

Rethinking teaching undergraduate economics for sustainability learning using a transdisciplinary approach: My reflections on my teaching experience, benefits, and challenges

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Keywords

Transdisciplinary, Sustainability learning, Economics

Abstract

Climate change, political-social-economic-ecological and sustainability issues are 21st Century realities, which call for innovative teaching/learning processes in teaching Economics for it to be a vehicle for sustainability learning. There is a need to consciously develop a structure of economics knowledge and education (curriculum and teaching approaches) that provides students with a foundation for sustainability transition, so that students become change agents while they learn. A transdisciplinary approach was used for sustainability learning in an Economics module where guest lectures were presented by a local Municipality and a local businessperson to link some economic theories to some socio-economic-political-ecological sustainability issues, and how the Agricultural sector and Government handle such issues. This allowed for a more holistic understanding and helped students to develop flexible thinking for problem-solving solutions that are crucial for addressing sustainability challenges in an ever-evolving world. Adopting transdisciplinary approaches to teaching Economics for sustainability learning have a complementary role to the traditional discipline-specific ways of teaching Economics because sustainability challenges are complex and dynamic, and thus require integrating diverse perspectives and knowledge by using different knowledge sources.

Introduction

Discipline specific knowledge is generated through projects carried out within the bounds of an academic discipline. Therefore, as Petts, et al (2008) note, research methods, terms of references, methodology, topics, language, concepts, and theoretical frameworks, are well defined. Specialist knowledge is relevant in generating new knowledge, because as Cronin (2008:20, 27) notes, disciplines provide essential building blocks to creating new knowledge. Chettiparamb (2007:8) concurs noting that disciplines provide “a theoretical triangulation point necessary to make sense of new perspectives and horizons” and contribute to production of knowledge, curating, preserving, and defending knowledge, and providing checks and balances. However, Cronin (2008) and Chettiparamb (2007) also note that discipline specific knowledge has limitations as it excludes factors which may be addressed by other knowledge sources, thus does not create knowledge requirements to deal with problems in real-world settings.

Transdisciplinary approaches integrate academics from different disciplines and non-academics, thus integrating perspectives from various stakeholders. It generates new approaches that ensure overarching analysis and synthesis that generate new comprehensive knowledge and understanding of real-life complex issues (Brutschin and Wiesmann, 2009; Petts et al, 2008; Cronin, 2008).

Sustainability issues and challenges are not organised according to academic disciplines, and therefore, there should be steps to adopt more holistic and integrated pedagogical approaches to understand and address these issues by crossing disciplinary boundaries. Therefore, an educational orientation that links theory to practice is key for relevant Economics education. Given the socio-economic-political-ecological sustainability issues we face, the complementary roles of transdisciplinary approaches in teaching Economics would help in teaching Economics for relevance in sustainability learning.

Context For A Multidisciplinary Approach For Sustainability Learning

Undergraduate economics curriculum is being critiqued globally for relevance for real-world applicability and ensuring students’ critical thinking. Thus, a pragmatic pluralist approach to teaching economics is being proposed by some scholars including Janssens, et al (2025), de Muijnck and Tieleman (2021), Proctor (2023, 2018), and Fischer et al. (2018). Using other schools of thought to complement the Neoclassical Economics perspective in teaching Economics is being suggested to open perspectives through debates because different schools of thought bring diversity to economic thinking and enrich understanding.

Climate change, political-social-economic-ecological and sustainability issues are 21st Century realities, which a pluralist approach to teaching economics could be used to provide students with a foundation for transformative sustainability learning and transition. However, for Economics education to promote sustainability learning and transitions, calling for pluralist economics in general it is not enough, there is a need to consciously develop a structure of economics knowledge and education (content/or curriculum and teaching approaches) that provides students with a foundation for sustainability transition, so that students become change agents while they learn. For Economics courses that do not focus on sustainability per se, sustainability themes could be included in topics and interdisciplinary and transdisciplinary approaches to teaching be adopted to harness relevant resources that link economics topics to various sustainability issues.

