in promoting ESD.

2.1. Theoretical Framework

The study is based on two common competence models, which describe educators' competencies. These two models—the Curriculum Sustainable Development, Competences, Teacher Training (CSCT) model as well as the Learning for the future. Both models claim to have answered the question of teachers' competencies for implementing ESD. They could therefore serve as a basis for the conception of educational offers in institutions for teacher education.

2.2. The CSCT Competence Model

The CSCT competence model focuses on the teacher as an individual, as an agent in an educational institution and a member of a certain society. Competencies should enable teachers in these three fields to foster sustainable development. This means that the competencies even touch on the realm of a teacher's personal and social behavior, which should serve sustainable development. Therefore, the model incorporates a teacher's whole personality in the matter of sustainable development, rather than just his or her —professional self.
This model sees ESD in the context of the challenge of living in a risk society and summarizes the subordinate educational goals as:

- The competency to understand and change one's own living conditions.
- The competency to participate in collective decisions.
- The competency to be solidary with those who are—for various reasons—unable to control their own life conditions.
- The enabling of people to autonomous, critical thinking. Critical thinking should enable people to question their own lifestyle even with regard to the claim of sustainability, which implies that they need to be able, i.e., to be enabled, to understand and critically reflect the claim of sustainable development.

The model emphasizes the claim of a more comprehensive educational incentive whose aim is to take into account the high complexity of sustainable education by means of a holistic approach. The model distinguishes three super ordinate dimensions of competence (overall competences; teaching/communicating; reflecting/visioning; networking. The three super ordinate dimensions contain five competence domains: knowledge, systems-thinking, emotions, values and ethics, action. At the same time, interactions and interconnections between the individual domains are pointed out. Teachers are not only regarded as professionals, but also as individuals with civic responsibilities and as role models with a public educational function, which makes it necessary that they be qualified in these areas.

2.3. The ECE Competence Model

In 2012, an international group of experts created another competence catalogue whose target audience is educators in general rather than teachers only. It aims at the integration of ESD in caretaking and educational institutions (taking into account all functions of education in the context of sustainable development). The ECE model should serve politics, institutional development and educational tasks as an orientation aid to foster development towards sustainability. It aims at people, groups and institutions with multiplier function regarding the implementation of sustainable development, and it particularly aims at educators of teachers, too. Lesson design and development of concrete educational offers in terms of teaching specific competencies for sustainable development are included but not central to the model. The model identifies four domains or competence fields for an educator: understands, is able, works with others and one who continues learning to be better.
Accordingly, the main targets according the ECE model are:

2.3.1. Holistic Approach

Networked, integral thinking, taking complexity into account

2.3.2. Envisioning Change

Learning from the past, inspired acting in the present, taking into account visions and alternatives for the future, exploring new avenues and co-creating them.

2.3.3. Achieving Transformation

Change in educators' attitudes and actions, implementing new goals and practicing new procedures, implementing reorientation and alignment of the educational system towards sustainability on all levels.

3. Research Methodology

Descriptive survey design was employed for study. The study targeted fourth year Bachelor of Education (Science). One hundred and eighty-three (183) trainees participated in the study. Data was obtained using a questionnaire. Quantitative was analyzed by use descriptive statistics while qualitative data was thematically analyzed based on specific objectives.: The study gathered opinions of teacher trainees with regards :1) Curriculum and sustainable development 2)lecture delivery practices and sustainable development 3)campus operations and facilities and sustainable development and 4) community outreach and service and sustainable development. Data is presented narratively and graphically.

4. Findings and Discussions

Analysis is presented based on the four research objectives.

4.1. Curriculum and Sustainable Development

Trainees were required to indicate courses in which topics on sustainable development were taught. Their responses were:

- Biology
- Chemistry
- Physics
- Environmental studies
- HIV and AIDs
- Communication skills
- Philosophy of Education
- Education and Development

According to Burmeister et al., (2012), all educational domains and, thereby, all school subjects need to contribute to ESD.Dyment, Hill, & Emery, (2014) posit that sustainability should be considered as a cross-curricular priority in educational and training programmes. Sustainable development should be a concern of educational policy and reflected in curriculum framework to provide conceptual support to education system and programmes and to align with Agenda 21 by the United Nation conference on environment and development of Rio, 1992 which focuses on meeting developmental and environmental needs of the present and future generations (Rio Declaration, 1992).

