Education for Sustainable Development in Technical and Vocational Education and Training

A qualitative case study on the integration of Education for Sustainable Development in a Philippine TVET institution.

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Abstract

The international community pledges itself to foster Sustainable Development (SD) to bring changes towards a more social, environmental and economically balanced world. The Republic of the Philippines joined the international attempt to achieve global sustainable development in 1987 with the “Philippine Strategy for Sustainable Development” (PSSD). In 1992 the Philippines agreed to the “Rio Declaration on Environment and Development” (Agenda 21) among 172 further governments. The integration of UNESCO’s Education for Sustainable Development (ESD) concept in formal and informal education and in all processes of lifelong learning was identified as a crucial step in achieving global sustainable development.

Quantitative methods are frequently employed to capture the success and challenges of ESD, which emphasise the use of checklists and numbers to express possible effects on ESD from a macro-level perspective (Rauschmayer and Lessmann, 2013). However, to what extent can the integration of UNESCO’s ESD concept at the micro-level be verified? How aware are the participants in an educational institution about UNESCO’s ESD concept? To what extent is the individual perception and interpretation of ESD approached?

The researcher aims to shed light on these questions with this qualitative case study to turn the focus from the international perspective to the micro-level. By investigating a Philippine school for Technical Vocational Education and Training (TVET), the researcher intends to explore to what extent UNESCO’s concept of ESD is considered as an integrated part in the school’s practice and how the different stakeholders from the school perceive and value the ESD concept. A document analysis and an observation of the setting was conducted as part of the study. Additionally, 24 key informants such as students, former students, teachers and supervisors were approached in single and group interviews.

Under the consideration of the three dimensions of sustainability - the economic, environmental and the social sustainability – findings from the interview and document analysis can be related to UNESCO’s ESD concept. However, the findings imply small awareness of the concept among the stakeholders. Nonetheless, the research findings reveal efforts to foster human development through empowerment and training, which is adapted to the local needs of the students. Possible barriers to the successful integration of UNESCO’s ESD concept in the institution are explored, such as industrial and national legislation and demands. Hence, the interviews implied the participants’ personal values and needs in Technical Vocational Education and Training and revealed the significant role of religion in the case at hand.

Keywords: Sustainable Development, Education for Sustainable Development, Technical Vocational Education and Training, Philippines, Capabilities Approach
# Table of Contents

Abstract .................................................................................................................. 2

List of Figures ........................................................................................................ 6

List of Tables .......................................................................................................... 6

Abbreviations ......................................................................................................... 7

Acknowledgments .................................................................................................. 8

Chapter 1 ............................................................................................................... 9

Introduction .......................................................................................................... 9
  1.1. Education for Sustainable Development in Technical Vocational Education and Training in the Philippines .......................................................... 9
  1.2. Aims and objectives ...................................................................................... 11
  1.3. Limitations .................................................................................................. 11
  1.4. Significance of the study ............................................................................ 12
  1.5. Previous research about ESD in TVET ....................................................... 13

Chapter 2 ............................................................................................................. 14

Key Concepts ....................................................................................................... 14
  2.1 Conceptualising Sustainable Development .................................................. 14
      2.1.1 Limitations of SD .................................................................................. 16
  2.2 Education for Sustainable Development ....................................................... 17
  2.3 Greening TVET ........................................................................................... 19
  2.4 Capabilities Approach .................................................................................. 20
      2.4.1 Significance ............................................................................................ 20
      2.4.2 Definition ................................................................................................. 21
      2.4.3 Origin & Development ........................................................................... 22
      2.4.4 CA and SD .............................................................................................. 22

Chapter 3 ............................................................................................................. 23

The Philippine Context .......................................................................................... 23
  3.1 The country background ............................................................................. 23
      3.1.1 Economic development ........................................................................ 23
      3.1.2 Society & culture .................................................................................. 24
      3.1.3 Environment .......................................................................................... 25
  3.2 Philippine education system ......................................................................... 25
  3.3 TVET in the Philippines ................................................................................ 26
Chapter Six

6.1 Management & providers
6.2 Enrolment rates & certification in TVET
6.3 TVET policies in the Philippines
6.4 TVET and SD
6.5 TVET and CA

Chapter Five

5.1 Presentation of the case
5.2 Presentation of the documents
5.3 Presentation of the observation setting
5.4 Presentation of the interviewees

Chapter Four

4.1 Research design
4.2 Research strategy
4.3 Research methods
4.4 Summary of the methods
4.5 Data analysis
4.6 Reliability and validity
4.7 Ethical considerations

Methodology

3.3.1 Management & providers
3.3.2 Enrolment rates & certification in TVET
3.3.3 TVET policies in the Philippines
3.3.4 TVET and SD
3.3.5 TVET and CA

Analysis & Research Findings

6.1 Findings of UNESCO’s ESD concept in DB Legazpi
6.2 Individual perspectives on ESD in DB Legazpi
6.3 The TVET in DB Legazpi
6.4 Individual perspective on education delivery and content
Chapter 7 ...........................................................................................................................................78

Discussion .........................................................................................................................................78

7.1 Integration of UNESCO’s ESD concept in the training centre’s practice ................78
7.2 Perception of UNESCO’s ESD concept by the key informants .................................82
7.3 Interferences of the school’s assumption and the key informants’ interpretations on ESD 84
7.4 Approaching ESD from the individual perspective ..................................................84

Chapter 8 .........................................................................................................................................85

Conclusion .......................................................................................................................................85

8.1 The findings in the school .................................................................................................86
8.2 The role of religion in development ...............................................................................87
8.3 The limitations of ESD ......................................................................................................87
8.4 Balancing ESD ..................................................................................................................88
8.5 Recommendations .............................................................................................................89

References ......................................................................................................................................91

Appendix ......................................................................................................................................98

Appendix 1: Interview Guide for semi-structured interviews for all groups key informant98
Appendix 2: Observation Guide ..................................................................................................99
Appendix 3: Contents of the National Curricula ......................................................................100
List of Figures

Figure 1. Diagram: Visualizing Sustainability ............................................................. 16
Figure 2. Five Dimensions in Greening TVET ............................................................ 20
Figure 3. Population Pyramid 2013 ............................................................................. 25
Figure 4. Diagram: Enrolment, Graduates, Assessed and Certified, 2005-2010 ................. 28
Figure 5. Qualitative content analysis: Approach and possible findings .......................... 33
Figure 6. Semi-structured interviews: Approach and possible findings ............................ 34
Figure 7. Comparison of the document and interview analysis’ findings: Approach and possible findings .................................................................................................................. 34
Figure 8. Semi-structured interviews: Approach and possible findings ............................ 36
Figure 9. TVET programs in Don Bosco Agro-Mechanical Technology Centre – Legazpi.... 40
Figure 10. Sustainability from the key informants’ perspective ...................................... 64
Figure 11. ESD from the key informants’ perspective ...................................................... 71

List of Tables

Table 1. Trifocalized Management in the Philippine Education and Training System.......... 26
Table 2. Pledge of Allegiance to the Philippine flag ....................................................... 29
Table 3. Checklist for implementing case studies .......................................................... 32
Table 4. Monthly Family income .................................................................................. 42
Table 5. Sources Family income ................................................................................... 42
Table 6. Number of siblings ......................................................................................... 43
Table 7. Documents employed for the analysis ............................................................. 46
Table 8. The interviewees ............................................................................................. 49
Table 9. Overview of National Curricula employed for the document analysis ............... 54
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
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<td>BPO</td>
<td>Business process outsourcing</td>
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<tr>
<td>CA</td>
<td>Capabilities Approach</td>
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<td>CBC</td>
<td>Competency-based curriculum</td>
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<td>CRI</td>
<td>Long-Term Climate Risk Index</td>
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<td>DB</td>
<td>Don Bosco</td>
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<td>DB Legazpi</td>
<td>Don Bosco Agro-Mechanical Technology Centre – Legazpi</td>
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<tr>
<td>DESD</td>
<td>United Nations Decade for Education for Sustainable Development</td>
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<td>ESD</td>
<td>Education for Sustainable Development</td>
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<tr>
<td>HDI</td>
<td>Human Development Index</td>
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<td>HOT</td>
<td>Higher order thinking</td>
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<td>IGP</td>
<td>Income generating projects</td>
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<td>IIS</td>
<td>International Implementation Scheme</td>
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<td>ILO</td>
<td>International Labour Organisation</td>
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<td>LGU</td>
<td>Local governments units</td>
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<td>LO</td>
<td>Learning objective</td>
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<td>MDGs</td>
<td>Millennium Development Goals</td>
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<td>NC</td>
<td>National Curriculum</td>
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<td>NEEAP</td>
<td>National Environment Education Action Plan</td>
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<td>NGO</td>
<td>Non-governmental organisation</td>
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<td>NTESDP</td>
<td>National Technical Education and Skills Development Plans</td>
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<tr>
<td>ODEA</td>
<td>Office for the Development of the Education Apostolate</td>
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<tr>
<td>OFW</td>
<td>Overseas Filipino Worker</td>
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<tr>
<td>OJT</td>
<td>On-job training</td>
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<td>PG</td>
<td>Philippine government</td>
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<td>PSSD</td>
<td>Philippine Strategy for Sustainable Development</td>
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<td>PTQF</td>
<td>Philippine TVET Quality Framework</td>
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<td>PTQF</td>
<td>Philippines TVET Qualification Framework</td>
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<td>PTQF</td>
<td>Philippines TVET Qualification Framework</td>
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<tr>
<td>RMCS</td>
<td>Regional model competency standards</td>
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<td>RPL</td>
<td>Recognition of prior learning</td>
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<td>SD</td>
<td>Sustainable Development</td>
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<td>SDB</td>
<td>Salesians of Don Bosco</td>
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<td>SMAW</td>
<td>Shield metal arc welding</td>
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<td>TESDA</td>
<td>Technical Education and Skills Development Authority</td>
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<tr>
<td>TVET</td>
<td>Technical and Vocational Education and Training</td>
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<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNCED</td>
<td>United Nations Conference on Environment and Development, a.k.a. the Earth Summit, Rio Summit or Rio Conference</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>UNESCO</td>
<td>United Nations Education Science and Culture Organization</td>
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<td>UNESCO- UNEVOC</td>
<td>UNESCO’s International Centre for Technical and Vocational Education and Training</td>
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<tr>
<td>UNFCCC</td>
<td>United Nations Framework Convention on Climate Change</td>
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<td>UNICEF</td>
<td>United Nations Children's Fund</td>
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<tr>
<td>VET</td>
<td>Vocational Education and Training</td>
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<tr>
<td>WCD</td>
<td>World Commission on Environment and Development, a.k.a. The Brundtland Commission</td>
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Chapter 1
Introduction

“We hold the future in our hands. Together, we must ensure that our grandchildren will not have to ask why we failed to do the right thing, and let them suffer the consequences.”

UN Secretary-General Ban Ki-moon, 2007 (cited in UNESCO 2012a, p.5)

1.1. Education for Sustainable Development in Technical Vocational Education and Training in the Philippines

The Global Climate Risk Index 2014 ranked the Philippines among the top three most affected countries by the impacts of weather-related loss events such as storms, floods, and heat waves etc. (Kreft and Eckstein, 2013). In the Long-Term Climate Risk Index (CRI), which covers the period from 1993 to 2012, the Philippines is ranked at place seven. Under the top ten countries, eight belong to the developing countries in the low-income or lower-middle income country group. The Philippines’ latest natural disaster, typhoon Yolanda, internationally known as the super typhoon Haiyan, claimed more than 6000 lives in November 2013 and affected more than 11 million Filipinos. At the same time the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP19) took place in Warsaw. The Philippine lead climate negotiator Yeb Sano called the conference a “sobering reminder to the international community that we cannot afford to procrastinate on climate action and that Warsaw must muster the political will to address climate change” (Nunez, 2013).

The International Community pledged itself to foster development in a sustainable way already over 25 years ago. Their appreciation for Sustainable Development (SD) was communicated in 1987 by the World Commission on Environment and Development (WCED) and in 1992 by the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, to mention just the two greatest milestones in the history of SD. The crucial role of education in order to achieve SD gained increasing attention (UNESCO, 2012a). The United Nations General Assembly declared in December 2002 the period between 2005 and 2014 as the United Nations Decade for Education for Sustainable Development (DESD) (ibid.). The UNESCO is the lead agency for this resolution, which emphasises the role of education in fostering SD. Accountability and learning are key factors in reducing future challenges for future generations and to face the challenges of today and foster human development in a sustainable way.

This qualitative case study aims to shed light on the issues and challenges when integrating a global education concept at the micro level. The researcher intends to explore to which extent UNESCO’s ESD concept is adopted by a Philippine Technical and Vocational Education and Training (TVET) institution in the rural area. Apart from
UNESCO’s SD and ESD concept, the Capabilities Approach (CA) is employed to emphasise the individual perspective in human development approaches.

For this investigation, a document analysis and an observation of the setting were conducted. In this first step of the data collection the role of UNESCO’s ESD concept in public national and organisational documents was investigated. The concept was not claimed to be an integrated part of the school’s practice. However, the researcher intended to explore to which extent practises could be connected to UNESCO’s ESD concept. The second step was addressed to approach the individual perception and interpretation of UNESCO’s ESD concept among the key informants in the TVET centre. These key informants are stakeholders in the TVET institution such as the trainees (students), the technicians (former students who are employed by the TVET centre), the instructors (teachers), and supervisors. The last group refers to the personnel who are familiar with the administrative and organisational tasks in the TVET programs. The groups of key informants were identified and their perspective on ESD was approached in single and group interviews. The third step was a comparison of the status of ESD in the training centre and the perception of the concept from the key informants’ perspective. In the last step the key informants’ individual perceptions and assumptions of ESD was compared with UNESCO’s ESD concept to reveal possible interferences to approach the individual values and needs of TVET at the micro level.

The reputation of TVET is low in comparison to the tertiary education, which refers to the discrepancy of academic and non-academic education. The education’s outcome is often associated with “white-collar workers” and “blue-collar workers”. In any case, TVET is expected to be an active contributor to achieve the Education for All (EFA) goals and the Millennium Development Goals (MDGs) by 2015 (UNESCO, 2012b). Additionally, TVET has been recognised to address issues such as youth unemployment and socio-economic inequalities (Cavanagh, Shaw, and Wang, 2013) and can play an active role in combating poverty and deprivation, urban-rural disparities, food insecurity and limited access to health services (Third congress on Technical and Vocational Education and Training 2012), to mention some of its contributions to human development.

The Philippines is currently among the fastest growing economies in East Asia (Van Trotseburg, 2013). The government’s own GDP growth rate target was outnumbered with a growth rate of 6.6% in 2012. Nonetheless, the economic, environmental and social sustainable issues remain unaddressed. 17 million Filipinos (18.4%) are living under the international poverty line of US$1.25 per day. The PG’s main concern is poverty alleviation and inclusive growth, which is stated in the President’s Social Contract with the Filipino people (ibid.). The successful integration of ESD in TVET contributes to the increased participation of the Philippine population in the economic development.

In the first chapter the research at hand is introduced. The aims and objects are presented and the study is placed within previous research about ESD in TVET. The second chapter demonstrates the key concepts employed for this thesis, UNESCO’s concepts about Sustainable Development (SD) and Education for Sustainable Development (ESD), and the Capabilities Approach (CA). These concepts set the theoretical frame for the investigation. In the third chapter information is provided about the economic, environmental and the social context of the case study and the TVET
system. The methodology chapter presents the methodological framework for this research such as research design, strategy and the research methods. The following chapter illustrates the data collection process and serves as a background for the following analysis chapter. This chapter presents the steps of the analysis process and the findings. In the subsequent chapter the findings are used to answer the research questions. Chapter eight uses again the most significant findings and draws possible implications for ESD recommendations for the particular case.

1.2. Aims and objectives

In this thesis the researcher intends to investigate to which extent UNESCO’s ESD concept is an integrated part in the case of the Philippine TVET institution. The research of the school’s integration and the key informants’ individual perception and interpretation of ESD is in focus. The findings are compared with UNESCO’s ESD concept to reveal possible disparities. In this manner the researcher intends to identify how UNESCO’s ESD concept is approached in the particular case. In brief, these are the objectives:

1) To analyse to which extent the Philippine TVET school considers UNESCO’s concept of ESD as an integrated part of the school's practice.

2) To explore to which extent and in which manner the key informants perceive UNESCO’s ESD concept in their TVET.

3) To compare the findings of objective 1) and 2) to identify possible interferences and overlaps.

4) To analyse how the key informants approach ESD.