Leal Filho and Pace (2016), Besong and Holland (2015) and Cotton and Winter (2010) note that education for sustainability helps to develop sustainability knowledge and understanding, skills, attitudes, values, and behaviours in favour of the environment. Participants develop personal environmental ethics as they reflect on consequences of economic and societal actions and implications for environmental, economic, and social-ecological wellbeing for the present and future generations. Thus, they become sustainability-conscious engaged citizens.

Transdisciplinary Approaches To Teaching Economics For Sustainability Learning

Sustainability challenges are often complex and dynamic, requiring adaptable and resilient approaches. By incorporating and integrating diverse perspectives, expertise, and knowledge, individuals can develop flexible thinking and broader problem-solving skills that are crucial for addressing sustainability challenges in an ever-evolving world. It also allows for a more holistic understanding of the challenges and solutions related to sustainability. Furthermore, there is a need to bridge the gap between discipline specific academic research, theory, and practical application by considering diverse perspectives of other stakeholders. By integrating knowledge from various stakeholders, sustainability learning can produce more contextually relevant Economics education because a lot can get left out by simply viewing issues from an Economics lens. Thus, teaching Economics for sustainable learning aims to expose students to various sustainability issues and practical solutions that can be implemented in real-world contexts.

Transdisciplinary approach

Trans-disciplinarity approaches aim to integrate knowledge from diverse actors beyond interdisciplinary collaboration by involving stakeholders from outside academia, e.g., policymakers, industry experts, community members, and other relevant stakeholders. A transdisciplinary approach involving Community stakeholders is needed, as Cronin (2008), Brutschin and Wiesmann (2009) and Hardon, et al (2006) note, to collaborate in grasping the complexity and dynamics of problems and bring together diverse perceptions of problems. Manuel-Navarrete, et al (2025) note that by combining different forms of knowledge to better understand and address societal real-world problems, transdisciplinarity leads to knowledge co-production as it incorporates the viewpoints and interests of different societal actors, thus challenging traditional academic modes of knowledge production. Therefore, in teaching Economics for sustainability learning, participatory approaches involving Communities ensure harnessing local knowledge systems and practices to make Economics knowledge more context relevant.

Economic perspectives are no longer the only resource and agent of change. Since the transdisciplinary approach is pluralistic in methods and focus, students will benefit from collaborative learning and dialogue with Community members in jointly identifying, understanding, and framing the nature of sustainability problems, designing action to address them, and discussing trade-offs of various choices that affect and address complex sustainability challenges. This would result in students experiencing more realistic sustainability learning because as Cronin (2008) and Brutschin and Wiesmann (2009) note, Communities' perspectives, local and practical knowledge systems, and interests, can offer new information to complement or improve views. This diversity of perspectives can lead to innovative insights and solutions that may not have emerged through traditional disciplinary approaches. Therefore, students and their educators will be able to see beyond their discipline by using other knowledge lenses.

Using sustainability-oriented guest lectures for sustainability learning

Guest lectures can be used for transdisciplinary approaches to teaching. For example, with an educational orientation of tying theory and practice to make teaching/learning relevant, I adopted a transdisciplinary approach in teaching an Economics module by using sustainability-oriented guest lectures as a teaching method (Mutambara, 2024a). Teaching the module was structured such that guest lectures would be presented after theory lectures, as shown in Table A-1 (Appendix 1). Thus, guest lectures

were used to complement theory lectures to tie theory to practice and real-life sustainability issues. The transdisciplinary approach in teaching was through inviting (i) a local Businessman to present a guest lecture on sustainable and innovative agricultural practice through innovative waste management through the Black Soldier Fly to produce sustainable agriculture inputs (see Appendix 2), and (ii) a Director in the Local Economic Development and Planning section in a local Municipality to present on the role of the Municipality in local business linkages, assistance to Small Medium and Micro Enterprises (SMMEs), and local sustainability issues (see Appendix 3).