Respondents were further asked to indicate whether or not they were required to take a course on issues related to the environment or sustainability. Their responses are presented in figure 1. Majority (96%) indicated that they were required to take a course on issues related to the environment or sustainability. This is in line with United Nations Decade of Education for Sustainable Development (DESD, 2005-2014) which indicates that education should serve to enable sustainable economy, society, and environment (Shi, 2008).
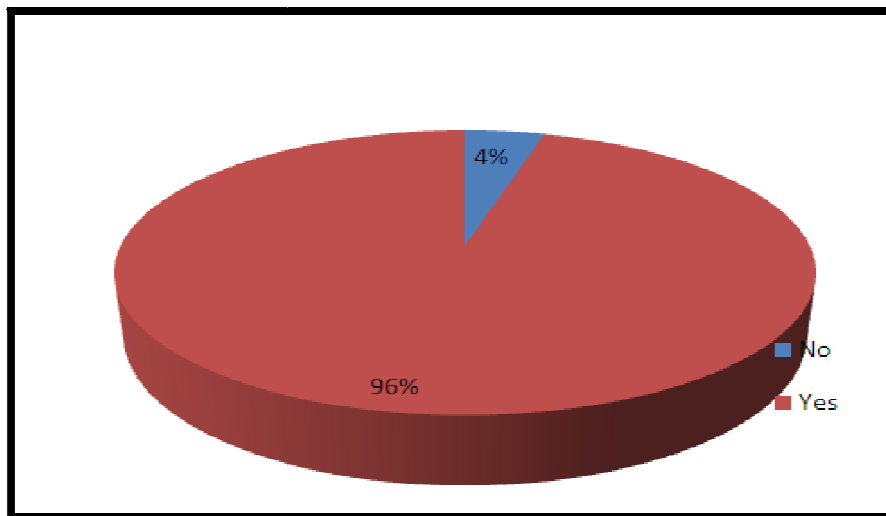

Figure 1: Responses on Taking a Course on Environmental or Sustainability Issues

4.1.1. Courses Regarded as Essential for Sustainable Development but Were Not Taught

Respondents were asked to indicate courses they regarded essential for sustainable development and were not taught. Their responses were:

- Moral education
- Life skills
- Entrepreneurship education
- Ethics and integrity issues
- ICT
- Health education

- Consumer education
- Citizenship education
- Peace education
- Social studies

4.1.2. Agreement with Some Curriculum Statement

Trainees were asked to indicate extent of agreement with some curriculum statement. Their responses are as presented in figure 2.

Majority of respondents 59% strongly agreed that the curriculum incorporates sustainable development elements with 30.6% agreeing with the statement.

Regarding programme allowance for individual research project, majority 64.5% of the trainees disagreed with the statement which means the programme did not give much value to individual research.

On whether Curriculum integrates entrepreneurship practices 43.2% of the trainees were undecided with 12.7% disagreeing or strongly disagreeing. The implication is that entrepreneurship practices were not incorporated in the curriculum. According to Nathan (2014) Entrepreneurship practices not only encourages, but also requires students to be creative, to innovate, and to collaborate with others.

Concerning Programmes encouraging peer support and mutual features, 43.7% of the trainees strongly agreed with the statement with others 44.8% agreeing with the statement. The implication is that the curriculum has high regard for peer support and mutual features.

Curriculum incorporates case studies to understand real life issues; statement was highly supported by respondents with 35% strongly agreeing with the statement and 48.6% agreeing.

Regarding inclusion of global dimensions of sustainable development in the curriculum, 41% were undecided, 4.4% disagreed and 43.2% of the respondents disagreed with the statement that curriculum includes global dimensions of sustainable development. UNESCO (2017b) posits that educational and training institutions should transform learning and training environments by integrating sustainability principles into education and training settings.

Programmes integrate field study visits to link theory to practice, majority (62.3%) of the trainees strongly disagreed with the statement with 18.6% disagreeing. This clearly shows that field study visits have not been integrated in the programmes.