1.3. Limitations

The definitions and meanings of SD differ among the various actors in the field (Pavlova, 2009; Tikly, 2013). Hence, definitions may be linked to key priorities and concerns for actors. The SD and ESD concept employed for this study is defined by the United Nations (UN) and consequently presents the interpretation of these concepts by this organisation’s agencies.

ESD is an SD program and serves as one step towards achieving general sustainability. However, the successful implementation of ESD does not put the achievement of SD at the same level. National problems such as the "lack of coherent national policies, discontinuity in teacher training, delay in identifying national occupational needs, unclear policies at the regional level, inadequate registers of training opportunities, and
a shortage of VET teacher" (Stolte, 2009, p. 13) slow down or even frustrate a successful implementation of ESD.

The school under consideration is not deemed to be representative nor are results generated for generalisation. This qualitative case study contributes (1) to explore ESD at the micro level and (2) highlights the perspective of ESD in TVET. Additionally, (3) this investigation adds an angle on the individual perception and assumption of UNESCO’s ESD at the grass root level and may contribute to further (quantitative) research.

1.4. Significance of the study

The Philippine’s population is rapidly growing. The assurance of basic needs of the entire population has become increasingly challenging. Poverty is among the Philippine’s greatest problems (Van Trotsenburg, 2013). In the period from 2007 to 2011, 18.4% or roughly 17 million of the Philippine population were living below the international poverty line of US$1.25 per day (UNICEF 2013). The bottom 40% of the population is living on about US$2 per day, which (ibid.) concerns about 37 million of Filipinos. In this context the agriculture sector increasingly gains attention to assure the citizens’ basic needs. As a main actor in the field of human resources education has to provide efficient TEVT for trained and skilled employees who are capable to foster human development in a sustainable way.

At the UN Conference on the environment and development (UNCED) in Rio de Janeiro 1992, members agreed upon Agenda 21, a global action plan for sustainable development (Pavlova, 2009). The Agenda 21 contains certain sections, which directly address TVET (UNCED, 1992, 36:16; 36:4; 36:13) and emphasise the necessity of a highly individual approach of SD. The development of own priorities and the schedule of implementation should be in accordance with the national and local needs, policies and programmes. TVET is even considered as a “master key” in order to foster SD, peace building and poverty reduction (Pavlova and Huang, 2009). The UNESCO World Conference on Education for Sustainable Development (UNESCO, 2009) highlights the relevance to integrated ESD in all types, levels and settings of education. However, the post-secondary non-tertiary education sector TVET suffers worldwide from a subordinated role in comparison to the tertiary education sector. Nonetheless, TVET has the potential to address social, economic and environmental challenges in a sustainable way if implemented carefully.

Rauschmayer and Lessmann (2013) emphasise the importance for qualitative case study research, which aims to investigate SD at the micro level under consideration of macro data. “Most quantitative work on sustainable development uses macro-data and argues on an aggregate level. The CA’s focus on the individual requires developing strategies for incorporating sustainability in micro-data and/or for combining micro-data and macro-data (for example, Robeyns and van der Veen, 2007; Casini and Bernetti, 1996; see also the results of the wellbebe project2). Given these problems, it is useful to start
with case studies that do not aim at giving a comprehensive view on the sustainability of a country or region, but strive at pointing out some characteristic interrelations” (Rauschmayer & Lessmann, 2012, p.3).

1.5. Previous research about ESD in TVET

Case studies on SD in TVET in the Philippines are barely covered in the research. A related study was published by Dr. Miriam Necesito, Prof. Romeo B. Santos and Mr. John Ian Fulgar (2010): A Results-Based Monitoring and Evaluation Framework to Determine Performance and Success of ESD in TVET: The Case of the Philippines. In her paper she presents an evaluation tool to monitor and evaluate process in ESD in TVET. Her approach is quantitative and excludes the stakeholders’ assumption and interpretation on ESD. Asnul Dahar Minghata and Ruhizan M. Yasinb (2010) provide in their study “A sustainable framework for technical and vocational education in Malaysia”. The framework was developed in cooperation with 12 TVET experts who identified 16 key elements to bring ESD forward limited to the Malaysian context.

The UNESCO’s International Centre for Technical and Vocational Education and Training (UNESCO-UNEVOC) published a collection of case studies about the integration of SD in TVET (Dubois, Balgobin, Gomani, Kelemba, Konayuma, Phiri, & Simiyu, 2010). This publication serves for this study at hand as an example for previous investigations and approaches on how to examine the integration of ESD in TVET.

The six case studies were conducted in Southern and Eastern Africa; in Botswana, Kenya, Malawi, Mauritius, and Zambia. UNESCO-UNEVOC’s attempt to integrate ESD in TVET has persisted for nearly 15 years and was communicated firstly during the Second International Congress on TVE held in Seoul, South Korea in 1999 and through the Bonn Declaration 2004. The UN Decade for Education for Sustainable Development 2005-2014 (DESD) aimed to increase the integration of ESD and has addressed practical concerns relating the integration of the concept (Dubois, et al., 2010). Among the publication of learning resources and exemplar materials, case studies were identified to be crucial for educational planners and leaders to support the successful integration of ESD in TVET (ibid.).

A general finding of the case studies was the lack of knowledge concerning the ESD concept among the TVET educators: “Definitions and descriptions of the concept ‘ESD’ and sustainable development are far from comprehensive, ranging from single issues relating to environment, to economic and cultural concerns, with some being closer to the universal conceptions of sustainable development” (Dubois, et al., 2010, p. 5). Still, the researchers share the finding that ESD is relevant to the TVET programs and institutions in the studies under consideration.

As different approaches to integrate ESD in TVET were identified such as problem-solving, projects, demonstration, role-playing and role-modelling, drama, dance, study tours, industrial placements, ICT tutorials, and rather conventional methods such as
lectures, seminars and workshops (Dubois, et al., 2010). Anyway, the use of innovative and learner-centred methods depends highly on the instructors’ education and professional knowledge (ibid.). Further barriers were identified as the misunderstanding of ESD, the lack of relevant course materials, the lack of time to update courses, the lack of staff expertise, the lack of institutional drive and commitment, and an awkward fit with subject area (ibid.).

Based on the six case studies, Dubois et.al. (2010, p.6) summarised the following recommendations:

(1) “capacity building for teachers and managers in institutions providing TVET. As would be expected, teaching staff that is lowly qualified and deficient in pedagogy and knowledge of ESD could not do a good job” (ibid.).

(2) “further action to disseminate ESD and to popularise. Especially among managers and teaching staff at TVET institutions. The actions and activities related to the dissemination and popularisation of ESD in TVET would help to increase understanding of the concept, and put it in sharp relief. There are other suggested specific actions that are identified in the case studies” (ibid.).

(3) “popularisation is the need to have ESD written in TVET curricular documents. In cases where policy and curriculum documents are silent about it, there is a tendency not to place importance to it in lessons” (ibid.).

Chapter 2
Key Concepts

In this chapter the underlying key concepts for this study are presented. In this research UNESCO’s ESD concept is investigated and serves as the point of reference in combination with the overall SD concept. With the use of the capabilities approach (CA), emphasised prominently by Amartya Sen and Martha Nussbaum, an additional perspective on human development is employed for this research.

2.1 Conceptualising Sustainable Development

Worldwide human development, based on the need for societies to grow, to increase and to extend is challenging economies, societies and the environment at the global, the national and the individual level. The driving imperative for change is the globally
accepted aim of economic development. It is perceived as the vehicle to improve people's quality of life (Cavanagh, et al., 2013). However, this approach of human development has been increasingly questioned. While the impact of human development based on neo-liberal market principles might improve life quality of some people, economic development can also imply strong negative impacts on the global scale and its remaining people. The forms of economic, social and environmental changes from the past 150 years are well known: environmental pollution, degradation of the natural environment, depletion of resources, extinction of species, global warming and climate change (ibid.) to name a few. The concept of Sustainable Development (SD) is described as a "human centred alternative to the narrow instrumentalism of human capital approaches" (Tikly, 2013, p. 17).

The United Nations employs SD as its overarching paradigm (UNESCO, 2012a). In 1987 a definition of SD was stated in the Report “Our Common Future”, also known as the Brundtland Report, by the World Commission on Environment and Development. In order to ensure that development “[…] meets the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations 1987, chapter 3, subchapter 27), it has to be sustainable. In focus are the pursuit of development and an improvement of life quality in balance with environmental, social and economic considerations as expressed in figure 1. Additionally, the interferences and overlaps of the sustainable dimensions are expressed in figure 1: sustainable natural and built environment, sustainable economic development, and equitable social environment. Sustainability itself is the overall aim and SD encompasses the pathways how to achieve it (UNESCO, 2012a). The social, economic and environmental priorities are encompassed in the three pillars of sustainable development: economic development, social development and environmental protection as presented in the United Nations Summit Outcome Documents (United Nation, 2005).

Further documents have stated the UN’s commitment for SD. The Rio Declaration was adopted by the United Nations Conference on Environment and Development (UNCED)¹ in 1992 in Rio de Janeiro. Another resulting document was Agenda 21, ratified by 172 participating governments among a total of 108 heads of states or governments. In the document 27 principles on SD are introduced (UNCED, 1992). The concept of SD is ever since evolving and changing. The global sustainability dialogue highlights certain additional principles such as the system thinking approach, the impact of consumer behaviour, the recognition of competing economic, religious and social values among others (UNESCO, 2012a).

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¹ The UNCED is also known as the Earth Summit, Rio Summit or Rio Conference.
2.1.1 Limitations of SD

SD has been strongly criticised for its rather vague concept (Tikly, 2013). Whitesides (2013, p. xxvii) questions SD because how "Can you get there, if you don't know where 'there' is?". He responds: "What is it? What it is not is a concept with a sharp definition". It is an almost universal agreement in the international discourse: there is no single model of ESD (ibid.). However, the general understanding of SD is identified as "a wish for a world in which human uses of resources do not produce irreversible, global-scale change, where consumption (for example, of energy) is balanced by replenishment (from the sun), and where waste (for example, carbon dioxide) does not produce harmful change (of climate). Ultimately, it is a hope for stability" (ibid).

The SD concept aims to balance human development in terms of social, environmental and economic development. It can be interpreted as a backlash of an increasingly neoliberal market economy ideology, which "has been heavily driven by a set of economic and social relations that privileges the market as the prime structural and ideological governance mechanism [...] which shapes certain global and national social orders that establish asymmetrical power structure represented by dominance by the economically privileged" (Apple, 2009, cited in Cars, 2013, p.2). These certain global and national social orders led especially in the developed countries to capitalism, which is accompanied by the failure "of thinking about actions and reactions in terms of social return rather than financial return" (Whitesides, 2013, xxvii).
“Growth” plays a crucial role in human development concepts. But to combat the negative impacts of economic development in the industrialised and industrialising countries, the world population needs to do rather less than more "- to conserve, to restrain, to shrink - and asked to act for a collective good rather than an individual good, we are not usually as effective" (Whitesides, 2013, xxvii). Consequently the concept is rather popular in societies, which are able to meet their basic needs or even more. The SD concept was implemented to the greatest extent in developed countries. "[...] it is substantially less interesting to the 80% of human kind who go to bed hungry and thirsty. To be told to eat less, and forego electricity, by those who have never thought of doing either is annoying" (ibid.).

The incentives to achieve SD are not strong since the tenor of change is not "bigger" and "more" but "smaller and fewer" or in a nutshell, SD implies the change from a culture of consumption to sustainability on the planetary scale. Possible incentives towards SD are catastrophes, climate change, depletion of resources and the loss of our standard of living. Nonetheless, the impact of unsustainable development seems too distant, especially in the developed countries as a change of old habits (would pay in money, convenience, time, or comfort) seems reasonable (Whitesides, 2013, xxvii).

However, experiences of good practices around the globe are increasingly gaining attention (Cars, 2013). Especially government fostered changes in different industries or in the education sectors seem to be promising. Furthermore, SD is a relatively young concept and needs time to be elaborated. Human development needs a paradigm shift to assure basic needs not alone for the present but also for future generations. Therefore the present generation has to act accountable to reach a better future for subsequent generations.

2.2 Education for Sustainable Development

The negative impact of human development has never been greater as at the present stage. UNESCO’s ESD concept aims to overcome present global economic, environmental and social challenges. Education for Sustainable Development (ESD) fosters both formal and non-formal education to achieve "environmental and ethical awareness, values and attitudes and behaviour consistent with SD and for effective public participation in decision-making" (United Nations, 1992). ESD should be recognised as a process to provide a concept to learn towards sustainability and to support societies to "reach their fullest potential" (UNCED, 1992, 36).

The UNESCO World Conference on Education for Sustainable Development (UNESCO, 2009) highlights the pertinence for ESD.

“ESD, which is relevant to all types, levels and settings of education, is an approach to teaching and learning based on the ideals and principles that underlie sustainability. Since ESD engages with such key issues as human rights, poverty reduction, sustainable livelihoods, climate change, gender equality, corporate social responsibility and protection of indigenous cultures in an
integral way, it constitutes a comprehensive approach to quality education and learning. By dealing with the problems faced by humanity in a globalized world, ESD will shape the purposes and content of all education in the period ahead – ESD is, indeed, education for the future” (UNESCO, 2009, p.8).

Education was identified as having a strong impact on human development. "Education, in many countries, is seen to reproduce and to promote the dominance of the neo-liberal market economy ideology nationally and internationally. This capitalistic conceptualisation of education is being challenged and instead, the alternative post-economic paradigm, which focuses more on people's capacity and global ecology, is being increasingly discussed” (Cars, 2013, p.2). ESD is a broad concept (UNESCO, 2012a) which is based on the principles of SD. Among further SD programs, "ESD [...] is seen as a major contributor towards achieving sustainable futures through promoting an awareness of the issues at all levels, developing particular values and influencing behaviours" (Pavlova, 2009, p.60).

Hence, education is utilised to achieve SD (UNESCO, 2012a): “[...] there is a general agreement that education plays an essential role as we move towards more just and sustainable relationships and hence world order” (Pavlova, 2009, p. 60). Based on the emphasis to increasing awareness and recognition of SD and to support the pivotal role of education to achieve SD, the UN adopted the resolution to establish the Decade of Education for Sustainable Development (DESD). The United Nations General Assembly declared in December 2002 (UNESCO, 2012a) the period between 2005 and 2014 as the United Nations Decade for Education for Sustainable Development (DESD) "in order to emphasize the critical role of education in moving towards a more sustainable world” (ibid.). Additionally, DESD aims to integrate”[...] values inherent in sustainable development into all aspects of learning to encourage changes in behaviour that allow for a more sustainable and just society for all” (UNESCO, 2005, p. 5).

The objectives for the DESD are to (UNESCO, 2005, p.6):

- facilitate networking, linkages, exchange and interaction among stakeholders in ESD;
- foster an increased quality of teaching and learning in education for sustainable development;
- help countries make progress towards and attain the millennium development goals through ESD efforts;
- provide countries with new opportunities to incorporate ESD into education reform efforts.

Among the broad goals established by the General Assembly, following sub-goals were proposed for the DESD (ibid.):

- Provide an opportunity for refining and promoting the vision of and transition to sustainable development – through all forms of education, public awareness and training.
- Give an enhanced profile to the important role of education and learning in sustainable development.
2.3 Greening TVET

Skills for sustainability, green skills, and TVET skills for sustainable development - these terms centralize the effort of integrating ESD in TVET. Among 10 priorities the reorientation of curricula was identified as the most important in order to achieve SD (Majumdar, 2010a). Further areas were identified such as awareness, meaning and scope of ESD, teaching and learning, capacity building, ESD related research, monitoring and evaluation, ESD synergy with other ‘adjectival’ educations, ESD resources and materials, international and region cooperation, national networking, and coordination and financing (ibid.)

In order to achieve “Green TVET”, the three dimensions of sustainability need to be addressed: environmental, economic and social. In some sources “culture” is added as a fourth, underlying dimension (UNESCO, 2009). TVET is described as a contributor to the three dimensions of SD as it serves as a “platform for honing economic sustainability, economic literacy, sustainable production and consumption as well as managing small businesses and moulding the workforce equipped with social sustainability skills and environmental skills” (Majumdar, 2010a, p.7).

TVET and environmental sustainability

The international community adopted the Kyoto Protocol in 1997 (United Nations, 1998) to reduce the worldwide emission of carbon and the impact of global warming. To do so, the responsible use of natural resources, the minimisation of waste and the reduction of potential risks of atmospheric damages caused by businesses were identified as significant contributions towards a “carbon-neutral” world (Majumdar, 2010a). These efforts need to be reflected in all areas of education to address the environmental dimension of sustainability.