My experience in using the transdisciplinary approach through both guest lectures, is as I indicated in my report, Mutambara (2024b:15) that both guest lectures:

“jointly brought to the fore various socio-economic-ecological sustainability issues and challenges which people, business and commercial activities interact with. When both non-Academics and Academics presented and discussed such issues with my students, and how as Practitioners they were dealing with them; this gave me and my students insights into the broad socio-ecological context of business and commercial activities where sustainability is a central issue. With my theory lectures complemented by Guest lectures that fostered sustainability knowledge and understanding, Economics education in my Industrial Organisation module was enriched to be a vehicle for transformative sustainability learning and knowledge”.

Use of transdisciplinary approach to teaching/learning for sustainability learning through guest lectures was very well received by the students. The students commented that guest lectures by non-Academic persons and the resources they provided were relevant and effective in:

(i) helping them to understand and see linkages between some theoretical issues and important real-life sustainability topics and challenges, therefore linking theory and practice; (ii) enhancing and enabling sustainability learning as they became aware of various sustainability issues in the local Community and their implications for pertinent socio-economic-political-ecological issues; (iii) giving them insights into the broad socio-ecological context of business and commercial activities where sustainability is a central issue; (iv) helping them to gained insights into real-life/world sustainability issues, challenges, how to deal with them, and solutions available; (v) useful in enhancing sustainability learning through leveraging on their own past experiences, which created and prompted a desire for further learning by exploring different perspectives as they debated various sustainability issues, and implications thereof locally and internationally; and (vi) showing linkages with Commercial activities, as well as tying that up with Sustainable Development Goals (Mutambara, 2024a:13, 14).

A transdisciplinary approach to teaching through guest lectures from various stakeholders outside the Academia, helps to link theory to practice and this contributes to critical thinking and growth because students will be able to analyse what they did, why they chose to do it that way, and how they achieved results or arrived at conclusions. Thus, students will be able to make strong arguments and justifications for their interpretations and conclusions. Creating learning environments that integrate theory and practice within a course is also echoed by Ching (2014:281) who notes that this enables students to gain deeper understanding of educational theories and principles, analyse and think critically, and learn how to apply theories and principles to real-life situations, and make decisions to solve potential problems faced in real-life scenarios. Therefore, students would become capable and competent practitioners. However, while theory-practice connection in a course is important, Wrenn and Wrenn (2009:258) note that this must be done in “ways that are relevant and meaningful to the student”, for them “to more closely associate the practical value of learning theoretical concepts”. This way, an educator would be using “classroom teaching to enhance students’ ability to put what they learnt into practice”.

Challenges In Using Transdisciplinary Approaches To Teaching Economics For Sustainability Learning

Planning and implementing the sustainability learning process using transdisciplinary approaches is time consuming and exhausting. It requires effective leadership, clear communication channels, follow-ups and reminders, and a collaborative mindset among team members to leverage the benefits of transdisciplinary knowledge gathering (Mutambara (2024b:6-7). Therefore, positive (or negative) experiences of employing transdisciplinary approaches can vary depending on power dynamics between the people involved, the level of coordination and support provided. Furthermore, this approach to teaching comes with additional stress because it requires adjustments to work schedules by all parties involved, requires more time to prepare for the event as it is an ‘extra commitment’ to one’s normal workload, additional resources may have to be sourced, as well as good coordination with those responsible for making venues available to successfully bring a positive experience.

By actively involving various stakeholders in the knowledge-gathering process, transdisciplinary approaches ensure that the generated knowledge is directly relevant to real-world challenges. However, engaging stakeholders from diverse backgrounds can present communication challenges due to language and cultural differences, terminology, expertise, and expectations. Therefore, ensuring effective communication and understanding among stakeholders requires careful facilitation, translation of concepts, and creating a supportive environment that encourages open dialogue which will translate into sustainability learning for the students.