Programmes prepare trainees to teach in a multicultural setting, 35% were undecided with 33.9% disagreeing with the statement. This indicates the very little is in the programme to prepare trainees to teach in a multicultural setting.
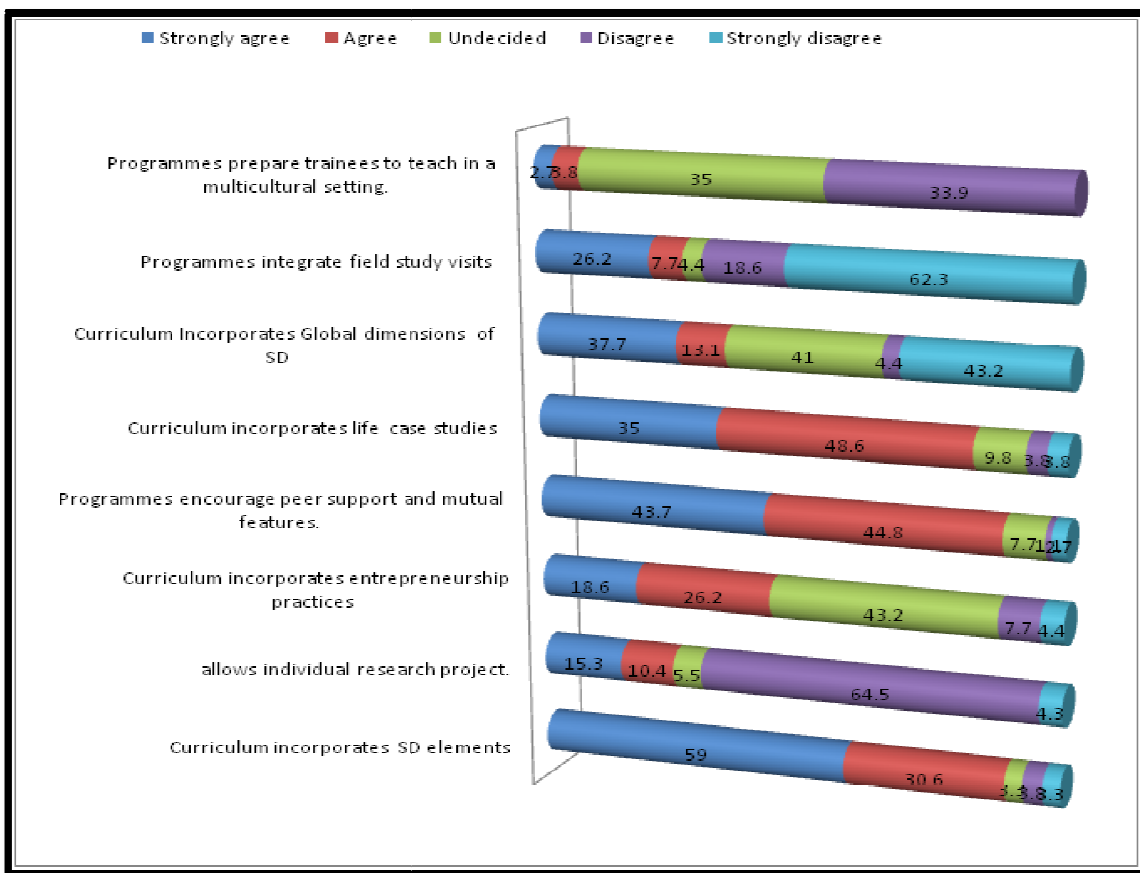

Figure 2: Responses on Curriculum Statements

Trainees were in addition asked to list any student research activities they were aware of related to sustainability. Responses were as follows:
- Class projects within subjects
- Laboratory experiments
- Term paper assignments

Findings indicate that the research trainees engaged in was limited to academic pursuit in respect of the subjects and thus failed to provide opportunity for trainees to apply learning.