TVET and economic sustainability

TVET’s role as a supplier of “skills-for-work” or “training-for-growth” contradicts with the notion of economic sustainability. Economic development was criticized as being too focused on the industry’s benefits, which are often biased with economic outcomes (Majumdar, 2010a). This pillar of sustainability puts the economic literacy, the sustainable production, the sustainable consumption, and the management of small business in the centre of attention.

TVET and social sustainability

Social sustainability is identified as the pursuit of the assurance of basic needs of all people (Majumdar, 2010a). The aim of social sustainability is to assure the opportunity for all people to develop and utilize talents in ways that enable them to live happy healthy and fulfilled lives regardless of gender, ethnicity and geography.
Majumdar (2010) translated these demands into a framework which covers five goals in order to achieve “Green TVET): Green Campus, Green Technology, Green Community, Green research and Green Culture. Figure 2 visualises a framework of how to achieve Green TVET in TVET institutions.

![Diagram of Five Dimensions in Greening TVET](image)

**Figure 2.** Five Dimensions in Greening TVET (Majumdar 2010a, p.8)

### 2.4 Capabilities Approach

One research objective highlights the researcher’s intention to explore how UNESCO’s ESD concept is perceived and interpreted by the key informants of the TVET institution. This objective is based on the central idea of the capability approach (CA), which emphasise the right for individuals to choose life trajectories and the provision of “…the tools that allow them to flourish” (Rauschmayer & Lessmann 2013, p.1). The multilateral organisations’ or governments’ notion is to act accountable. Nonetheless, the participation of all (here: the stakeholders in the Philippine TVET institution) is needed to achieve SD (ibid.) under consideration of individual needs. Consequently the researcher intends to consider the key informants’ perspective in the investigation to understand possible overlaps and discrepancies concerning UNESCO’s ESD concept.

#### 2.4.1 Significance

The CA is a human-centred development approach. Its focus and strongest feature is a paradigm of human development, which is based on individual decisions. It recognises individual differences, values and the diversity of contexts. The CA is based on two
assumptions: the consideration of the individual’s perspective on the development of capabilities and the extent to which stakeholders and governments support opportunities for the individual’s development. If the government fails to provide the opportunities in need, the development of individual capabilities is inhibited. Nussbaum assess a failure to comply as a delinquency of basic justice (Tikly, 2013).

Concerning the implementation of ESD at the national level, the CA implies the consideration of individuals’ participation and the reflection of the country’s cultural habits and regional knowledge. The disregard of CA-based ESD is criticised as following a “top-down” approach when implementing ESD at the national level. “It’s like Bottom Up ways in developing strategic ‘SusDev’. Currently most of the way was Top down. . . . Developing countries learn from developed country, or given from donor country to the recipients countries. Sometimes without we realised, we influenced others to used and implement our parameter which we think ‘good’ or ‘best’” (Pavlova 2007, cited in Pavlova 2009, p. 74).

The CA emphasised the use of informed public debates which is identified as an instrument to foster the participation of all. "Mobilizing marginalized groups around educational issues requires an educative effort on the part of the state and civil society, including the media, and this effort needs to take place using a variety of modalities and at a number of scales" (Tikly, 2013, p. 31). Competing values need to be resolved "through processes of informed public dialogue at different levels" (Tikly, 2013, p.22). Thus the CA can be employed to empower developing countries to develop leadership capabilities and ownership of educational agendas. In doing so, local realities and priorities are considered and their dependency on donors reduced, especially overseas technical expertise in writing policy (Tikly and Dachi, 2009).

2.4.2 Definition

Capabilities are defined as followed (Walker, 2006, p. 165):

"A capability is a potential functioning; the list of functioning is endless. It might include doings and beings such as being well nourished, having shelter and access to clean water, being mobile, being well-educated, having paid work, being safe, being respected, taking part in discussions with your peers, and so on. The difference between a capability and functioning is like one between an opportunity to achieve and the actual achievement, between potential and outcome".

This definition implies the modifying character of capabilities. Capabilities are defined at different scales and levels of abstraction depending on global and national policy frameworks, individual needs and communities within the context (Tikly, 2013).

The significant role of public dialogue is highlighted in the CA to consider individual and common needs of a society. In doing so, "[...] capabilities can also be seen as the ethical basis of rights in education (Brighouse, 2000) in that they provide form and substance beyond what is written in international law and policy frameworks such as the Convention on the Rights of the Child, the MDGs and the Dakar Framework for Action"
(Tickly, 2013, p.20). In this context the term 'agency freedom' is used, which implies "that individuals can act to bring about changes they value" (Tickly, 2013, p.19). In the case at hand, ESD in the Philippine TVET institution is not only reviewed under consideration of UNESCO’s ESD concept but also the individual perception and interpretation of the concept in the institution is aimed to be approached.

2.4.3 Origin & Development

The capabilities approach is a concept in its infancy (Tickly, 2013), which strongly emphasises the realisation of human capabilities and well-being rather than the pursuit of wealth (Sen, 1999, 2009). The approach gained greater attention as Amartya Sen contributed to the creation of the United Nations' Human Development Index (United Nations 2009) with his theories on the CA. Both Amartya Sen and Martha Nussbaum are well-known researchers in the field of the CA.

Martha C. Nussbaum (2011) delivers a comprehensive overview on the rise and development of the CA. The question on a person's real position to do and to be is ubiquitous and visible in diverse cultures (ibid.). Consequently, Nussbaum identifies the roots of the CA in different places around the world. The approach gained increasing popularity among non-European and non-American scholars and is carried on by many scholars from different nations and traditions. Hence, Glassman and Patton (2013) identify common conceptional features among Amartya Sen, John Dewey and Paolo Feire:

(1) Recognition of the importance of information that expands freedom of choice in everyday living;
(2) Access to information that is not limited by any specific social directorate;
(3) Locating and recognizing relevant information that will afford new capabilities;
(4) The ability to use that information as actionable knowledge to make free and productive choices in life.

2.4.4 CA and SD

The capabilities approach may serve as "[...] means for reconceptualising human development" (Tickly, 2013, p. 18) and provides an additional perspective on existing human development concepts such as the SD concept. Nussbaum (2011) values the CA as an extension, which is deepening the SD approach. Hence, Rauschmayer and Lessmann (2013) emphasise the necessity for a CA based SD approach to assure the participation of the individual. Furthermore they point out the challenge of both approaches: “Restricting the reproductive freedom of people now may serve to sustain the world, but it is not in line with the general idea of sustaining well-being of future generations without compromising the well-being of the current generation. This
dilemma usually is silenced in sustainability discussions due to its political sensitivity” (Rauschmayer and Lessmann, 2013, p.2) and needs to be further discussed.

Chapter 3
The Philippine Context

In this chapter the economic, environmental and social context of the study is presented. Additionally, information about the Philippine education system with special focus on the TVET and the role of SD is provided. In this chapter the case study is placed and investigated within the macro-context.

3.1 The country background

The Republic of the Philippines encompasses more than 7000 islands between the Philippine Sea and the South China Sea, east of Vietnam in Southeast Asia. The Philippines is the world’s largest archipelago second to Indonesia (TESDA, 2006). The country is divided into three main areas: Luzon in the north, Visayas in the centre and Mindanao in the south region. These three main areas are again divided into 17 regions, 79 provinces, 117 cities and 1,501 municipalities and 41,982 barangays\(^2\). The capital city Manila is located on the main island Luzon. The Philippines’ total area is about 300,000 sq. km whereof 298,170 sq. km remains to the land area (CIA, 2013).

3.1.1 Economic development

The Philippines possesses about 36,289 km of coastline (CIA, 2013). Their natural resources are timber, petroleum, nickel, cobalt, silver, gold, salt and, copper. The GDP growth fell from 7.6% in 2010 to 3.9% in 2011 but increased up to 6.6% in 2012. The

\(^2\) A „barangay” is the smallest administrative entity in the Philippines.
GDP per capita (PPP) increased from $4,200 (2010), to 4,300$ (2011) and $4500 in 2012. The GDP composition by sector of origin in 2012 is as follows: Agriculture 11.8%, industry 31.1% and the service sector remains with 57.1%. The Philippine labour force is 40.43 million (2012), whereof 32% is employed in the agricultural sector, 15% in the industrial and 53% in the service sector. On the one hand, there is an expected industrial growth rate of 6.8% but on the other hand, the Philippines suffers from an unemployment rate of 7.2 % (Philippine Statistics Authority, 2013a). Especially the age group from 15 to 24 years is concerned: a total of 17.4% is unemployed. The main agricultural products are sugarcane, coconuts, rice, corn, bananas, cassavas, pineapples, mangoes, pork, eggs, beef, and fish. In the industrial sector electronics assembly, garments, footwear, pharmaceuticals, chemicals, wood products, food processing, petroleum refining and fishing are the main distributor. Compared to its regional peers, the Philippines negotiate the global economic recession more easily. The reasons among others are minimal exposure to troubled international securities, lower dependence on exports, relatively resilient domestic consumption and a rapidly expanding business process outsourcing industry. Last but not least the large remittances from four- to five-million overseas Filipino workers (OFW) have played an important role for overcoming global economic and financial downturns (CIA, 2013).

The United Nations Development Programme (UNDP) rated the Philippines place 114 in the ranking of the Human Development Index (HDI) in the year 2012 (UNDP, 2012), which places them in the medium human development category.

The numbers above imply a great need for a skilled workforce: an increasing industrial sector but in combination with high unemployment rates, especially in the age group 15-24 years. Hence, greatly increasing birth rates (see below) are challenging the decreasing agriculture sector. As stated in Agenda 21 (UNCED, 1992, 14,3), the priority must be to improve the capacity of the higher potential agricultural lands and conserve and rehabilitate the natural resources on even lower potential lands in order to meet the needs of an increasing population.

3.1.2 Society & culture

The Philippines’ population is about 105,720,644 (June 2013) with a population growth rate of 1.84% (CIA, 2013). Its population is very young with a median age of 23,3 years. Almost 20% of the Philippine population is distributed to the age group 15-24 (figure 3). Both the maternal mortality rate (2010) with 99 deaths per 100,000 live births and the infant mortality rate (2010) with 18.75 deaths per 1,000 live births are noticeably high (ibid.).

The major religion is Christianity (Roman Catholic 80.9% and further Christian groups) and the minority belong to the Muslim group (5%), which is mainly based in the south of the country. The Philippine population is divided into 160 distinct indigenous groups and they speak a total of 172 native languages and dialects. The two official languages are Filipino (Tagalog) and English, which makes the Philippines the third largest English-speaking country in the world (ibid.).

The Republic of the Philippines has a democratic government. Beningo S. Aquino III,
is the Philippines’ 15th elected president since June 2010 and both head of the state and of the government (ibid.).

![Population Pyramid 2013 (CIA, 2014)](image)

Figure 3. Population Pyramid 2013 (CIA, 2014)

### 3.1.3 Environment

The region is sensitive to earthquakes. In the middle of October 2013, 200 Filipinos died due to a strong earthquake measured 7.2 on the Richter scale nearly and large parts of the infrastructure were destroyed in the centre of the Philippines. Furthermore, the Philippines feature significant volcanic activity. The most active volcano is Mayon (2,462 m), which erupted in 2009 and forced up to 33,000 denizens to escape. The climate in general is tropical marine and characteristic for northeast monsoon in winters and southwest monsoon in summertime.

Due to its location in the western Pacific, the Philippines is accustomed to natural disasters such as cyclones. But in November 2013, the Philippines was hit by the strongest recorded typhoon to make landfall, slammed into the Philippines’ central islands. More than 6000 people died and millions lost their homes (CNN, 2013).

### 3.2 Philippine education system

The Philippine education system is structured in 10 years of basic education, whereof 6 years are distributed to elementary and 4 years to secondary education (table 1). The Philippine basic education is in transition as compulsory pre-school education and 2 years of higher secondary education will be introduced until 2018. After basic education
follows *middle level* education; this encompasses post-secondary non tertiary, technical-vocational, qualifications-based, and non-degree education. In the Philippine higher education the Baccalaureate degree, the graduate, and the post graduate programs are in focus. The accountable agencies for basic education are the Department of Education and for Middle Level the Technical and Educational Skills Development Authority (TESDA). The Commission on Higher Education is in charge of tertiary education (TESDA, 2011a).

Table 1

<table>
<thead>
<tr>
<th>System</th>
<th>No of Years</th>
<th>Accountable Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kindergarten</td>
<td>8</td>
<td>Department of Education</td>
</tr>
<tr>
<td>Elementary</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Middle Level Education</td>
<td></td>
<td>Technical Education and Skills Development Authority</td>
</tr>
<tr>
<td>Post-Secondary, Technical-vocational, Qualifications-based Non-degree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher Education</td>
<td></td>
<td>Commission on Higher Education</td>
</tr>
<tr>
<td>Baccalaureate degree, graduate and post graduate programs.</td>
<td></td>
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</tr>
</tbody>
</table>

*Note: the K to 12 programs are major reform areas currently in process.*

*Source: TESDA, 2011a, p.3.*

The admission criteria for the middle level education require “practical skills and knowledge through formal and non-formal education and training equivalent to at least a secondary education […] or skilled workers who have become highly competent in their trade or craft as attested by industry” (TESDA, 2011a, p.3). The certification process for middle level education students is promulgated in the Philippine TVET Quality Framework (PTQF), a framework designed to ensure competency of the learners.

3.3 TVET in the Philippines

Technical Vocational Education and Training (TVET) is a comprehensive term, which centralises commonly used terms such as Apprenticeship Training, Vocational Education, Technical Education, Technical-Vocational Education (TVE), Occupational Education (OE), Technical Vocational Education and Training (TVET), Career and Technical Education (CTE), Workforce Education (WE), Workplace Education (WE) etc.. The use of the term differs depending on the geographical area (UNESCO UNEVOC, 2014).
Participants at the world congress on TVET, held in Seoul in 1999, decided that the best, most comprehensive term to use is “Technical and Vocational Education and Training” (TVET) (ibid.).

3.3.1 Management & providers

The Philippine TVET system is managed by the Technical Education and Skills Development Authority (TESDA). It is governed by a board with representations from the government, the private sector and the labour sector (Talavera, 2009). Its mandate applies for the provision of the overall polices and direction, the development of systems, the setting of standards, the support of TVET allocation, capacity building, the capability of the TESDA and its partners in delivering relevant TVET programs (TESDA, 2011a). Hence, the private sector plays an important role as direct participant and immediate beneficiary of trained and skilled workforce. Additional active participants are the local government units, the labour sector and other stakeholders in terms of provision and skills development.

Philippine TVET is provided by a network of public (9.75% or 422 total) and private (90.25% or 3,906 total) institutions (TESDA, 2011a): schools, centres, enterprises and communities. “Schools” refer to the direct delivery or provision of TVET programs by the public and private providers as well as TESDA-administered schools (ibid.). The centre-based provider delivers training programs by the TESDA Regional, Provincial and Specialized Training Centres as well as private training centres. The enterprise-based provisions are training programs fostered by companies. Community-based training is provided by the local or community level often in cooperation with local government units (LGUs) and non-governmental organizations (NGO). The school approached in the study under consideration refers to the last form of providers and is supported by a Christian-based NGO.

3.3.2 Enrolment rates & certification in TVET

In the period 2005 to 2010 a total of 11,127,633 persons were enrolled in private and public TVET institutions (figure 4). In contrast, 15.7 million students were enrolled in the tertiary education sector (TESDA, 2011b, p.64) in the same period. The number of TVET graduates during the same period was 9,257,952, which represents a completion rate of 83.2%. The certification rate remains with a total of 2,279,167 of which 2,985,198 were assessed. Consequently, the certification rate is 76.35% (TESDA, 2011a).

In the period 2006 to 2010 a total of 23,476 TVET trainers were trained. The majority of almost 68% or 15,912 teachers were trained in private and the remaining 32% (7,564) were trained in public institutions (ibid.). The mobilised resources for TVET remain from private (53.5%) and public (46.5%) funds (ibid.)
There has been an increasing interest in the Philippine TVET over the past 20 years. The programme accomplishment rates increased in the period 1987 to 2008 from little over 40 000 to more than half a million per annum (Talavera, 2009). At the same time the rate for certified practitioners rose from 18 354 (1987) to 431,071, which means an increase from 42.23% to 78.50% (ibid.).

3.3.3 TVET policies in the Philippines

The PG fostered the development of the National Technical Education and Skills Development Plans (NTESDP), which are hitherto three sequenced plans provided by the TESDA in cooperation with major stakeholders in TVET. The first of the so called "Cycle Plans" was implemented from 1999 to 2004, the second from 2005 to 2009 and the current is running from 2011 to 2016. These plans are provided as a reference or guide for institutions, agencies, local government units, and other stakeholders in the area of technical education and skills development.