Despite favourable comments about transdisciplinarity to teach Economics for sustainability learning, some may question (i) whether this is as 'scientific' as discipline-specific knowledge; (ii) the validity of different knowledges acquired; (iii) the relevance of such new knowledge from other knowledge systems when there is discipline specific content in the syllabus. Therefore, an educator who uses transdisciplinarity ought to be a strong and effective leader who motivates for and stands by their transdisciplinary approach to teaching so that despite sceptics in their discipline, he/she ensures that students can embracing all knowledge sources. Furthermore, as Mutambara (2024b:16, 17) notes, there is a need for continuous collaboration, and nurturing networks formed with various stakeholders for sustained interactions that result in a pool of resources to draw from for future guest lectures or for Onsite visits so that students can learn through experiential learning. Having long-standing relationships with Community partners is therefore a crucial aspect of effective intradisciplinary approaches to teaching and learning. Failure to nurture these relationships would, as Harfitt (2018:3) puts it "represent a missed opportunity when the community has been seen as a context containing rich funds of knowledge provided by its members".

In using a transdisciplinary approach to teaching and learning, it is important to position the Community partners as equals in the teaching/learning experiences provided to the students. This would assure the Community partners that they are valued as valuable sources of sustainability knowledge and not simply being used. For the University partner, this requires the process of leaving behind established ways of doing and letting themselves open to the new, and thus, creating learning environments where all participants feel welcome and safe enough to enter the teaching/learning processes. This is in line with observations by Zeichner et al (2012, cited in Harfitt, 2018:3) and Manuel-Navarrete, et al (2025) who recommend for a University education where academic school-based and community-based knowledge come together in less hierarchical and haphazard ways to support learning. This can be forgotten when accessing expertise and knowledge in Communities because Academic institutions and the academic disciplines therein are esteemed highly by Community partners as they are often regarded as the custodians of authentic and scientific knowledge unlike community-based knowledge, which some erroneously regard as unscientific and inferior.

In using transdisciplinary approaches, the vital reflective and feedback component is three-pronged, i.e. students, the educator, and the community partner. The timing for this to be done in a meaningful and productive manner is crucial because all parties involved (i.e., students, the educator, the Community partners) have competing needs and demands for their time. Mutambara (2023:66) notes that reflections help students to link content, curriculum theory and practice, thus solidifying theory to practice and thus having a deeper understanding of curriculum content. In sustainability learning, structured journal writing using instructor-tailored reflection activities or questions would help students to maximise the lessons of sustainability learning experiences either through guest lectures or Onsite visits. Mutambara (2023:66) notes reflections by the educator helps them, among other things, to see what they would do differently given the new information gained; the new understandings some of which challenge their own assumptions and their role and what they need to do about that; and the consequences of change. Reflective feedback to the educator by students and the Community partner(s) who participated in the sustainability learning intervention, would, among other things, help in ascertaining whether students learnt from the intervention, the quality of sustainability learning which took place, areas for improvements during future learning interventions, and other sustainability learning activities that can be included in the future.

Conclusion

Discipline-specific knowledge lays the foundation in Economics education so that students can have adequate content mastery and competency in Economics. Transdisciplinary approaches enrich the teaching/learning processes in Economics education by linking some of the theoretical frameworks in Economics to real-life socio-economic-political-ecological realities. When transdisciplinary approaches are harnessed for their complementary role in teaching, Economics education can be enriched to become a vehicle for relevant sustainability learning.

Using transdisciplinary approaches to augment one's teaching is time consuming and requires more planning because (i) one must liaise with other people outside the department who have their own work commitments; (ii) may have to adjust time and other work schedules to accommodate the teaching/learning program; (iii) additional resources may need to be sourced; and (iv) logistically plans may not go accordingly.