5. Lecture Delivery Practices and Sustainable Development

Respondents were asked to indicate extent of agreement with statements on lecture delivery practices and sustainable development. Their responses are presented in Figure 3.
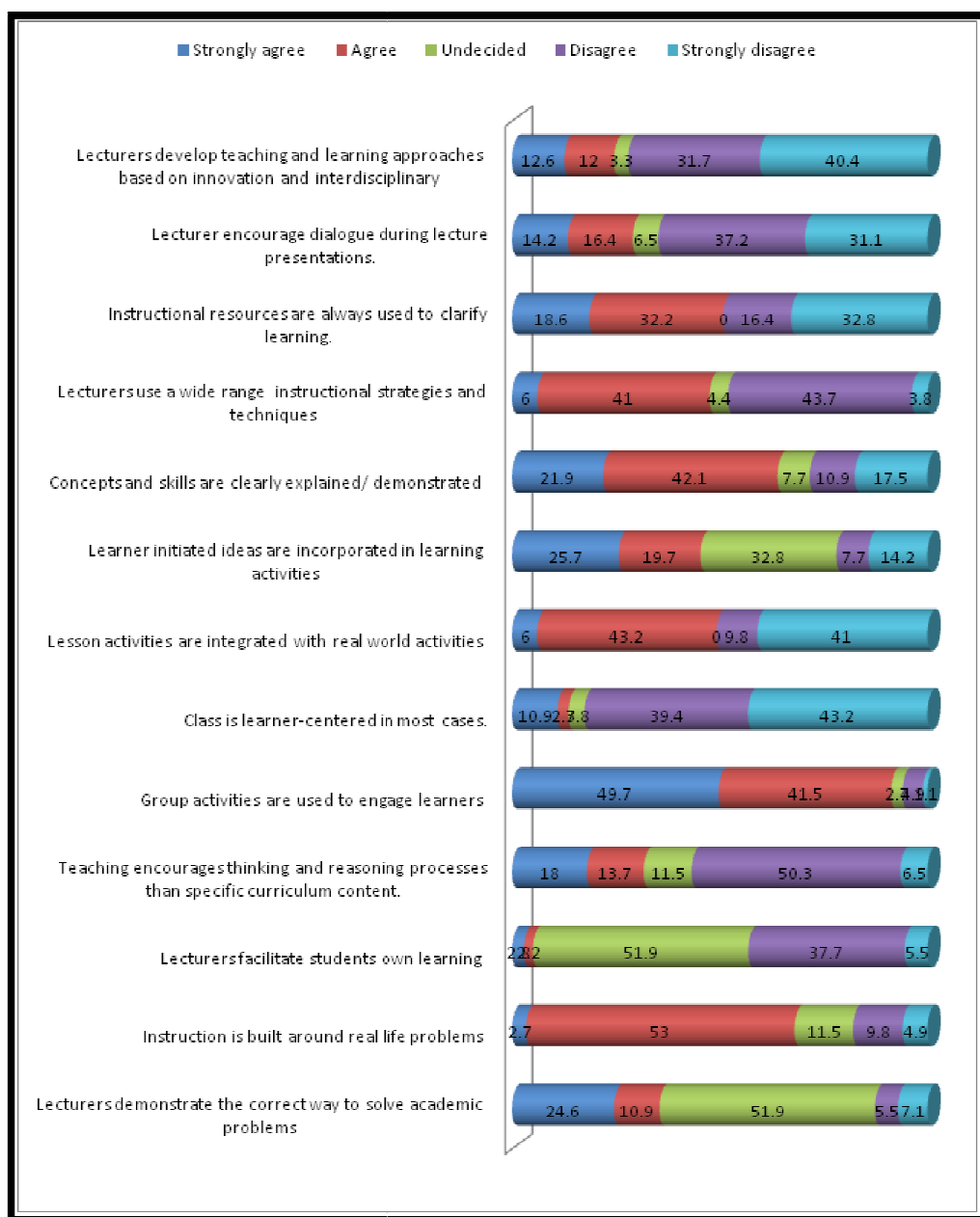
Figure 3: Trainees Responses to Statements on Lecture Delivery Practices and Sustainable Development

5.1. Interpretation of Statements

Teaching encourages thinking and reasoning processes than specific curriculum content, majority (50.3%) of the trainees disagreed with the statement. The implication is that thinking and reasoning was not encouraged. According to Khaliet etal, (2013) Pedagogy in sustainable development should be problem or enquiry based, project driven, foster

collaboration and critical thinking. Zeich (2012) asserts that learning institutions should provide an academically challenging curriculum that includes attention to the development of higher-level cognitive skills.