3.3.4 TVET and SD

The Philippines’ commitment to nature, people and country might be found in the pledge of Allegiance to the Philippine flag (table 2). “The recognition and accountability of every Filipino to love and protect nature [...] should be among the guiding principles on Philippine Education for Sustainable Development (ESD), which must be inculcated and imbibed by all learners at all levels of the Philippine educational system” (Talavera, 2009, p.234).
The PG employed a National Environment Education Action Plan (NEEAP), which seeks to complete existing government education programmes (Talavera, 2009). The NEEAP for SD (2005-2014), updated in 2009, supports the Enhanced Philippine Agenda 21 and its key elements of SD as Poverty Reduction, Social Equity, Empowerment and Good Governance, Peace and Solidarity and Ecological Integrity.

### 3.3.5 TVET and CA

When conceptualising TVET, the application of the human capital perspective on human development was criticised as being too narrow and instrumental (Tikly, 2013). This approach disregards different contexts and pays insufficient "attention to issues of inclusion and diversity" (Tikly, 2013, p. 32). “Human centred concepts gain greater attention due to raising criticism on a human development approach, which favours economic values over the contentment of sustainability” (Cars, 2013, p.3). Hence, there is a suggestion for a "one-size-fits-all solution to the challenges facing TVET, which does not make sufficient allowances for differences in context" (ibid.). The sustainable development approach focuses on universal solutions and is criticised for not being context based. To provide TVET in balance with local economies, culture and society, CA based SD needs to be considered.
Chapter 4
Methodology

This chapter presents the research methodology. In order to investigate the case, the researcher employed a document analysis, semi-structured interviews as single and group interviews, and conducted an observation of the school setting. Additionally, information concerning the research methodology and how they support the investigation of the research questions is provided. Furthermore, in this chapter the research design, the research strategy, and the sampling method are introduced. Sub-chapters about the data analysis and ethical considerations are further parts of the methodology chapter.

4.1 Research design

The research design provides a framework for data collection and analysis. The employed research design for the study at hand is a single case study design.

The researcher’s interest was based on the investigation of a single Philippine TVET school to explore to which extent UNESCO’s ESD concept is a part of the education offered and to gain an insight into the key informants perception and assumption of ESD. The researcher applied the case study design because it entails an intensive analysis of a single case as intended by the researcher (Bryman, 2012.). The year 2014 is the last year of the UN Decade for Education for Sustainable Development (DESD), which creates certain expectations concerning the implementation of ESD in UN member states such as the Philippines. The single case study design emphasises the use of multiple sources of evidence to investigate a contemporary phenomenon within the natural context, which is bond by time and space (Yin, 2003, cited in Hankock and Algozzine, 2011). Additionally, the aim of case studies is to investigate the complexity and the particular nature of the case in question. However, they are not capable of approving the generalisation of the findings. Instead their value lies in the “hope to gain in-depth understanding of situations and meaning for those involved” (Hankock and Algozzine, 2011, pp. 10-11). Consequently, single case study research supports the development of further understanding of the research topic.
4.2 Research strategy

The researcher employed a qualitative research strategy. The qualitative research strategy "[...] usually emphasizes words rather than quantification in the collection and analysis of data. As a research strategy it is inductivist, constructionist, and interpretivist [...]. Anyway, not all three features need to be subscribed" (Bryman, 2012, p. 714). The qualitative research strategy emphasises the role of the participants: "In qualitative research, the goal is to understand the situation under investigation primarily from the participants’, not the researcher’s, perspective" (Hancock and Algozzine, 2011, p. 9). In the first part of the investigation a document analysis is implemented in order to examine the public side of the institution and the communication of ESD in the TVET. In doing so, a rather deductive approach is chosen. However, the second part of the study requires an inductive approach. The personal perception of key informants is into focus in order to gain an insight into the individual perception and assumption of ESD.

The scientific value of this research strategy is "[...] the more holistic qualitative approach to investigate an array of possible source of the problem that could later serve as the basis for a quantitative study" (ibid.).

4.3 Research methods

Following research methods are considered as being supportive to investigate the research topic: the qualitative content analysis, the semi-structured interview, the group interview and the observation. Table 3 provides a checklist for the researcher to clarify why, which method was employed.
<table>
<thead>
<tr>
<th>Research Questions</th>
<th>What Information is needed?</th>
<th>How is the Information gathered?</th>
<th>Why is the method appropriate?</th>
<th>Other Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) <em>Does the Philippine TVET centre consider UNESCO’s ESD concept as an integrated part of school's practice? If so, to which extent?</em></td>
<td>Information on school activities which can be related to UNESCO’s ESD concept</td>
<td>Qualitative Document analysis; Observations of the setting</td>
<td>The documents serve as a reflection of the institutions attitudes</td>
<td>The documents are chosen in accordance to the method; the documents are be reviewed considering the UNESCO’s publications of ESD &amp; SD</td>
</tr>
<tr>
<td>ii) <em>Do the groups of key informants perceive UNESCO’s ESD concept in their TVET institution? If so, to which extent? How do they perceive ESD?</em></td>
<td>Personal perception of SD &amp; ESD; SD &amp; ESD in relation to the school; general information about the education, the school’s life, program impact and practices from the key informants’ perspective</td>
<td>Semi-structured interviews; group interviewees</td>
<td>Semi-structured interviews provide a frame which simplifies the collection of relevant information; the researcher’s perspective remains “open” at the same time</td>
<td>The researcher needs (1) to analyse the data and (2) compare the findings with the UNESCO’s publications of ESD concept in order to answer the research question</td>
</tr>
<tr>
<td>iii) <em>Does the school’s and the key informants’ assumption of the ESD concept overlap? Are there any (reality-) gaps?</em></td>
<td>Information about discrepancies and disparities of the school’s and the key informants’ assumption of ESD</td>
<td>A comparison of data retrieved from (i) and (ii); information is synthesised from the comparison</td>
<td>Information is retrieved in the analysis; it is a comparison</td>
<td>The answer to this research question is answered through the analysis</td>
</tr>
<tr>
<td>iv) <em>How do the key informants approach ESD? How does it differ from UNESCO’s ESD concept?</em></td>
<td>Information about personal needs and values in education and</td>
<td>a) The findings (ii) will be reviewed considering the personal values &amp; needs in TVET; b) and analysed considering UNESCO’s publications of ESD &amp; SD</td>
<td>Information is retrieved in the analysis; it is a comparison</td>
<td>The answer to this research question is answered through analysis</td>
</tr>
</tbody>
</table>

*Source*: based on Handcock, 2011.
4.3.1 Qualitative document analysis

In order to answer the research question “Does the Philippine TVET institution consider ESD as an integrated part of school's the practice? If so, to which extent?” a qualitative document analysis was employed. This method supported the investigation of the school’s understanding and its theoretical assumption of ESD. Public records are of special interest for researchers because they are a reflection of “[…] beliefs, attitudes, and behaviours beyond those of a particular individual” (Hancock and Algozzine, 2011, p. 56).

When implementing a qualitative content analysis it is crucial to provide validity by carefully choosing the documents being analysed (Bryman, 2012). The sample of documents for this investigation included official documents from the PG at national and provincial level, and from the TVET institution. Documents were chosen for the analysis considering further limitations: the documents are (a) related to the research question, (b) created in the period 2009-2014, (c) either public documents (annual reports, mission statements, press releases, advertisements) or non-public documents (newsletters, organizational chart, manuals for new recruits, course syllabi, lesson plans, assignment hand outs, informational hand outs, public relation materials published as online resource or as printed medium) and (d) of high quality for the researcher. The latter decision was based on (1) authenticity, (2) credibility, (3) representativeness and (4) meaning (J. Scott, citied in Bryman, 2012, p.544). After the collection of valid documents was completed, the documents were reviewed considering UNESCO’s concept of ESD and SD. This approach reveals the current situation of ESD as defined by the UNESCO in the Philippine TVET institutions. For the investigation a qualitative and ethnographic content analysis were employed.

Figure 5 visualises the approach of the qualitative content analysis. The documents (red circle) were reviewed considering UNESCO’s publications of ESD & SD (blue circle). The findings of this analysis shed light on the question to which extent UNESCO’s ESD concept is an integrated part of the school’s practice (purple area). The size of this overlapping area varies corresponding to the extent of interferences. Consequently, figure 5 displays a hypothesis and is not representative for the result of the analysis.

![Figure 5. Qualitative content analysis: Approach and possible findings.](image-url)
4.3.2 Semi-structured interviews

In order to approach the individual perception of UNESCO’s ESD concept, key informants from among the trainees, the technicians, the instructors, and the supervisors were interviewed. The data were collected in semi-structured single and group interviews, which "[...] invite interviewees to express themselves openly and freely and to define the world from their own perspectives, not solely from the perspective of the researcher" (Hankock and Algozzine, 2011, p.45). The researcher developed an interview guide (appendix 1) to cover research questions such as “Do the groups of stakeholders perceive UNESCO’s concept on ESD in their TVET institution? How do the groups of stakeholders perceive ESD? If so, to which extent?”. The interview guide was slightly modified among the different groups of key informants to provide the comparability of the interview answers. The researcher’s intention was to collect information on the key informants’ perception of ESD in the school to compare it in a second step to UNESCO’s publications of ESD and SD. This approach of data analysis is visualised in figure 6.

![Figure 6. Semi-structured interviews: Approach and possible findings.](image)

A further step was the comparison of the findings retrieved from the interview and the document analysis. Where can be overlaps and interferences among the school’s approach of ESD and the interviewees’ interpretations and assumptions of ESD identified? Are both findings coincide? This third step is visualised in figure 7.

![Figure 7. Comparison of the document and interview analysis’ findings: Approach and possible findings.](image)
One group of the key participants were the trainees of the TVET institution. To provide their point of view concerning ESD in the best way possible, the trainees’ were not approached in face-to-face semi-structured single interviews but in group interviews. The researcher utilised group interviews to gain an insight into the trainees’ assumption of ESD as they have experienced it in the TVET institution. Interview groups offer a great opportunity to gain the participants’ perspective. Due to the group constellation the researcher needs to relinquish a certain amount of control. In this way concerns by participants can surface more freely. In any case, the risk of not fully capturing all participants’ viewpoints (Hancock and Algozzine, 2011) in a group of interviewees needs to be considered. The groups’ size was four persons for each group. When utilising this method, the researcher aims to gain a better access to the trainees and their individual attitudes by creating a peer group in which they feel comfortable.

4.3.3 Observation

The observation of the setting is considered as an additional method in order to answer the research question to which extent UNESCO’s concept of ESD is an integrated part of TVET in the Philippine case. An observation of the setting was employed for two reasons. This observation is based on Fuhrer’s theory about Behaviour Settings (Fuhrer, 1990). A behaviour setting is an event which is characterised by time, place, and social rules. Behaviour Settings serve the individuals as a system for daily instructions, which are created by former actions of setting participants. Based on this notion, an observation of DB Legazpi’s environment seems as an appropriate tool to investigate to which extent UNESCO’s ESD concept is an integrated part of the institution’s practice. In the concept the influence of the setting on a person’s behaviour is emphasized. Consequently, certain settings have a certain impact on people’s behaviour. So the idea behind the setting observation is to explore to which extent the setting of DB Legazpi fosters sustainable behaviour of setting participants.

The second reason is based on the philosophy to practice what is being preached. Having a good role model in sustainable behaving, working and living is still the best teacher. Therefore sustainability needs to be integrated in the institution’s environment to support sustainable learning processes as well outside the classroom. As part of five goals towards “greening” TVET – green technology, green community, green research and green culture – “green campus” emphasizes the “effective management of energy resources including adaption initiatives, management of water resources, pollution control and wastes” (Majumdar, 2010a, p.5 f.). In doing so, the environmental sustainability is clearly addressed. However, in this setting observation the researcher aimed to explore all three dimensions of sustainability.

The researcher employed an observation guide (appendix 2) in order to identify ESD supportive aspects in the setting of the Philippine TVET school. Instead of providing a “check-list” and look for predefined aspects, the researcher tried to keep her mind accessible for all kinds of sustainable aspects in the observation setting by using a scheme to identify information concerning the economic, environmental and social sustainability.
4.3.4 Summary of the methods

The researcher aims to approach the research question from different viewpoints: (1) from the school’s and from (2) the key informants’ perspective. Therefore first step is a qualitative document analysis. In doing so, public documents are reviewed to reveal possible interferences and discrepancies in accordance with UNESCO’s publications of ESD and SD. The second step is the accomplishment of semi-structured interviews and group interviews. The key informants’ perception of ESD is again reviewed under consideration of the ESD concept. The comparison of the findings from the interviews and the findings from the document analysis are considered as the third step. The last step addresses the key informants’ interpretation and assumption of ESD. These steps are visualised in figure 8.

![Figure 8. Semi-structured interviews: Approach and possible findings.](image)

4.4 Sampling

Certain factors limited the sampling process: the scope of the master's thesis, the limited amount of time, security issues and limited private financial resources. Due to these limitations, the researcher had to take certain decisions concerning the data collection process. The sampling strategy employed is purposive sampling which is a non-probability form of sampling. Sampling was done in a strategic way with focus on characteristics relevant to the research question. The sampling for the key informants was done by groups: trainees, technicians, instructors, and supervisors.

The country of the Philippines and the school's province is familiar to the researcher, which facilitates the access to the research area. The provincial technical education and skills development authority (TESDA) recommended the chosen TVET centre for this study.
TEVT as an education sector suffers from a rather negative reputation in comparison to the tertiary sector. But over the past years, it has gained increasing attention. However, there is still a lack of qualitative research on ESD in TVET in the Philippines. It may serve countries in a sustainable way, addressing social, economic and environmental development if implemented carefully. For this reason, a TEVT institution was chosen instead of an institution from another education sector.

The data was collected from 25 interview participants within distinct groups of informants: trainees, technicians, instructors, and supervisors. The aim was to provide a sample, which is representative for the population in the school in terms of age and gender. Additionally, three equally sized groups of trainees and instructors were selected. The female trainees were the minority group nonetheless their representation in the interview groups was kept 1:1 to assure their voices are considered in the interviews. Further information about the interview participants is provided in chapter 5, “The data collection”.

It is highly important to highlight that the researcher cannot generalize her findings to a population since the sampling method is not a probability sampling method and participants are not chosen on a random basis.

4.5 Data analysis

Semi-structured interviews and group interviews, document analysis and an observation were employed as research methods. The data retrieved from the interviews and the group interviews were transcribed and analysed using thematic analysis. Summarizing and interpreting the information is a basis for understanding the topic being investigated (Hancock and Algozzine, 2011). For the document analysis a combination of ethnographic and qualitative content analysis was employed.

The thematic analysis “emphasizes the role of the investigator in the construction of the meaning of and in texts. There is an emphasis on allowing categories to emerge out of data and on recognizing the significance for understanding the meaning of the context in which an item being analysed (and the categories derived from it) appeared” (Bryman, 2012, p. 714).

Categories or themes were retrieved from the collected interview data and were examined under consideration of the research question. The findings were tentative answers to the research question, which were categorised into themes. The process of themes synthesises is finished when the theme is well supported by all available information (Hancock and Algozzine, 2011). When synthesising themes, following points need to be considered (ibid.): (1) the themes must reflect the purpose of the research and respond to the questions of investigation, (2) the themes must evolve from a detailed analysis of the collected information, (3) the development of themes that represent separate and distinct categories of findings, (4) each topic should be as specific and explanatory as is allowed by the data and (5) the themes should be of comparable complexity.
The emerged themes reflect the stakeholders’ assumption on the ESD concept as presented in the single and group interview. After the data analysis was completed, a comparative analysis was conducted in order to synthesise discrepancies and interferences among the stakeholders’ and the schools assumption on ESD, and the UNESCO’s concept on ESD.

4.6 Reliability and validity

Reliability and Validity are significant to provide quality of research for the researcher (Bryman, 2012). Initially developed in quantitative research, reliability and validity in qualitative research are approached from two positions. One position is rather close to the quantitative approach when developing assessment criteria, the other position supports an own approach and emphasizes trustworthiness and authenticity of the research (ibid.). In this research, the prior approach is chosen to establish and assess the quality of this case study.

Validity is concerned “with the integrity of the conclusions that are generated from a piece of research” (Bryman, 2012, p.717). The internal validity was identified as a strength of qualitative research (LeCompte & Goetz 1982, cited in Bryman, 2012). Internal validity refers to the “match between researchers’ observations and the theoretical ideas they develop” (ibid.). The participation in the setting and the possibility to confirm the understanding of interview answers contribute to the validity of this research. Additionally, the use of triangulation offered the possibility to cross-check findings as different sources of data – document analysis, semi-structured interviews, and an observation of the setting – were employed.