Implementing teaching/learning processes that incorporate transdisciplinary approaches may face criticisms from sceptics who question among other things: (i) whether knowledge acquired is as 'scientific' as discipline-specific knowledge; (ii) the validity of different knowledges acquired; and (iii) the relevance of such new knowledge from other knowledge systems when there is discipline specific content in the syllabus.

Appendix 1

Table A-1: Implementation of the research process

Lectures held in July 2024 for the implementation process			
Theory lectures	Wednesday, 10 th July	Wednesday, 17 th July	Wednesday, 31 st July
Guest Lectures	Thursday, 11 th July	Thursday, 18 th July	
Guest Lecturers	A local Businessman running a project in the agriculture sector	Local Economic Development and Planning Director in the local Municipality	Students completed Questionnaires for me to collect data on: (i) Relevance of Guest lectures as a teaching method. (ii) Effectiveness of support learning materials. (iii) Effectiveness of Guest lectures in linking theory to practice (iv) Relevance of guest lectures in facilitating sustainability learning in an Economics module. (v) Areas for improvement
Theme of Guest lecture	Innovative waste management through the Black Soldier Fly for Sustainable agriculture inputs	Business linkages and sustainability issues: Role of the local Municipality to sensitise and support local businesses to link business practices to local sustainability issues.	
Students' interactions	Question-and-Answer Session after the Guest lecture	Question-and-Answer Session during and after the Guest lecture	
Number of participants	27	26	27
Assignment due on 16 th August (assess learning)	Act on acquired knowledge (individually or as a group) to refine it; combine it with own experiences/or knowledge from other modules; construct meaning, deductions, conclusions; and form something richer which you take ownership		

Source: Adapted from Mutambara (2024a:10).

Appendix 2

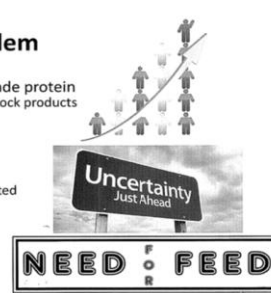
Part of the presentation by the businessman