Group activities are used, 49.7% of the trainees strongly agreed the group activities were used and 41.5% agreed on the same. This means that lecturers used groups to accomplish class work.

Class is learner -centered in most cases, 39.4% of the trainees disagreed with the statement with others 43.2 %strongly disagreeing with the statement. This means class did not give due focus on the learner.

Lesson activities are integrated with real world activities, 43.2% of the trainees agreed with the statement while 41% strongly disagreed with the same. It appears almost an equal divide among the respondents.

Learner initiated ideas are incorporated in learning activities, 25.7% of the trainees agreed with the statement while 32.8% were not sure. The implication is that to a small extent learning activity had regard for learner-initiated ideas.

Concepts and skills are clearly explained/ demonstrated, 21.9 % strongly agreed with statement with 42.1% agreeing with the same. This indicates the lecturers clearly explained / demonstrated concepts in class.

Lecturers use a wide range of instructional strategies and techniques, 47% of the trainees indicated strongly agree or agree while 47.5% indicated disagree or strongly disagree. This shows that some of the lecturers used diverse strategies while others did not.

Instructional resources are always used to clarify learning, 50.8% of the trainees indicated strongly agree or agree with 49.2% indicating disagree or strongly disagree. This means that, lecturers did not use instructional resources always.

Lecturers encourage dialogue during lecture presentations, 68.3 % of the trainees either disagreed or strongly disagreed with the statement. The implication is that dialogue was minimal in most classes.

Lecturers develop teaching and learning approaches based on innovation and interdisciplinary, 72.1% of the trainees disagreed or strongly disagreed with the statement. This clearly indicates that aspects of innovation and interdisciplinary teaching were lacking in the delivery of lecturers. According to UNESCO (2012) for education to be effective in empowering people, it should be interdisciplinary in nature to cater for the diverse present and future social, economic, Political and environmental challenges, additionally, education has to be accommodative to the evolving nature of sustainability and that it must use a variety of pedagogical techniques that encourage participation of all.

In a review of close to 100 higher education studies over a period of 50 years period, Bligh (2008) reports that students who become involved in active discussion of their ideas with other students aremore likely to stay" on task" in class and spend more time synthesizing and integrating concepts, relative to student who listen to lectures. Bligh also found that students, who had the opportunity to interact in class with the instructor and with other students, reported significantly higher levels of satisfaction with their learning experience than students in classes that were taught exclusively by the lecture method. Kulik and Kulik (2009) reached a similar conclusion reporting that students involved in classes which made use of discussion groups were more likely to develop positive attitudes towards the course content and also increase student appreciation of general curriculum.

According to Santamaria (2009) instructors who teach using methods that model democratic practices such as cooperative learning, class -community connections, student-led inquiry, communication forums and establishing the class as a learning community with mutual rights and obligations incorporating varied field experiences into courses provides opportunities for pre-service teachers to:

- Explore the ethical, political and/or social dimensions of authentic community issues,
- Examine and critique their own beliefs and practices and the consequences of these, and
- Advocate and support equal opportunity for families and children.

5.2. Suggestions to Improve Lessons Delivery

Trainees were asked to give suggestion to improve lessons delivery. Responses were;

- Providing opportunities for individual laboratory practicals
- Providing enough resources for practicals
- Adopt use of interdisciplinary case studies to help student learn by making connections between ideas and concepts across different disciplinary boundaries.
- Organizing field trips
- Adopting interactive learning methods
- Lecturers to embrace use of technology. According to UNESCO (2011) and Wals (2012), ICT can help learners explore concepts, engage in problem solving and authentic learning, enhance meta-cognitive skills and present information using multi- media. All these are in line with goals of sustainability.