Reliability refers to the degree to which a study can be replicated (Bryman, 2012, p.390). Due to the character of qualitative research, the repetition of a social setting is impossible. However, in the research at hand the researcher aims to provide traceability of her conclusions. For the data collection an interview and observation guide were provided. All interviews were fully transcribed to provide the possibility of peer review and to give the opportunity to follow the researcher’s interpretations on the data.

4.7 Ethical considerations

Social researchers have to be aware of ethical issues when conducting an investigation. Diener and Crandall (1978, cited by Bryman, 2012, p. 135) identify four areas, which researchers have to be aware of in order to uphold ethical standards. Ethical principles are transgressed when the social researcher causes (1) harm to the participants, (2) a lack of informed consent, (3) an invasion of privacy or (4) deception.

The participation in single and group interviews was voluntary. Despite possible loss,
the participants were clarified about the research topic to avoid a lack of informed consent. To protect the participant’s identity, the name and further identifying factors of the interviewees are kept anonym. In accord with the TVET institution, the name and location of the training centre is published. In that way, detailed information and descriptions about the school setting may be provided thus enriching the understanding of findings. As the researcher is asking for the subjective perception of the participant, it is crucial to show sensitivity in communication and interaction. The interviewees and members of the group interviews had the right to end the interview. All information obtained from interviews and group interviews is anonymous and has be treated confidentially.

Chapter Five
The Data Collection

This chapter contains information about the data collection process and describes the micro-level context. Therefore relevant background information about the particular TVET institution is presented. A comprehensive overview on the programs, the trainees’ background and statistical information about the TVET institution under consideration is provided. Additionally, the sources of the data are introduced and their contribution to this study is described. The chapter serves as a background to the following chapter six, “Analysis and presentation of research findings”.

5.1 Presentation of the case

The Don Bosco Agro-Mechanical Technology Centre – Legazpi (DB Legazpi) is a school for technical vocational education and training. Since its founding in 2001 by the Diocese of Legazpi and the Salesians of Don Bosco, it follows the mission “To empower the youth and their families to attain socio-economic sufficiency through skills training integrated with value formation and entrepreneurship” (DB LEGAZPI, 2013, p.1). The religious congregation Salesians of Don Bosco (SDB) was founded by the Priest St. John Bosco in the 18th century in Italy. His main concern was the education and welfare of youth from poor families. Up to now 19 TVET centres in the Philippines and more than 700 TVET institutions in more than 130 countries are teaching to “improve the quality of life of the youths from poor families particularly in the rural areas through skills training, values formation, and entrepreneurship” (DB LEGAZPI, 2012, p.2).

This training centre is situated in the south of the Philippine main island Luzon, in the Bicol region. The province is called Albay and the school is situated 16 km away from
the province’s capital, Legazpi City in the barangay\textsuperscript{3} Banquerohan. The catchment area of trainees is mainly the province’s area but around (10\%) of the trainees are from the surrounding provinces Camarines Sur, Catanduanes, Masbate, Sorsogon, and other areas.

The offered TVET programs are agro-mechanics and general electricity. Since the SY 2004-2005 the program “Agriculture Technician” was offered which was changed in the school year 2012/2013 into “Agribusiness”. A description of the programs is provided in figure 9. The trainees undergo a three semester program (1.5 years) whereof two semesters are spent as in-centre training and one semester is a supervised in-plant or farm training or on the job training (OJT). The total cost for one program is 30,000 Philippine peso (~485 \text{"€") whereof 70-75\% is covered by the training centre. The trainees pay a counterpart of 5,700 Pp (92 \text{"€") for agribusiness and 6,700 Pp (105 \text{"€") for agro-mechanics and general electricity. Due to the low counterpart the trainees are scholars of the TVET programs. The training centre is a private catholic institution where trainees obtain national certificates, which enable them to work nationally and internationally.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{tvet_programs.png}
\caption{TVET programs in Don Bosco Agro-Mechanical Technology Centre – Legazpi (DB LEGAZPI, 2012, p. 3 ff.)}
\end{figure}

\textsuperscript{3} A “barangay” (Tagalog) means village or district and stands for the smallest administrative division in the Philippines.
Unemployment and poverty, Philippines’ greatest issues, entail various side effects like youth criminality, health problems and high maternal and infant mortality. To address these social problems it is crucial to make the labour market accessible and provide skilled employers for sectors where they are most needed.

A total of 33 persons work for the Don Bosco Agro-Mechanical Technology Centre (January 2013). In the 13th batch 213 trainees are enrolled whereof 98 trainees are enrolled in the program agro-mechanics, 75 trainees in general electricity and 40 trainees in agribusiness. The number of trainees has increased steadily over the past 12 years. In comparison to the first batch (47 trainees), the number of trainees has almost quadrupled. Significant are low enrolment rates among female trainees. The average number of female trainees in the past 13 years is only 18%. On the other hand, female enrolment rates differ from program to program. The agricultural technician/agribusiness program tend to have more female trainees. In the current batch of 2013/2014, two third of the enrolled trainees are female. The average dropout rate between the batches 2001/2002 and 2012/2013 is about 7% with a high variance. Consequently, in some years 100% of the cohort completed the program and then again 15% dropped out in the year 2003/2004, which was the highest rate in the past 13 years.

As reflected in the mission statement of DB Legazpi, the school focuses on the education of young people from a low economic background. An investigation of batch 11, training year 2011-2012 by the DB Legazpi revealed that the majority (31%) of the trainees’ families have a monthly family income of 4,501-6,000 Pp (~73-97 €). Further findings about the families’ income can be found in table 4. For comparison, the Philippine Statistics Authority uses 6000 Pp monthly average family income as a parameter to describe the poorest decile in the 2012 Family Income and Expenditure survey (Philippine Statistics Authority, 2013b). Accordingly, the poorest decile is presented in the 11th batch in DB Legazpi.

Great support for graduates and the farmer in the region is provided through DB Legazpi’s multi-purpose Cooperative, which provides seed capital or in-kind, technical support and capacity building, implementation of various enterprises in farms, marketing assistance and distribution of quality inputs (DB LEGAZPI, 2013, p.3).
More than half of the trainees’ families earn their income in the agriculture and fishery sector. A quarter of the families generate income as wage earner followed by 12% who depend on relatives because of disabled or deceased parents. An overview of sources of family income is provided in table 5.

Table 5
Sources of family income

<table>
<thead>
<tr>
<th>Source of Income</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming/Fishing</td>
<td>96</td>
<td>54</td>
</tr>
<tr>
<td>Wage Earning</td>
<td>43</td>
<td>25</td>
</tr>
<tr>
<td>Enterprising</td>
<td>16</td>
<td>9</td>
</tr>
<tr>
<td>Dependent to Relatives (disabled/deceased parent)</td>
<td>22</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>177</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: DB LEGAZPI, 2011a, p. 4

A further feature of the 11th batch is the number of siblings as presented in table 6 below. The majority of DB Legazpi trainees have 7-9 siblings (42%), followed by trainees having 4-6 siblings.
Table 6
Number of siblings

<table>
<thead>
<tr>
<th>Number of Sibling</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>31</td>
<td>18</td>
</tr>
<tr>
<td>4-6</td>
<td>52</td>
<td>29</td>
</tr>
<tr>
<td>7-9</td>
<td>74</td>
<td>42</td>
</tr>
<tr>
<td>More than 9</td>
<td>20</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>177</td>
<td>100</td>
</tr>
</tbody>
</table>

*Source: DB LEGAZPI, 2011a, p. 4*

The average household size in the Bicol region is 4.9 Persons which is above the national average of 4.6 (Philippine Statistics Authority 2010). The majority of trainees have 7-9 siblings, which adds a great financial pressure on the low-income families.

5.2 Presentation of the documents

The documents employed for the analysis are presented in table 7. The colours in the table visualise the different origins of the documents. The documents provided by the TESDA such as the National Technical Education and Skills development Plan 2011-2016 (NTESDP) (TESDA, 2011a) and the National Curricula (NC) (TESDA, 2004, 2005a, 2005b, 2007) are guiding for Philippine TVET. The researcher aims to place DB Legazpi within this context to gain a deeper understanding of how TVET is delivered in the institution and to which extent ESD plays a role in it. These documents were provided by the TESDA and retrieved online. The National Technical Education and Skills Development Plan 2011-2016 (NTESDP) is one of three sequent plans and reveals a strong impact on TVET at the present stage. Considering the use of NCs in DB Legazpi’s education, the selection of the NCs was done. Though two NCs (Motorcycle/Small Engine Servicing and NC II Refrigeration & Air-Conditioning Servicing, NC II) were not available online and were not considered in the analysis.

Further documents were reviewed, including from the Office for the Development of the Education Apostolate (ODEA, 2011) and from DB Legazpi (DB LEGAZPI, 2011b, 2012, 2013). The TVET centre is subordinated to the directory, which implies again an external impact on the school’s practice. The documents edited by the training centre itself are used to investigate to which extent the described school practices can be relates to UNESCO’s ESD concept. The DB Legazpi documents are retrieved both online and from the staff at place. The staff was asked to provide any kind of information about the training centre for extern and intern use from the past 5 years. Therefore a pre-selection has taken place by the DB Legazpi staff which might
influence the findings of the analysis. In any case, the researcher had to rely on the training centre’s staff in the process of the data collection since some of the documents were not anymore public. In a second step, the researcher chose relevant documents based on the content relevance to answer the research question. Documents presenting DB Philippines and DB Legazpi’s work seem to be most convenient because the institution’s gist is communicated in those. In this way the relevance of UNESCO’s ESD concept could be investigated.

The document analysis was based on both; a qualitative and ethnographic content analysis. The review of the documents was guided by the three dimensions of sustainability (economic, environmental, and social), which were identified as themes beforehand. The search of underlying themes in documents is described as a qualitative content analysis (Bryman, 2012). But the use of pre-decided themes is significant for the ethnographic research. The constant revision is typically for ethnographic researchers but this step was not conducted because the researcher had a clear concept in mind when analysing the documents.

All documents were written with a certain purpose in mind and the actual practice of the education cannot be revealed by looking at the documents alone. To validate the findings from the document analysis, an observation of the setting was employed.
<table>
<thead>
<tr>
<th>Document title</th>
<th>Writer</th>
<th>year</th>
<th>Type</th>
<th>Recipient</th>
<th>Purpose</th>
<th>documents deriving from the state</th>
<th>documents deriving from private sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Investing in the 21st Century, Skilled Filipino Workforce. The National Technical Education and Skills Development Plan 2011 – 2016.</td>
<td>TESDA</td>
<td>2011</td>
<td>guide, digital document</td>
<td>institutions, agencies, local government units and other stakeholders in the area of technical education and skills development</td>
<td>plan, strategy for implementation</td>
<td>intern</td>
<td>extern</td>
</tr>
<tr>
<td>2. Bosco Tech. Philippine Directory.</td>
<td>Office of the Development of the Educational Apostolate (ODEA)</td>
<td>2011</td>
<td>brochure for hand out, hard copy</td>
<td>people interested in the work of the ODEA, donors</td>
<td>informational (commercial?) reasons, presentation of all DB TVET institutions in the PH</td>
<td>intern</td>
<td>extern</td>
</tr>
<tr>
<td>3. &quot;A shift to 10th gear in uplifting the life of the marginalized youth in rural areas our social commitment&quot;</td>
<td>DB Agro-Mechanical Technology Centre Banquerohan, Legazpi City</td>
<td>2011</td>
<td>brochure for hand out, hard copy</td>
<td>people with interest in DB Legazpi: persons from the area, potential business partners, potential (local) donors, families and trainees</td>
<td>information about the last 10 years work of DB Legazpi</td>
<td>intern</td>
<td>extern</td>
</tr>
<tr>
<td>4. &quot;Agricultural Development Initiative Programs for Poverty Alleviation in Bicol Region through Skills Training, Technology and Entrepreneurship&quot;</td>
<td>DB Agro-Mechanical Technology Centre Banquerohan, Legazpi City</td>
<td>2013 Dec.</td>
<td>brochure for hand out, hard copy</td>
<td>people with interest in DB Legazpi: persons from the area, potential business partners, potential (local) donors, families and trainees</td>
<td>communication of DB vision and mission</td>
<td>intern</td>
<td>extern</td>
</tr>
<tr>
<td>5. To empower youth and their families to attain socio-economic sufficiency”; Training Programs: Agro-Mechanics, Agribusiness, General Electricity; POVERTY ALLEVIATION of youth of rural areas through an improved agricultural productivity</td>
<td>DB Agro-Mechanical Technology Centre - Legazpi</td>
<td>2012</td>
<td>leaflet, digital document</td>
<td>trainees and their families</td>
<td>information about DB TVET centre and programs; aims to attract trainees to enrol in one of DB’s programs, commercial reasons</td>
<td>intern</td>
<td>extern</td>
</tr>
<tr>
<td>Document title</td>
<td>Writer</td>
<td>year</td>
<td>Type</td>
<td>Recipient</td>
<td>Purpose</td>
<td>documents deriving from the state</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
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<td>------------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>----------------------------------</td>
<td></td>
</tr>
<tr>
<td>6. Animal Production NC II</td>
<td>TESDA</td>
<td>2004</td>
<td>digital document</td>
<td>TVET institutions (principal, supervisors, instructors)</td>
<td>National curriculum, content of TVET in the Philippines</td>
<td>intern use</td>
<td>extern use</td>
</tr>
<tr>
<td>7. Electrical Installation &amp; Maintenance NC II</td>
<td>TESDA</td>
<td>2005</td>
<td>digital document</td>
<td>TVET institutions (principal, supervisors, instructors)</td>
<td>National curriculum, content of TVET in the Philippines</td>
<td>intern use</td>
<td>extern use</td>
</tr>
<tr>
<td>8. Horticulture NC II</td>
<td>TESDA</td>
<td>2005</td>
<td>digital document</td>
<td>TVET institutions (principal, supervisors, instructors)</td>
<td>National curriculum, content of TVET in the Philippines</td>
<td>intern use</td>
<td>extern use</td>
</tr>
<tr>
<td>9. Shielded Metal Arc Welding (SMAW) NC II</td>
<td>TESDA</td>
<td>2007</td>
<td>digital document</td>
<td>TVET institutions (principal, supervisors, instructors)</td>
<td>National curriculum, content of TVET in the Philippines</td>
<td>intern use</td>
<td>extern use</td>
</tr>
</tbody>
</table>
5.3 Presentation of the observation setting

The observation of the school setting offers valuable clues to the actual practice concerning ESD in the TVET centre aside from what is stated in public documents. The campus of Don Bosco Agro-Mechanical Technology Centre – Legazpi consists of 12 hectares of land. The main building is U-form shaped with a green yard in the middle. It houses the administration office, the faculty room, classrooms for each program, rooms for the workshops (shops), a library and sanitary facilities. Furthermore, at the campus is a chapel located, the “God-the-Father Chapel-Hall”, built in 2004, a building for the Salesians, a boarding house for the male trainees, a piggery, a layer house, a farm house, a production section for customised feeds and further stables, farm sheds for storage and the farming machines and a basketball field. The land is used for instructional and experimental reasons and serves as an income generator for the TVET centre. Furthermore a demonstration farm for the trainees and farmers in the region is planned. The setting for the observation was the main building of the training centre because a great part of the training and workshops takes place in this building.

5.4 Presentation of the interviewees

Semi-structured interviews are used to reveal the individual perspective on ESD in DB Legazpi. The interviews were conducted in January 2014 in the Don Bosco Agro-Mechanical Technology Centre – Legazpi. Interview participants and interview meetings were organised by the trainee coordinator and a quiet room for the interviews was provided. The researcher informed the interviewees about the following event, estimated length of the interviews, the protection of anonymity and ethical considerations. All interviewees participated voluntarily. Additionally, every interviewee was asked for permission to audio record the interview. The interview was conducted in English language. In any case, a Filipino born non-professional translator was provided not only to reduce language barriers but also to minimise the cultural barrier between the researcher and the interviewees.

Depending on the age or employment status, ESD might be perceived differently. Therefore the researcher approached the perspectives of different groups of key informants. The group of supervisors was distinguished by the responsibility of organisational tasks in the training centre. Four supervisors were interviewed in single face to face interviews. The second category consisted of the groups of trainees from the current batch 2013/2014. Three group interviews were conducted each with four trainees, two male and two female. The interviews with the trainees were initially planned as focus groups, which turned out to be very difficult because a discussions did not arise. These difficulties could be grounded in the interview situation, the language barrier and the presence of the researcher. The third category were the instructors and assistant instructors. A total of six were interviewed, two from each program. In the last category were three technicians, who represented the former trainees. The technicians are responsible for the farm and machine maintenance and were employed by the
training centre after graduation. The researcher planned to conduct an interview with the principal of the TVET institution. However, due to the necessary contact with the principal, he was already too incorporated and informed about the study as an interview would reveal his unbiased perspective. Therefore the researcher decided to abdicate the interview. A total of 16 interviews were conducted and 25 voices recorded and transcribed for the data analysis. Further details about the interviewees are provided in table 8.