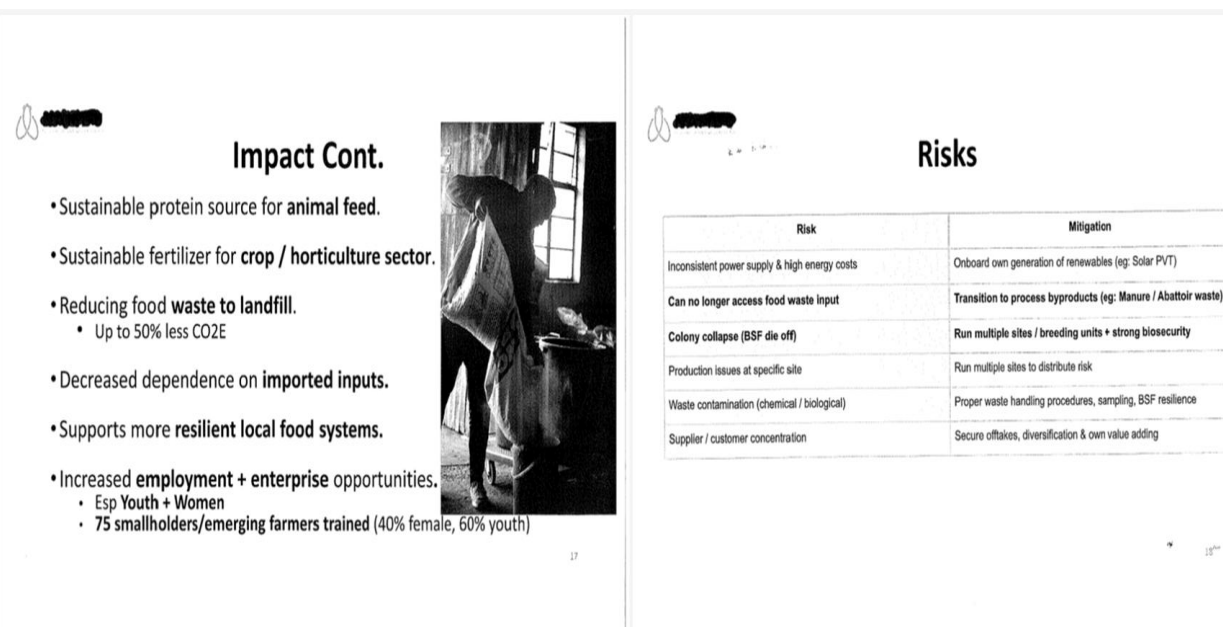
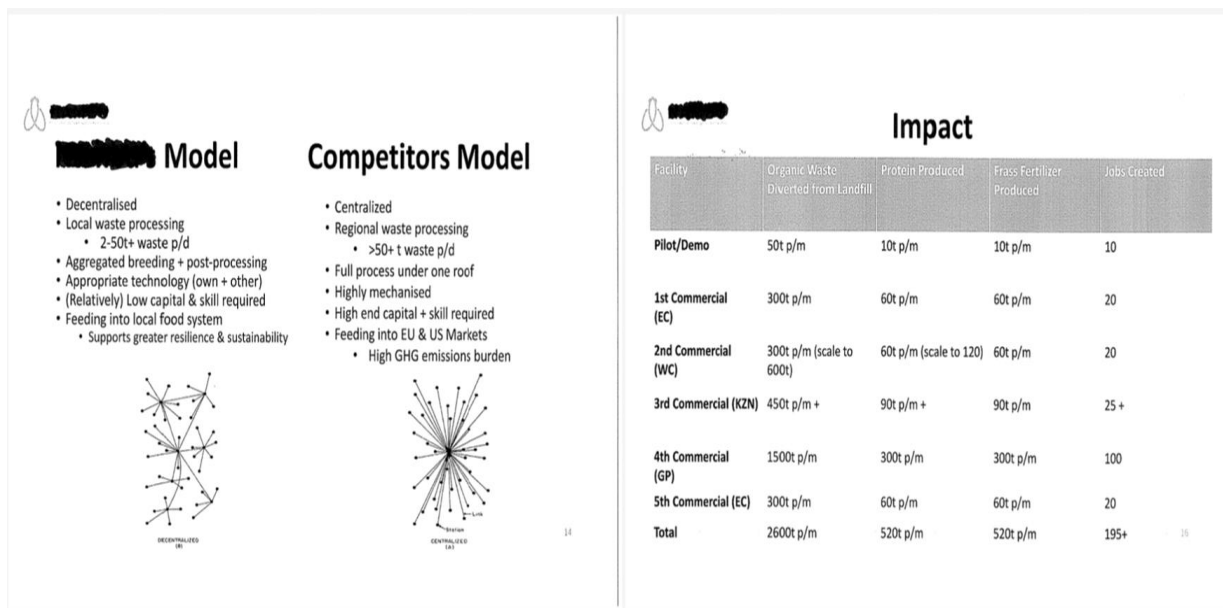
INSECT PROTEIN FOR A SUSTAINABLE FUTURE



Problem

- Looming global shortage of feed grade protein
 - Driven by increased demand for livestock products
 - Approx. 70% increase by 2030
 - Rising populations
 - Increasing wealth
- Global food waste
 - Approx. 30% all food produced is wasted
 - Driven by
 - Inefficient food system
 - Lack of suitable food recycling options





Sustainability Issues Addressed

- Food & Organic Waste
- Protein Availability
- Jobs & New Wealth Creation
- CO3E Emissions



Thanks!

Questions?