6. Implementation of Campus Practices and Facilities

Trainees were asked to indicate extent to which their institution had implemented certain practices and facilities. Responses are as presented in figure 4:
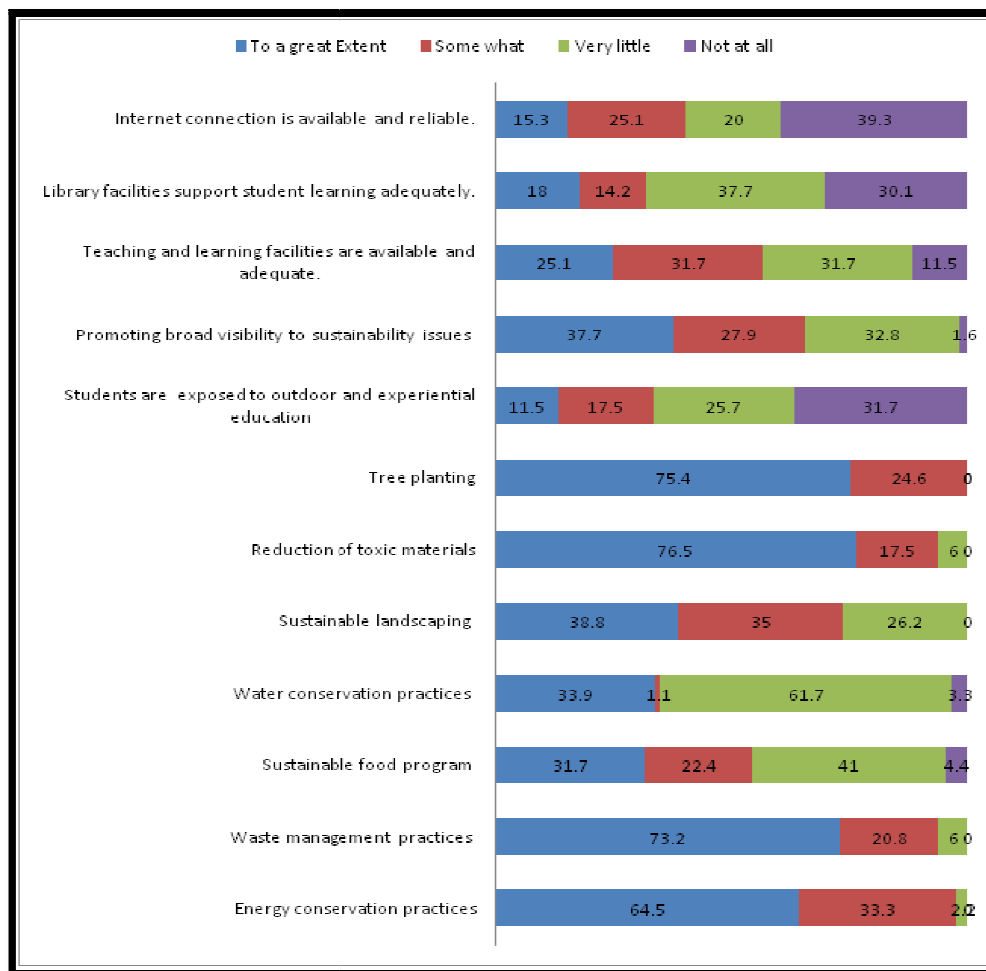
Figure 4: Responses on Implementation of Institutional Practices and Facilities

Waste management practices, Majority (73.2%) of the trainees indicated that Waste management practices had been implemented to a great extent.

Sustainable food program, 31.7 % of the trainees indicated while 64.4% indicated somewhat or very little. The percentages indicate existence ofminimal levels of sustainable food programme.

Water conservation practices, majority (61.7%) of the trainees indicated very little implementation.

Sustainable landscaping, landscaping has been implemented to some level as indicated by 38.8% respondents who indicated great extent and 35% indicating somewhat.

Reduction of toxic materials, majority (76.5%) indicated that implementation was to a great extent. Tree planting, majority (75.4%) of trainees indicated implementation had been done to a great extent.

Students' exposer to outdoor and experiential education, 57.4% of the trainees indicated very little or not at all. This indicates limited student exposure.

Promoting broad visibility to sustainability issues, 65.6% of the trainees indicated either to a great extent or somewhat. This means the institution was doing the promotion of sustainability issues.

Teaching and learning facilities are available and adequate; to some level the facilities were available and adequate.