Despite the fact that English is the Philippine’s official language, a language barrier existed between the researcher and the interviewees. The interview participants communicated in the local dialect “Bicolano”. The level of English varied strongly especially among the trainees. During an interview one trainee was translating for a fellow student from Bicolano to English because the trainee got the feeling of expressing her/himself insufficiently. The fact that the researcher was from a “western country” and talking in a strange accent and the interview situation itself (voice recorder etc.) increased the distance to the interviewees. A lot of interview participants mentioned after the interview that they were very satisfied with the interview because they managed a new situation and mastered to talk to a person from a “western country” in English. Those factors need to be considered in the analysis since they could have influenced the interviewees’ responses.

A total of eighteen questions were provided to access the key informants view on sustainability and ESD in general as well as in the case at hand. The interview guide was adapted to the interviewee group nonetheless the intention was to employ the same questions to provide comparability among the answers. The employed interview method allowed the researcher to change or skip questions.
Table 8
The key informants

<table>
<thead>
<tr>
<th>Key informant group</th>
<th>Interviewee number</th>
<th>Age</th>
<th>G</th>
<th>Education</th>
<th>Position in school</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisors</td>
<td></td>
<td>1</td>
<td>31</td>
<td>M Technical Vocational Graduate</td>
<td>Technical Coordinator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>20</td>
<td>M College Graduate</td>
<td>Production Coordinator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>28</td>
<td>M Technical Vocational Graduate</td>
<td>Supervisor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>35</td>
<td>F College Graduate with Certificate in College Teaching</td>
<td>Student Affairs Coordinator</td>
</tr>
<tr>
<td>Trainees</td>
<td></td>
<td>1</td>
<td>23</td>
<td>f Agribusiness</td>
<td>Trainee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>22</td>
<td>f Agribusiness</td>
<td>Trainee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>20</td>
<td>m Agribusiness</td>
<td>Trainee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>22</td>
<td>m Agribusiness</td>
<td>Trainee</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>18</td>
<td>m</td>
<td>Agro-mechanics</td>
<td>Trainee</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>18</td>
<td>f</td>
<td>Agro-mechanics</td>
<td>Trainee</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>20</td>
<td>f</td>
<td>Agro-mechanics</td>
<td>Trainee</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>22</td>
<td>m</td>
<td>Agro-mechanics</td>
<td>Trainee</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>18</td>
<td>f</td>
<td>General Electricity</td>
<td>Trainee</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>25</td>
<td>m</td>
<td>General Electricity</td>
<td>Trainee</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>18</td>
<td>f</td>
<td>General Electricity</td>
<td>Trainee</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>18</td>
<td>m</td>
<td>General Electricity</td>
<td>Trainee</td>
</tr>
<tr>
<td>Instructors</td>
<td></td>
<td>1</td>
<td>29</td>
<td>m BS IN office Admin- undergraduate</td>
<td>Assistant instructor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>32</td>
<td>f Associate Business Administration</td>
<td>Assistant instructor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>23</td>
<td>m General Electricity (TVET)</td>
<td>Assistant instructor</td>
</tr>
<tr>
<td>Instructors</td>
<td></td>
<td>1</td>
<td>25</td>
<td>m Vocational - Agro Mechanics</td>
<td>Trainer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>20</td>
<td>m Vocational - Agro Mechanics</td>
<td>Trainer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>22</td>
<td>m Vocational - Agro Mechanics</td>
<td>Trainer</td>
</tr>
<tr>
<td>Agricultural Technician</td>
<td></td>
<td>1</td>
<td>24</td>
<td>m Agriculture Technician</td>
<td>Agribusiness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>20</td>
<td>m Shop assistant</td>
<td>Agro-mechanics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>20</td>
<td>m Agriculture Technician</td>
<td>Agribusiness</td>
</tr>
</tbody>
</table>
Chapter Six
Analysis & Research Findings

After completing the data collection as described in the previous chapter, the data needed to be concentrated and analysed. In this chapter the analysis process and the findings are presented.

The first part of this chapter was dedicated to the first research question. In order to investigate to which extend DB Legazpi considers UNESCO’s ESD concept as an integrated part of its practice, data in the form of documents were collected from both the government and the training centre and reviewed. Therefore, a combined qualitative and ethnographic content analysis was employed using UNESCO’s ESD concept as a rationale. Additionally, an observation of the school setting was employed as a tool to explore the school’s practice. In the second part, the focus was directed on the key informants’ individual perception of ESD in the training centre and covers the second research question.

6.1 Findings of UNESCO’s ESD concept in DB Legazpi

The interview analysis and the analysis of the setting observation reveal the role of UNESCO’s ESD concept in the school. For the document analysis features from the qualitative and ethnographic content analysis were employed (see chapter 5.2). The review of the documents was guided by the three dimensions of sustainability (economic, environmental, and social) and were employed as a tool to identify sustainable aspects.

6.1.1 UNESCO’s ESD concept in the Philippine National Skills and Education Development Plan 2011-2016

Within the NTESDP the strategic direction of the Philippine government is presented, concerning how they want the TVET system to develop in a medium-term perspective. Therefore its structure was reviewed to investigate which topics are emphasised and which are missing considering the three dimensions of SD: economic, environmental and social.
The NTESDP 2011-2016 was formulated by the TESDA, authorised by the PG. As a national document addressed to all Philippine regions it was designed for the external use. The National Technical Education and Skills Development Plan 2011-2016 (NTESDP) is the latest of three sequenced plans developed by the TESDA in cooperation with major stakeholders in TVET. The first of the so-called "Cycle Plans" was implemented from 1999 to 2004, the second from 2005 to 2009 and the current is running from 2011 to 2016. These plans are provided as a reference or guide for institutions, agencies, local government units, and other stakeholders in the area of technical education and skills development. The NTESDP 2011-2016 is aligned with further national plans as the “Philippine Development plan 2011-2016” and the “Labour and Employment Plan 2011-2016”. The document comprises five chapters: an introduction, a TVET overview & perspective, the planning context, strategic directions, and the last chapter is addressing the implementation for results. The NTESDP was approved at national level by the National Economic Development Authority (NEDA) and on sub-national level by the Regional Development Councils (RDC’s).

**Economic sustainability in the NTESDP 2011-2016**

The changing dynamics of the national and international labour market is the main concern in the NTESDP. The Philippine TVET system needs to respond to contextual changes in the industries. In order to do so, three areas are addressed: the quality, equity & access and innovation. The PG’s emphasis to foster equity and access contributes partly at the social level of sustainability because it increases the chance to ensure all needs for everyone. In order to prepare the Philippine workforce for a worldwide employment sector, the internationalisation of skills is presented as a current issue. The plan suggests to address this issue through mutual recognition of skills qualification to contribute to “internationally-shared” human resources.

TVET has to face changes in skill supply to tackle innovation issues to address national and international industry demands. The PG supports the training of technology-based skills and high order thinking (HOT) skills. As a central necessity TESDA points out the need for the Filipino workforce to catch up with the technological progress to be able to compete at the international level. The PG fosters overseas employment through bilateral agreements, especially for seafarers.

The 21st century Filipino workforce is described as being technically competent, innovative and creative, knowledge-based with HOT skills, foundational life skills, in pursuit of lifelong learning opportunities, and possesses desirable work attitudes and behaviour. By providing all these features, the PG aims to create a globally competitive and flexible workforce.

The PG identified high potential industries to reduce youth unemployment (TESDA, 2011a, p.17): (1) tourism, (2) business process outsourcing (BPO), (3) mining, (4) agribusiness/forest-based industries; (5) logistics, (6) shipbuilding, (7) housing, (8) electronics, (9) infrastructure and (10) other high-potential industries. By contrast, the agriculture sector is described as a key employment generator (ibid.). Therefore more
resources should be allocated in this sector because it produces employment and serves the employers themselves along with the fast increasing Philippine population.

TESDA presents in the NTESDP 2011-2016 its prior goals in TVET. The words “development” and “growth” are used exclusively in the economic context and reflects the PG’s main objectives. The described workforce is educated to serve the globalised employment market, which is emphasised throughout the plan.

Environmental sustainability in the NTESDP 2011-2016

Besides the changing and developing industry sector, changes in the natural environment challenge Philippine TVET. The impact of climate change initiate efforts towards “greening skills”. “Greening skills” is suspected as being a tool to overcome the effects of climate change (TESDA, 2011a, p.18). “Greening” is meant to address both, the industry and their human resources and re-build them in a more environmentally-friendly way. Sectors with strong environmental impact are building and construction, energy, transport and agriculture. TESDA sees its own role as crucial to protect the environment. New competencies need to be created and training regulations need to be circulated. Additionally, in the NTESDP 2011-2016 the need is emphasised to integrate principles, values and practices considering SD.

The periodic review of training regulations and curricula was proposed to keep them relevant according to national and international labour market policies as well as with legal imperatives along with environment protection (TESDA, 2011a, p.29). Additionally the development and implementation of programs intended for green jobs is planned along with further activities.

In the NTESDP 2011-2016 the environmental dimension of SD can be revealed. But it is eye-catching that sustainability is mentioned exclusively in connection with the natural environment. Consequently, sustainability in this development plan is limited to the environmental dimension and not seen in context with social and economic sustainability.

Social Sustainability of SD in the NTESDP 2011-2016

Employment is a big national issue especially for the youth. Great miss-matches were identified; on the one hand employers look for skilled workers, on the other skilled employees search for jobs. In the NTESDP 2011-2016 workers with special concerns as returning overseas workers, the unemployed and underemployed youth, women, disabled, and rural workers are identified to address in order to improve equity and access. Additionally, the up-skilling of the agricultural sector is suggested because it was recognised as a key employment generator. The strategies for employment are aiming to increase future employment through inclusiveness and increase quality of Philippine TVET and serve again both, the country’s economy and society in a long-term perspective. In the centre of the strategy are three objectives: (1) increase training
and participation, (2) improve training responsiveness & relevance and (3) achieve effective training management.

6.1.2 UNESCO’s ESD concept in the Philippine National Curricula (NC)

Even though ESD was not the underlying concept of the national curricula (NC), an investigation concerning the SD dimensions reveals to which extend these are approached in the NC. Additionally, the NC states the form and implementation of the Philippine TVET. Consequently DB Legazpi delivers TVET in accordance with the NC and its education is reflected in them. Among 10 priority areas the reorientation of curricula were identified as the most important in order to achieve SD (Majumdar 2010a).

The NC is developed by the TESDA as a “competency-based” curriculum (CBC). It serves as “a framework or guide for the subsequent detailed development of competencies, associated methodologies, training and assessment resources” (TESDA, 2005a, p. 64). The training outcome is specified in the CBC and is aligned with the workplace’s requirements, which are agreed upon by the industry or community consultations. In correspondence to the Regional Model Competency Standards (RMCS) of the International Labour Organizations (ILO), the Philippines established a national framework for the TVET sector, the Philippines TVET Qualification Framework (PTQF) (Syjuco, 2006, p.8). Based on the PTQF, competency standards were designed. The CBC was designed in accordance with these competency standards by the TESDA.

The TVET in the Philippines is delivered in line with the NC. Its features are as followed (TESDA, 2006, p.28):

- Learning is modular in structure;
- Training delivery is individualized and self-paced;
- Training is based on work that must be performed;
- Training materials are directly related to the competency standards and the curriculum modules;
- Assessment is based on the collection of evidence of the performance of work consistent to the industry-required standards;
- Training is based on both on- and off-the-job components;
- Allows for recognition of prior learning (RPL) or current competencies;
- Training allows for multiple entry and exit; and
- Approved training programs are nationally-accredited.

The Philippine TVET system is built to “produces job-ready Filipino workers” (TESDA, 2006, p.21) who meet the local and international requirements of the labour market. The quality assurance system and its supportive procedures are continuously developed to successfully attain such a workforce.
The NCs are accessible via TESDA’s homepage. The institution’s programs are composed of different courses as presented in chapter 5. But not all offered courses provide a national examination and certificate. Additionally the agro-mechanic course Motorcycle/Small Engine Servicing NC II and Refrigeration and Air Conditioning NC I were not provided online by the TESDA. The analysed documents are stated in table 9. The NC as a guideline is addressed to schools and their personnel as principals, supervisors and their instructors. They were structured into two parts. The A-part contains the course design, followed by the B-part which was again structured in three parts: basic competencies, common competencies and core competencies. These competencies were delivered in units which are formed out of modules. The detailed course structure of the NC’s is provided in appendix 3.

Table 9
Overview of National Curricula employed for the document analysis

<table>
<thead>
<tr>
<th>TVET Program</th>
<th>NC</th>
<th>Sector</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agribusiness</td>
<td>Animal Production NC II</td>
<td>Agriculture and Fishery</td>
<td>2004</td>
</tr>
<tr>
<td></td>
<td>Horticulture NC II</td>
<td>Agriculture and Fishery</td>
<td>2005</td>
</tr>
<tr>
<td>Agro-Mechanics</td>
<td>Shield Metal Arc Welding (SMAW) NC II</td>
<td>Metals and Engineering</td>
<td>2007</td>
</tr>
<tr>
<td>General</td>
<td>Electrical Installation and Maintenance NC II</td>
<td>Electrical / Construction Industry</td>
<td>2005</td>
</tr>
</tbody>
</table>

Economic sustainability in the NC

The economic dimension of ESD in particular was rather hard to identify in the Philippine NC. Economic Sustainability addresses economic literacy, sustainable production, sustainable consumption and the management of small businesses (Majumdar, 2010a). An assessment of the NC considering these areas as criteria is very complex and requires professional knowledge in the programs of general electricity, Shield Metal Arc Welding (SMAW), horticulture and agriculture to reveal economic sustainability. Therefore the researcher focused rather on the common aspects of the curriculum and had to keep the distance from the professional content of the NCs.

A general impression is the strong emphasis to train TVET students in line with the industry standards, which contradicts often with sustainable efforts. The management of small businesses is not explicitly considered in the NCs. A possible reason is the relatively lower percentage of entrepreneurs in contrast to future employees.

Environmental Sustainability in the NC

The agricultural sector has a stronger impact on the natural environment than other sectors. Consequently the TVET programs Horticulture NC II and Animal production
NC II reveal significant aspects concerning the environmental sustainability. A common approach was the use of chemicals in the form of pesticides and fertilisers or as medicine and vaccination for animals.

In the NC Horticulture national certificate II, the appropriate use of chemicals is emphasised. Philippines’ TVET students are trained to prepare the chemicals, apply safety measures, calculate the amount, apply, storage, and dispose of. Chemicals are used for crops production and are supposed to protect the crop against insects andfunguses. As a common competency the use of chemicals is communicated in the NC. This implies an acceptable practice of chemistry use in Philippine horticulture. Chemicals are addressed in six learning objectives. These areas need to be reviewed considering organic horticulture to evaluate the extensive need for chemicals in horticulture.

Similar situation is implied in the program animal production NC II. It describes a framework for raising poultry, small ruminants, swine and large ruminants as core competencies. The application of medication and vaccination is proposed as a “preventive and therapeutic measure” (TESDA, 2004, p.12) in poultry raising. The list of recommended vaccinations and deworming programs for egg-type chicken contains the application of six different substances at eleven occasions in 30 weeks. Additionally, the use of antibiotics is proposed in the NC for these kinds of chicken. For ducks and quails an antibiotic-vitamin-mineral mixture is recommended at five stages in 4,5 months. Similar medical usage is reflected in the raise of swine and ruminants. In order to prevent the animals’ sickness a “health herd program” for ruminants is recommended. In the NC all these recommendations of medicine use in animal production are highlighted as being in line with the industry, farm standards or municipal laws. The NC conveys the use of layer cages for chickens (TESDA, 2004, p.6 f.) and standards for pig houses (TESDA, 2004, p.21 f.). The restrictions for space per animal follow again the industry’s standards. These findings point out a common use of vaccinations and medication in animal production, which is welcomed by the animal production industry. Therefore TVET students in the Philippines are trained in these practices to address the needs of the labour market.