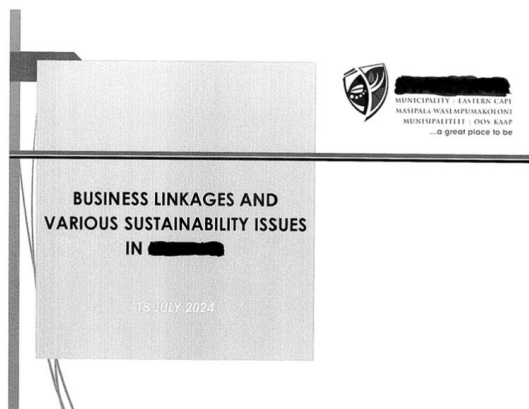
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Appendix 3

Part of the presentation by the director at the local municipality

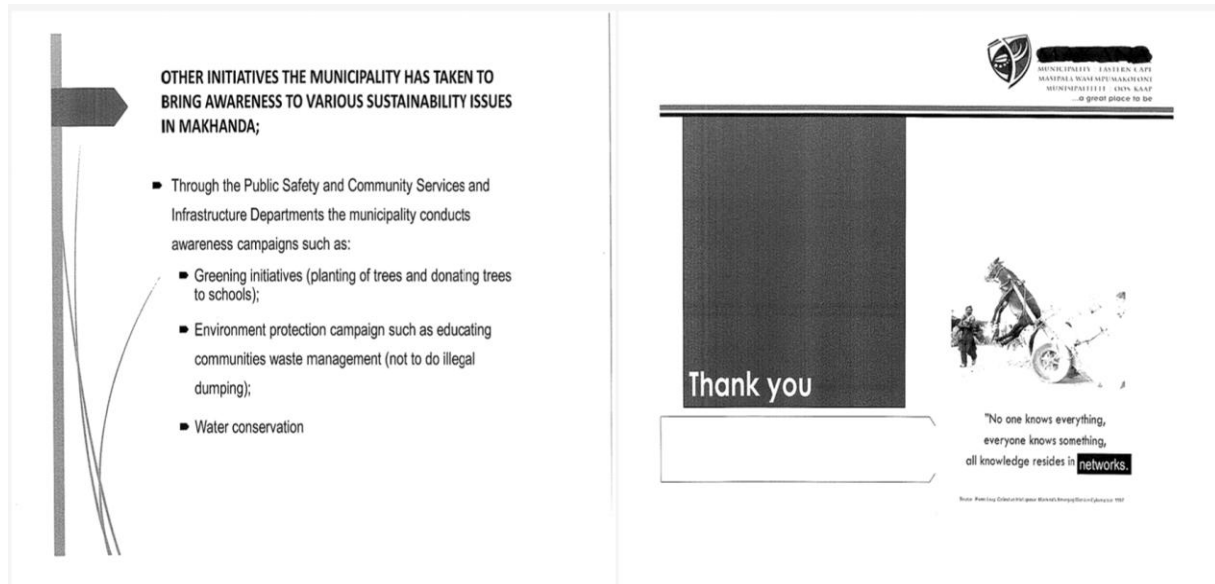


How are municipalities affected by SDGs?

- The Sustainable Development Goals enable a sustainable vision of urban development.
- This vision ensures equal opportunities for all citizens, promotes a healthy living environment and is resilient to crises and climate changes.
- Municipalities are directly responsible for the implementation of a considerable number of tasks for the realization of the SDGs, in accordance with the commitments of the national governments.
- Around 65 percent of the Agenda 2030 goals could not be realized fully without the contributions of regional and local governments.

SUPPORT & SENSITIZING LOCAL SMMEs TO SUSTAINABLE BUSINESS PRACTICES

- Streamline Permitting and Licensing (Compliance related matters)
- Provide access to financial assistance (through government funding such as SEDA, SEFA)
- Capacity/Incubation and Acceleration programme
 - The promotion of Local Marketing
 - Business Development Services
- Advocate for business-friendly policies (develop conducive policies for business operations and sustainability)



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