Library facilities support student learning adequately, library support was not adequate.

Internet connection is available and reliable, 59.3 % of the trainees indicated very little or not at all. This means the connection had issues with availability or reliability.

6.1. Indicators of Institutional Commitment to Sustainability

Respondents were asked to indicate what they see in the campus compound to show institutional commitment to sustainability? Their responses:

- Indigenous trees
- Variety of tree species.
- Surface and underground water drainage systems
- Well- kept grounds/campus landscaping.
- Waste management site
- Some farming/ campus gardens

- A mini weather station
- Waste bins at strategic points.
- Proper sanitation/ sewage disposal facilities

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7. Community Outreach and Service and Sustainable Development

Respondents were required to indicate sustainability related community service, service learning and/or internship programmes that exist at their institution? Responses:

- Teaching practice
- Tree planting
- Town clean up during world environmental days

According to Furco (1996), community service enriches student learning of course material and "brings books to life and life to books". In order for students to develop proper grounding in learning, there is need to relate academic to community service. Students who participate in service are more likely to develop different ways of thinking and approaching life. The service learning impacts the student framework of thinking while transforming the community as well.

7.1. Opportunities and Settings Provided on Sustainable Development

Trainees were asked to indicate opportunities and settings provided to them on sustainable development. Their responses are presented of figure 5.
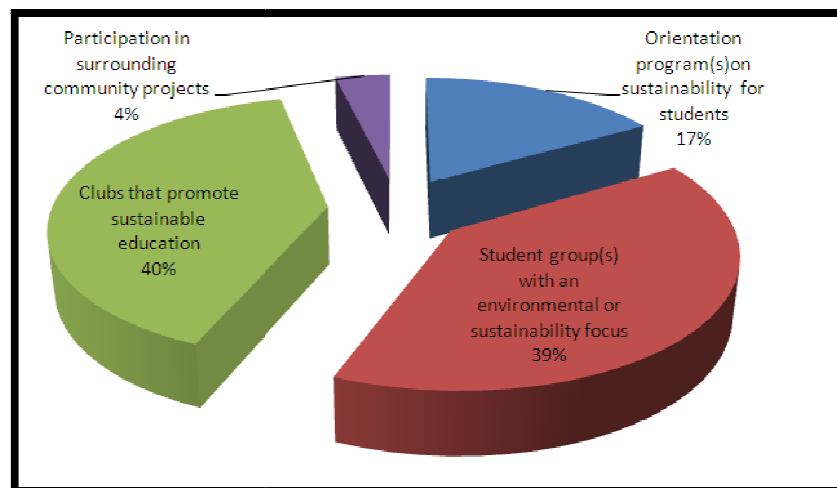

Figure 5: Trainees Responses on Opportunities and Settings on Sustainable Development in Their Institution

Clubs to promote sustainable education and student groups with an environmental or sustainability focus were available in the institution while participation in surrounding community projects was very minimal.

7.2. Greatest Weaknesses of the Institution in Relation to Sustainability

Respondents were further asked to indicate perceived greatest weaknesses of the institution in relation to sustainability. Responses included:

- Limited hands on activities in learning
- Inadequate learning support materials both in the academic activities and research
- Limited research work to allow for application of learnt theories and principles
- Limited dialogue in the teaching –learning process due to much emphasis on lecture method
- Limited technology to allow research and exploration.
- Limited link with community to make learning more practical.
- Limited allowance for student-initiated projects.

7.3. Measures That Can Be Put In Place to Prepare Teachers for Sustainable Development

One of the items required trainees to indicate measures that can be put in place to prepare teachers for sustainable development. Responses were;

- Making training more practical and problem based.
- Encouraging critical thinking and reasoning among trainees.
- Broadening academic research
- Strengthening community/ service learning
- Including ICT as a compulsory course in their programme.

- Put emphasis on project-based learning to promotedeeper knowledge of the subjects.
- To incorporate social studies in the teacher program to help trainees to understand ethnocentrism, racism, and gender inequity as well as to recognize how these are expressed in the surrounding community and nations worldwide.