Social sustainability in the NC

All NC address the social dimension of sustainability to a certain extend. The NC supports the trainees’ ability to act cultural and gender sensitive. A total of six hours is contributed to the first unit and four hours for the third unit. Both units address three learning objectives (LO). Consequently two hours are spent on training of cultural awareness and less than 1,5 hours for raising gender sensitivity and understanding fundamental rights. Again, time distributions and thematic weight of themes addressing the social sustainability need to be reviewed to meet ESD standards.
6.1.3 UNESCO’s ESD concept in DB documents

The four documents employed for this analysis were retrieved from a private organisation and are intended for external use. The Office for the Development of Educational Apostolate (ODEA) wrote one document and further three documents were edited by Don Bosco Agro-Mechanical Technology Centre Legazpi. All documents were published between 2011 and 2013. Neither the ODEA nor DB Agro-Mechanical Technology Centre indicated the use of UNESCO’s ESD concept. Therefore the researcher’s interest lies in the investigation to which extent SD dimensions are relevant and if their role can be revealed in the documents.

**Bosco Tech. Philippine directory**

The Office for the Development of the Educational Apostolate (ODEA) published information about DB’s training centres in the Philippines in the form of a hard copy brochure. After three statements about DB’s work in the Philippines from different superiors, the details about the 19 TVET centres are provided. Every training centre is presented in the same structure: name of the institution, its location, year of establishment, vision and mission statement, institutional profile, courses offered and contact details. “Such information will provide at a glance the important and necessary data to gain appreciation of the institution and the programs and services it renders for the empowerment of the underprivileged youth” (ODEA, 2011, p.3). Hence, it is stated that the ODEA is hoping for support concerning their advocacy by enabling to link with industries and agencies. The last pages are used to present the partners and donors of the Don Bosco centres and the last two pages serve as donation slips.

**Economic sustainability**

The ODEA of DB describes TVET as most closely linked to the world of work and production in comparison to other education sectors. Therefore TVET is identified as a strategic component of both economic and social policies. The organisation’s success in TVET in the Philippines is based on the program’s responsiveness to the needs of society and demands of the industry. They address the occupational standards aligned with the national qualification framework of the country. But DB’s heart of concern is not only the production of a highly qualified and competitive workforce but also the formation of the whole person governed by appropriate work ethic and values. TVET is a rather expensive education. Therefore additional resources need to be mobilised in the communities through collaboration and networks with different organizations and agencies (ibid.).

The institution’s development goals approach sustainable economic development. TVET programs are created in response to industrial demands. Additionally the personal development of the trainees is addressed.
Environmental sustainability

The environmental dimension was not identified in this brochure. This finding does not imply the general absence of the environmental dimension but should provide an indication of a degraded role in DB’s TVET. The economic and the social dimension are clearly prioritised.

The social sustainability

The DB institution aims to alleviate poverty in the Philippines through carefully planned TVET. “In the context of the socio-economic situation in the country, technical-vocational training is the one that offers hope for the poor, so that they can be employed for decent work and not be excluded from the labour market. That is where the heart of Don Bosco belongs” (ODEA, 2011, p.4). Special focus is put on the southern Philippine provinces where “the base with the most needy and the less privileged” (ibid.) is touched.

Hence, the rather bad reputation of TVET in comparison to higher education is highlighted. The value of so-called “blue collar” jobs is emphasised and the need for further professional development is stressed. Poverty is one of Philippines’ greatest issues. In order to ensure basic needs of all people poverty needs to be alleviated.

Documents from DB Agro-Mechanical Technology Centre

DB Agro-Mechanical Technology Centre published a leaflet for potential trainees for the batch 2012/2013 (DB LEGAZPI, 2012). It is assumed that the trainees’ families are as well addressed as recipients. This document informs about the training centre, about the programs and how to apply for them. It aims to promote the training centre and to motivate trainees to enrol in the TVET programs.

Another document published by DB Legazpi is a brochure from December 2013 to communicate the centre’s vision and mission (DB LEGAZPI, 2013). It encompasses information about the programs and how the centre operates. The explanations are accompanied with pictures from trainees at work, mainly trainees working in agribusiness. This document seems to be addressed not exclusively to trainees and their families but also to farmers in the region to communicate the institution’s services as the DB Cooperative or the provision of micro credits.

The third document was published on the occasion of the training centre’s 10th anniversary in 2011 (DB LEGAZPI, 2011b). After foreword and comments by the former Bishop of the dioceses and the principal of the training centre, a detailed historical overview of every year was provided. Additionally two success stories of DB Legazpi graduates are presented. This comprehensive document might be addressed to the main office, to local and political stakeholders to announce the establishment and success of the training centre. Furthermore the brochure was used as a platform to thank
donors and motivate future donor support for the training centres in the long-term. The findings are presented in one analysis to provide a comprehensive presentation.

**Economic sustainability in DB Legazpi documents**

The economic dimension of SD was addressed in Don Bosco Legazpi documents. The documents reveal the institution’s supposed values and activities, which could be identified as being supportive to increase people’s quality of life in an intergenerational perspective without limiting present resources. The textual data could be categorised into two sub-themes: “Local economic needs” and “Empowerment”. Data from the documents covering the economic dimension of SD could be distributed to one of these sub-themes.

The institution’s priority is to address with their work “Local economic needs”. The TVET programs respond highly to the rural area and its special condition of the upland area.

1. “Don Bosco Agro-Mechanical Technology Centre promotes farm mechanization in the upland areas of Bicol Region to increase its farm productivity and efficiency” (DB LEGAZPI, 2013, p.2).

The institution’s aim is to maximise the efficiency of the farmers’ land use. The upland area in the Bicol province is challenging to cultivate. Additionally, this land is described as a “hilly area with little water, hard and acidic soil, hard to till land, typhoon prone area and far from the city and social life” (DB LEGAZPI, 2011b, p.4). DB Legazpi intends to address these certain local challenges through the introduction of appropriate farm machinery and equipment:

2. “In order to make farm machinery and equipment suitable to type of soil and terrains, adjustments of its implements are made in the workshop. This is also a learning avenue of the student-trainees to improve their skills and knowledge in farm mechanization. They use the skills of welding and metal fabrication. It includes an analysis of the topography of the soil” (DB LEGAZPI, 2013, p.2).

The trainees and future farmers of the Legazpi region are trained to improve and adjust farm equipment for the upland area to improve the productivity and efficiency of their farms.

The second identified sub-theme is “empowerment”. TVET is employed as a tool to empower the trainees in DB Legazpi. Besides teaching of the subject entrepreneurship, the institution continues its support after graduation.

Different programs were developed to provide agribusiness graduates assistance to run their own livelihood projects at their farms such as the cooperative. Further support is offered to the agribusiness graduates in the form of the microfinance program founded in 2005. This program helps graduates to develop their own livelihood projects with sweet corn, swine and vegetable production.
As a part of the trainees’ education, the Income Generating Projects (IGP) were developed. Selected trainees were provided seed capital for a livelihood project. In this way it was possible for them to earn money while participating in the in-centre training.

Environmental sustainability in DB Legazpi documents

The environmental dimension was only addressed in the DB 10th Anniversary document. Since it is the most comprehensive document, it is assumed that due to its extent, the environmental dimension was able to be addressed.

DB Legazpi employs organic farming to address the needs of the region and improve people’s life quality. Since 2008 organic fertiliser are used for the vegetable production.

1. “The improvement of animal waste management facility in order to maximize the utilization of animal waste (manure) into organic fertilizers for the vegetable [...]” (DB LEGAZPI, 2011b, p.9).

The training centre produces its own feeds for stock-breeding since 2008. The reason behind it was to increase the number of animals and the related demand of animal feeds. A feed mill enables the training centre to produce customised feeds for self-use and for sales to graduates running a livelihood project. Furthermore the production of soybeans was introduced in the training centre.

2. “Improving the productivity and quality of livestock in the Bicol region through: adopting and promoting the technology of Soybean Production; processing it as ingredient for animal feeds; utilizing the feeds for livestock” (DB LEGAZPI, 2013, p.3).

An extruder machine was needed to remove toxic substances from the soya bean to make it suitable for consumption. After this process soybean oil remains in the bean in contrast to commercialised soy beans, which makes it rich in nutrition for both humans and animals.

Social sustainability in DB Legazpi documents

The training centre’s work and activities have a sustainable impact on the social development in the region. Again two sub-themes were recognised: Religion and Poverty. The institution’s work had addressed neither one of those themes.

The DB Agro-Mechanical Technology Centre is a Catholic-Christian institution.

3. “Who is Don Bosco? His main concern was the education and well-fare of youth from poor families. For this purpose he founded a religious congregation called Salesians of Don Bosco (SDB), composed of priests and religious brothers” (DB LEGAZPI, 2012, p.2).
St. Don Bosco’s is a leading figure in the institution’s education. His doctrine is the guiding principle of the training centre’s work and the motivation for the superiors and personnel. The role of education in TVET is highlighted in all the documents.

4. “With their now steady income in their self-employment in farming and mechanical workshops, they have now acquired land, vehicles, and even other livelihood needs and wants. But above all, they feel much happier as they apparently now understand and can practise the true meaning of Christian Love – One’s generous self-giving God and neighbour – especially to the least, the last and the lost” (DB LEGAZPI, 2011b, p.3).

Intensive value formation grounded in Christian faith is integrated into the Training Centre’s routine (ibid.). The education of the youth in TVET and the human, Christian and moral values (DB LEGAZPI, 2013, p. 3) forms the core of DB Legazpi’s work.

The second category, “Poverty”, is closely connected the prior category. The training centre’s objective is to alleviate poverty in the Bicol region through TVET.


The education of the youth has as well a strong impact on their families and communities. Trainees are seen “as agents of transferring the technology to their neighbouring farmers” (DB LEGAZPI, 2011b, p.7). The training centre identified the rather hard to cultivate area as the major challenge. Consequently the training centre conducted research and development on upland agricultural technologies (DB LEGAZPI, 2013, p.3), to improve the farmers’ agricultural productivity. The rural area reveals further challenges: infrastructure and communication issues hinder the majority of poor farmers in the upland area to attain access to education and particularly the opportunity to learn about the latest technologies “to improve skills in productive farming” (DB LEGAZPI, 2011b, p.5). DB Legazpi future aim is to “expand and sustain its services to the needy young people of the region” (DB LEGAZPI, 2011b, p.11).

6.1.4 The setting of DB Legazpi

The observation of the setting contributes along with the document analysis to explore to which extend ESD is an integrated part in the training centre. The school’s practises are supposed to be reflected in the setting. Additionally, the setting supports, influences or prevents certain behaviour of participants in the school setting. The setting and how it is created is an important contributor to establish ESD.

For the observation of the setting an observation guide (appendix 2) was employed. The area in and outside the main building was observed considering again the three dimensions of SD. The environment was investigated and possible relevant aspects were
saved as notes or photographs to memorise them easily later on. The researcher was accompanied by an employee of DB Legazpi who provided information when questions aroused.

**Economic Sustainability**

The economic sustainability is hard to illuminate through an observation, which is based on its definition as the effort to attain economic literacy, sustainable production, sustainable consumption, and the management of small businesses. Data is difficult to reveal from an observation, which is addressed to these aspects of economic sustainability. Hence, other research methods are more suitable to explore this dimension of sustainability.

**Environmental Sustainability**

Posters on the walls of the classrooms and shops indicate DB Legazpi’s emphasis to raise the trainees’ awareness to care about the environment in daily tasks. These posters address housekeeping and the separation of waste. Housekeeping is done by the trainees twice a day. The classrooms and shops are cleaned with hard and soft brooms and banana leaves. Among the “7s good housekeeping” – sort, systematize, sanitize/sweep, standardize, self-discipline, safeness/security – the emphasis to “Preserve and conserve the environment” is communicated. Other posters illustrate the appropriate separation of waste for recycling purposes. A separate can for organic waste was at place. This garbage was meant to be disposed at the on-site composter. The setting of the training centre implies an emphasis on environmental-friendly practices.

Furthermore, the building itself reveals an environmental advantage. Every room has windows at two opposite sides. This supports the air circulation. Fans are installed in the ceiling to support the fresh air exchange. In that way, the need for ACs is reduced. The rooms are accessible from the outside. An overlaying roof creates a corridor, which is open towards the yard. Thus people stay dry from rain when changing the rooms. At this “corridor” old barrels are reused as trash cans. “Reuse” belongs to the six principles to reorient TVET towards sustainability among “Reduce, Renew, Recycle, Repair and Rethink (Majumdar 2010b, p.1).

**Social Sustainability**

All rooms in DB Legazpi imply the school’s origin and practice. The walls were partly covered with the history of Saint Don Bosco and his portrait was found in every room. In some classrooms a list was posted for consultations with the priest of the institution. Additionally, a list states the upcoming morning prayers and liturgical celebrations.
Religious practice is – of course – omnipresent in a Christian institution. The “God-the-Father-Chapel-Hall” next to the main building highlights the role of Christianity in the training centre.

6.2 Individual perspectives on ESD in DB Legazpi

The 16 interviews with the 25 key informants were transcribed and analysed using a thematic analysis. After the transcriptions, the interviews were reviewed and the quintessence of the interview responses were used for further analysis. Therefore the core answers to the interview questions were identified. The interview extracts were copied and sorted in an Excel cross-tab in accordance to the interviewee and the thematic category. Eighteen questions and the answers of 25 key informants generated a total of 125 themes. The interview was structured into four parts, which addressed the individual definitions of SD and ESD, the perception of TVET, and the individual perception and interpretation of the TVET programs in DB Legazpi. The findings are presented in this chapter in the same order. Interview extracts are presented to exemplify the certain category explained. Due to ethical considerations the identities of the interviewee’s are kept anonym. The numbers in brackets after every extract allows the researcher to identify by the first number the question, by the second number the interview group and the third number reveals the interviewee.

6.2.1 Individual perspectives on SD

The first five questions were employed to understand the interviewee’s perspective on SD and ESD. The answers were very complex and varied among groups and participants. A general finding was the positive perception of sustainability. The interviewees were motivated to achieve sustainability (“Sustainability…ah, the thing, sustainability is one of the best thing ah…..that person have to ….accept….or to adopt” 2,3,3) although the interviewees had difficulties to put their meaning of sustainability into words. But all interviewees could identify sustainable activities at their individual levels and during their work or school in the training centre.

In order to present the answers in a compact way, the retrieved themes were ordered into main themes concerning their “functions”: The key informants described often an activity to describe sustainability or a certain way how to produce or teach. In doing so, education and a certain way of teaching were identified as instruments in order to attain sustainability. Other themes described certain behaviour in order to act sustainable. The last main theme contains the aim of sustainability. Accordingly, the review of sub-themes was done to investigate a logical structure. The findings are concluded in figure 10. All identified themes are employed in this figure. The themes were used as puzzle
pieces and connected in logical relation to each other on the basis of the individual responses. The three main themes are presented as the three main sections in the figure: the aim, the behaviour and the education. The different themes concluded in the sections “aim”, “behaviour” and “education” are presented in figure 10 in different font sizes to correspond to the frequency of employed themes. A largest font size indicates the most frequently employed theme(s) as for example “Preservation of the human race” or “Teaching”. The theme “Preservation of the nature” was just emphasised by one interviewee and is accordingly expressed by the smallest font size. In this way the frequency of interview answers is kept and the figure remains representative without generalising the interview answers. The development process of the findings as presented in figure 10 are described in the following sections.
The aim

The key informants’ answers indicated following themes as the overall aim of sustainability: “preservation of the human race”, “preservation of the nature” and “development”. Detailed descriptions about the kind of development were not provided by the interviewees.

The preservation of the human race was identified by the interview participants as an aim of sustainability. This aim was commonly expressed by the themes “assurance of
basic needs” and “survival”. An example for the prior theme is presented by this technician:

1. 3: for example: sustaining the ano⁴, sustaining the needs of the...sustaining the, our, ano primary needs. Like that madam.
E: Mmh. So what, what are primary needs to you?
3: ano, food...
E: food it is to you...
3: that’s all primary needs...ano iyan, primary needs.
E: okay, so...if you give someone food, is that sustainable?
3: No, we need to produce more food to sustain our needs....
E: Mmh. okay, then maybe you give the person rice, like rice for one year, let’s say, is that sustainable?
3: No madam, you need to produce everyday (4,5,3).

In extract 1 the basic need is identified as food. In this way food as a basic is linked to preservation of the human race, the second biggest category retrieved from the interviewees’ answers. But this definition is not exhaustive because in the case of the trainee “need” is linked to his/her individual aim to study in the training centre. Consequently “need” has to be differentiated between “basic” needs like food and further needs. In the following extract two further overall aims of sustainability are revealed.