According to UNESCO (2017a) educational and training institutions should transform learning and training environments by integrating sustainability principles into education and training settings. Kostoulas-Makrakis (2011) asserts that there is need to develop and apply a critical and transformative model to address education for sustainable development in teacher education.

8. Conclusion

From the findings, it was concluded that the teacher programme covered limited topics on sustainable development. Subjects such as Life Skills, citizenship education, peace education, Entrepreneurship education, health education, ethics and integrity issues were considered essential but were not being taught. The programme required trainees to take a course related to environment and sustainability. Despite focus on elements of sustainable development in the curriculum, there was limited allowance for individual research project, entrepreneurship practices, field study visits, and limited trainee preparation to teach in a multicultural setting. There was commendable incorporation of case studies in the programme, significant peer support and mutual features and incorporation of global dimension of sustainable development in the curriculum.

Lecture delivery practices focused on specific content but failed to encourage thinking and reasoning processes. In many instances, lecturers did not encourage dialogue during lecture presentation and teaching approaches were often neither innovative nor multidisciplinary. Real world activities were minimal. Lecturers however made use of a wide range of instructional resources and strategies to clarify learning and concepts and skills were clearly explained and demonstrated with group activities used to engage learners.

Implementation of campus practices and facilities to support sustainable development includes waste management, sustainable landscaping, and reduction of toxic materials, tree planting, promotion of broad visibility of sustainability issues, and availing of teaching and learning facilities. The campus however lacked adequate exposure to outdoor and experiential education, limited library facilities to support student learning and also limited internet connection.

The major perceived institutional obstacles to achievement of education for sustainable development were: limited hands on activities, inadequate learning support materials for both academic and research activities, limited link with the community to make learning more practical and limited allowance for student-initiated projects.

9. Recommendations

- There is need to review teacher programme to align with holistic perspectives of sustainability which consider the wellbeing of social, ecological and economic sub systems.
- Inter-disciplinary and integrating approaches should be used so that the specific nature of contexts and the multiple role of education are assured in all programmes, projects and activities.
- Education and training for sustainable development should adopt a comprehensive approach to educational implementation which extends beyond boundaries of individual subjects.
- The institution should ensure that sustainability is incorporated as the contextual framework for disciplinary and multidisciplinary research.

There is need to adopt the whole institution approach which focus on:
- Governance policy and capacity building
- Education for sustainable development
- Curriculum, teaching and learning
- Facilities and school operations
- Community partnerships and relationships.
- To succeed in education for sustainable development, attention of planners, curriculum agencies, educational administrators and lecturers is required.
- A curriculum model for an institution that supports ESD should take into consideration:
  - Interdisciplinary learning to allow learners integrate ideas from different perspectives.
  - Knowledge and values
  - Action projects
  - Team projects
  - Resource use
  - Teaching and learning methods
  - Student clubs and movements
  - Democratic practices
  - Institutional facilities and grounds
  - Institutional calendar and activities
  - Community knowledge and service
  - Use of diversity of learning styles

- Since the ultimate goal of ESD is to build a sustainable society, various approaches should be used to help achievement of this goal.
- In order for trainees to receive proper grounding in learning, there is need to relate academic work to community service. Students who participate in service are more likely to develop different ways of thinking and approaching life. The service learning impacts on the students' framework of thinking while transforming the community.

In a nut shell, successful institutional focus on education for sustainable development must take a tripartite integration of the Who the What and the How for Sustainable Development as presented in Table 1.

The Who	The What	The How
Policy makers Training institutions Practitioners International agencies Life Cycle perspective (ILO, 2011): Children to build foundational skills Youth who have a consolidated body ofknowledge Mature/older peoplewho maintain and upgrade knowledge, skills etc.	Communication skills Anticipatory competences Critical thinking Problem solving Self-awareness/health competence Personal attributes: integrity, work ethics, integrity Team work ICT skills Thinking creatively and innovatively Attitude modification (clear-cut) Environmental education Resources management in education/training Literacy	Financing education/training Equity and inclusion Pedagogical techniques Task oriented Questing/explaining skills Case studies Motivation techniques Formative assessment Participatory Community engagement /service Recognition/awarding of skills

Table 1: At Tripartite Integration for Sustainable Development

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