2. “Our, ano, department, for example in agriculture, so we are aiming for a sustainable farming. When we say sustainable farming, we need to, we are going to think about the ah....Firstly the health of the people, of the environment, so what we do is and the product that we ano, that we are however we were, ano, in the day of...how can we sustain the life of the human being” (2, 3,2).

This instructor emphasised firstly, the preservation of the human race and secondly, the preservation of the environment. However, extract 2 covers another necessary question: Why employ “sustainable” farming? The answer was provided by the interviewee him- or herself: In order to preserve the human race, nature need to be protected. Otherwise we will be not able to meet our basic need – food – in a long-term perspective. This is more than ever apparent in agriculture. However, financial resources are needed by people who do not produce themselves but need to purchase their food:

3. 1: to sustain to me is....to survive (laugh).
   1: sorry...because if you want to survive you have to sustain your life...xx⁵...your everyday living...through what? For example: by working!

⁴ “Ano” (Engl. “what”) or “ano iyan” (Engl. “What is that!?”) are used as filler words.

65
Because in our case we have to work, we have to sustain our needs, for us to survive.

E: Mmh. So what do you need to survive?
1: basically? (laugh) like...uhm...in this present situation, first, for me really, sure money.
E: excuse me, what did you say?
1: by money.
E: of cause.
1: to...in order to buy your...personal needs, in order to survive...yes mam.
E: yeah. Mmh...
1: that's the...eh...the connection what I am mentioned to you xx regarding the sust...eh...the means, yeah. The personal needs.
E: ja. So when we have money, can we sustain?
1: yes....not only mam. For me it is also one...you have also to acquire education and an exact training that you need. Because you can never receive money by working if you don’t have the one education. And first, of cause the ano iyan...the, the eagerness to work. Yes, because some of the Filipinos, they are already ano iyan, relaxed because some, some of the people outside they are already not working. They are already xx content to that (2,4,1).

The behaviour

The interviewees described certain behaviours, which were identified as being pivotal in order to achieve sustainability: consistency, a long-term perspective, independence and the adoption to natural challenges. According to the interviewees, these aspects need to be taught and at the same time integrated in the teaching process. In the first extract the production of food in a continuous and independent way was emphasised to assure basic needs. The following extract by a supervisor serves as an example for the category "consistency":

4. "And once we...talk about sustainability, it is the........let’s say for example, here in training centre, you can call, a particular area, let’s say for example, let’s give an example, the pigs, the swine production, you can say it is sustainable. Once it can stand on its own, the swine production, the pigs there, the one is managing it, is not dependable on other, on other entity, on other organisations or other sector, because he can stand alone, he can ensure...the expenses, the

5 „xx“ was used for words, which could not be identified from the audio records for the transcription by the researcher.
cost, and of cause in return, the income, is inside the piggery, and that I guess is sustainable, because.....mean, to sustain is to, to be consisted in your operations and then moves for a while” (2,1,2).

This supervisor is using the piggery as an example for a circulate flow because it runs autarkically. Corn is grown in the area of the training centre in order to provide the feeds for the sows and their liquid-manure is used as an organic fertiliser. In this way dependence of extern service providers is kept as minimal as possible.

The education

Predominantly instructors and supervisors stated that “I sustain the trainees” or “I support the trainees”. These two expressions were in synonym use in this case. The direct goal of education was described as empowerment, efficiency, the promotion of lifelong learning and self-confidence. These entities need to be considered to attain sustainability from the key informants’ perspective.

In any case, the most frequently identified theme was “support” but it was used in varied contexts. According to the supervisors and instructors, the training centre supports people (trainees) below the poverty line, which contains teaching as an instrument of support. But another supervisor emphasises the individual role to support someone else, in this example the own family:

5. "When is sustainability, something........something you can rely for a longer time, in terms of you commodities, something that you can assure, your family and some other people that you can assure them, that you can give them the basic commodity" (2,1,3).

This supervisor describes sustainability with different features: support of the family (or some other people) through assurance of the basic commodities in a long-term perspective. Additionally, “to sustain” was always employed in relation to basic needs. The answers retrieved from an instructor in extract 7 indicate another answer to the question about the way how trainees should be supported:

6. “For example, the students, you will sustain...uhm...lessons or ideas to them empowerish [empower]6 that can help them to or to use them for their futures [...] For example in ah...any student. You will sustain the student to learnings, the needs that they will have. So you will sustain the need for them as a good or productive worker” (2,4,2).

6 Added by the researcher.
From the instructor’s perspective they support the trainees through education to prepare them for the working world. Again the theme “independence” and the “long-term-aspect” are touched by this interviewee.

Considerations

Some interview participants described entities of sustainability: sustainable levels as the individual, the barangay, the community, the nation and different areas such as family, school and workplace. As an underlying principle, those entities need to respect the limitation of resources in all aspects of activity to achieve sustainability. However, at the same time interviewees pointed out the limitations of education in order to attain sustainability. Corruption and the dynamics of the labour market were identified as inhibiting aspects. Anyway education is done as described in figure 10, sustainability may not be attained due to those factors.

The interviewees’ answers seem to create a linear connection of the terms education – employment – financial resources – basic needs and preservation of the human race. But another interviewee (technician) stressed the limits of education and pointed out factors, which are limiting their ability to find employment to support themselves.

7. 3: could there be education without the development?  
   E: ja.  
   3: No, because if you are not educated person, ano iyan.....for example: me, ano iyan...we...ah...without education there is no development madam. You lack knowledge. If you...so that's why we need to educate. Like ano iyan, like....the....ano iyan, like my brother he only finished ...elementary, I think..............the only....uh...how do you call that.......the education madam is very important to us. If we are all educated person we can more ah....mmh...you have a choice. You have many choices. Than the, the there are ano iyan, educated person...  
   E: so it gives you opportunity?  
   3: ja, it gives you opportunity. Ah...and....give a chance to, a chance to.......to be ah....someone, plenty many chance to success than the, ano iyan but....uh....but there are many people who is educated but they have no work madam....so I think...but the educated person is....better than the not educated person. For example but there are some not educated person but they are successful because of their....they are reducing their coconut mind or brain....according to Mr XX. You get my point madam?  
   E: yeah, yeah, I get. No...  
   3: I am sorry...  
   E: No its right, so...education is not a guaranty for success.  
   3: yes, Madam, because there are some people they are not educated but successful but the edu..educate person is better than ano iyan, because he, ano,  

68
not educated gain success, how...must ano iyan...ah...the educated person has many chance to...to success.
E: has more chances...
3: yes.
E: no guaranty but more chance...
3: but more chance... (3,5,3)

This extract is very insightful because this technician admits the boundaries of education, which gives a hint to external factors, which have an impact on them. Further limitations are admitted by this supervisor:

8. 1: yes mam. In the case, in, in our setting, education is very much important because in order to sustain, ano iyan, in order to attain the sustainable development, the person has to become well educated. Because if a person is well educated, he or she can handle the situation without any hustle, yes mam.
E: ...so when you say in order to sustain...
1: in addition to the...ah...actually, in the community....most of the leaders are well educated. The only problems, sometimes...how do they manage the sustainable development in the community (laugh). Because, reading the news, there are disadvantages regarding that in the Philippines.
E: what are this disadvantages?
1: Actually, in the Philippines - I will speak honestly -...
E: please!
1: Because in our setting mam, if you are properly ...sometimes you are using that in a wrong way....like in example: in corruption, yes. It’s xx here, that’s why we are, that’s why the Philippines, at this moment, we are still a third world country. This past years, during the 1960 after the world war, we are already improving. The problem is the ah...cost (?). we can never attain...for me...we can never attain....the sustainability development. Through xx (3,4,1).

This supervisor addresses one of Philippines’ biggest challenges. This extract indicates the restricted scope of education. In order to achieve sustainability the corruption needs to be alleviated.

6.2.2 Individual perspectives on ESD

When asking about the meaning and beliefs of ESD, the interviewees’ most common answers could be related to themes such as independence, support, future aspects and work efficiency/productivity. But again, themes are overlapping and one extract might cover more than one possible category.

Almost all interviewees emphasised the importance of education in general and its connection to employment and income to meet basic needs. Furthermore, it was identified that education has to be delivered in a certain way to attain sustainability. Two supervisors emphasised the need for entrepreneurship education and business
knowledge. To them, entrepreneurship and business education were main features in ESD in contrast to rather regular education, which is perceived as being not as comprehensive. This feature is exemplified in extract 9:

9. "Educate them to know, what would be...what, what is the thing that they do to lead their lives? Not only just giving them a cash for them to...to venture in a business, without in cooperating them those attitudes that education could fix that or something like that" (3,1,3).

From the interviewee’s perspective, the goal is to support the trainees’ self-awareness and responsibility on how they want to earn their money. In contrast, the trainees have a clear idea what the goal of ESD is: “a better and good life” (3,2,3). And a leading figure in order to reach the goal is Don Bosco, the Saint of the training centre. Similar, this was stated by an instructor who related ESD to the Saint:

10. “Just like from my own idea, I think education sustainable, ah...development...is just like ah...relationship between of cause, God and Don Bosco family and then their trainees, which is mme...if Don Bosco, Don Bosco...is our goal is to help their trainees to ah.....graduate of cause....to help the trainees in order to help them also, to their families, through poverty and...that’s it. That’s eh...”(2,3,3).

In extract 10 the instructor expressed the training centre’s religious motivation to support the trainees in order to alleviate poverty and empower them to support themselves and their families. This attitude is confirmed as well by this supervisor:

11. "So I think in line with us, that is, that we are working for, that is our, I think this is our mission, to support some poverty and to help those marginalised youth and people in our region. You must first educate them”(3,1,3).

In conclusion, the interviewees perceived the aim of ESD as a “better and good life”. To achieve that goal, “to meet your and your family’s daily needs” was identified as being crucial. In order to attain this goal, employment and self-employment are significant. Three further factors increase the chance to find appropriate work after graduation: education, “the right attitude” and the TVET system. Education has to be carried out in an efficient way. Based on the interviewees’ answers efficiency was defined as follows: it contains the latest knowledge within the topic, it is adapted to the labour market’s needs, it incorporates classes in entrepreneurship and encourages trainees to lifelong learning. All these aspects are integrated in a long-term perspective to prepare the trainee with additional skills for a changing employment market. Besides the education described above, interviewees emphasised the importance to have the “right attitude”. Especially the trainees’ focus on this aspect, which involves a motivated working attitude, commonly expressed in “to give our best!”. Additionally the willingness to study and work hard (as a trainee and as an instructor) and the value of continuity were identified as aspects of a “right” attitude. The last aspect was expressed in the commonly used phrase “everyday learning”. This expression was employed by various groups of interviewees. The interviewees described as a successful sustainable TVET, a system, which follows the K-12 mandate of the government, which is inclusive, has no
shortcomings of resources, and where trainers are functioning as role models inside and outside the school.

All those factors were identified as being important by the interviewees in order to attain ESD. These findings are presented below in figure 11.

Figure 11. ESD from the key informants’ perspective

In further questions the interviewees were asked to identify sustainable activities during their work- and school-day and how they could act “more sustainable”. Their answers were very random. This instructor explains his project to contribute to the sustainability of the training centre:

12. I: Sometimes when I don’t have my ano, discussion with my class, I use to thank, I use to … do some ah…recycling, reusing, thinking of ways how to use that material that is not suited for this activity but it could be applied to other activities or to other things that needs that materials also. I use to think……specially, now….my project is….weee….dissolve, how you call that,
we remove the reflector for the ano, fluorescent lamp, because we do not need it already because it, it consumes a lot of energy. Because the ballast consumes or that is an additional what is for ballast and then for the tube. What we did is the fluorescent lamp and then we replaced it with… the CFL or the fluorescent lamp….

E: …ja, ja, the energy saving…
1: …yeah, right but…suppose to be LED but LED is ah…..although it is ano…good save a lot 98% but you will not invest money for…
E: (laugh)….maybe more than 80…
1: …yes. Then, the one that we removed it, the one….the reflector, that we removed, was being recycled into another reflector, for that one. That’s why. Just, ano, yesterday I just finished the activity just in the other class. That is my little contribution for the other class with my co-worker. (5,3,1)

Since the school cannot afford energy saving light bulbs the instructor explained an alternative and adapted way how to save energy anyway. In this project, the trainees and other colleagues participated. In contrast, the supervisor in extract 13 perceived different activities as being sustainable:

13. “For me, in my job as a supervisor, ah….consistent monitoring of my people, consistent monitoring of my area, consistent monitoring of my student in the work, in the laboratory, ah…consistent in all things that I am doing, to, to make that area more productive, is, I think for me, sustainable.” (3,1,3).

Answers connected to the themes consistency and efficiency/productivity were frequent responses and the interviewees related them to sustainability. Another extract by an instructor could again be connected to the theme consistency but also highlights his motivation and passion for his profession:

14. “Yes…in sense, uhm…everyday uhm, when I start to work, I always thinking: now, I give the idea! And now I give totally skills for the students! For which they can use it for the work…uhm…when they graduate here. In times I will sustain, I, I will sustain them, especially in knowledge and actual works” (3,4,2).

The instructor aims to support his students by teaching them relevant knowledge. He is personally involved in this process and is exhilarated. Another often revealed themes is “religious practice”. This theme could not be placed within earlier descriptions of SD and ESD stated above. In extract 15, this group of the trainees pointed out their appreciation for religious practice:

15. "For me the most sustainable that every day that we do...before we start our day, we start prayer. For me the most sustainable thing. What we start uhm...like our Salesians start that. Everything you do, do it with the God. So the most sustainable because everyday they giving us the word of the...and they're always telling us, God is there for us. So when we give our ....our job or duty to God, we can make it our or phenomenon, so that is the most sustainable, we are giving everything." (3,2,1)
This kind of attitude was commonly identified, especially among the groups of trainees. The training centre encourages the trainees and the employees to practice religion. For the trainees, praying became an integrated part in the daily structures of their TVET. One trainee valued as well the daily (“everyday”) prayers in the school and (s)he wants to continue practising at home.

6.2.3 The TVET in DB Legazpi

The interview participants were asked for the most negative and most positive aspects in the TVET education in DB Legazpi. Instructors and trainees stated aspects such as the lesson planning or the assessments as the most negative. However, one statement of an instructor is rather different. He perceived his lack of teacher education as the worst aspect in his work.

16. “So in the terms now, I think ah...bad time now. I think for myself, in times now, there are questions that I can’t answer. Because their terms now, I graduated as a e-vocational (xx), not in the four years. Because in the four years, because in four years you will learn more than in vocational. So. In terms of they give questions and sometimes I did not answer it in a proper way or in a proper idea, you will deliver it clearly. So in terms that like that, I feel so sad, guilt myself.” (6,4,2).

The fact that he had not received a college or university degree (“four years”) bothers him. Not answering his students’ questions makes him even feel guiltier. He is not merely aiming for an employment and a salary, but for professionalism. Other staff members and instructors expressed a similar passion. For example, two interviewees were offered another job with better payment but they refused the offer:

17. “I cannot do it because, I, I have already give my promise here, to, to exercise what is may passion and to give....my best, to my ano, to the....people that are belong to the poorest of the poor. I mean...I consider the, ano...the...how do you call this one, the calling as something strong. As the want this to teach how Don Bosco, our Saint fought the young, I didn’t consider, even though may family is poor also, I didn’t consider the money that involves. I just consider my passion and to help. That’s why I am here” (6, 3,1.).

The interviewee’s motivation to work in the training centre is based on personal commitment and religious believes. The interviewees answered most frequently that they liked the best about their work or about their education the work or education itself. More than every second person indicated his/her daily tasks in the training centre as the most enjoyable. Furthermore, the teacher profession was highly valued in the training centre:

18. "We know that the teacher is the best, ah...what you, noble profession of all profession in the world, something like that. Even though the salary is very low but at the same time you turn some people into better, that is very...eh...good for
us. And that’s feel the best. The same time information from other people you turn this youngster, this young boys before you anything heart, they are doing these bad things after they got into the institution, their attitude turn to go something like that and know you have a good, stable job, you have a good salary, something like that. Those information from other people, that you are part of the development of one child, something like that” (6,1,3).

In this extract the supervisor pointed out another aspect, which was supported by other interviewees as well. They valued the trainees’ success in education and employment the most. Most of the instructors and supervisors liked their work extraordinarily and liked to educate the trainees to increase their chances for a future employment. A returning theme was religious practice in the training centre. The trainees perceived their prayers and inspirational talks of the Salesians and the instructors as the best activity in their daily school life.

19. 3: for me I really like to do the morning talk of Brother and Father Ante.
   1: For me my really favourite thing to do is like here, the morning talk, the...because in the morning talk they say really inspirational messages...and then...
   3: ...really, really relate happy...
   [...]  
   4: So, for me the best things that we are doing here is the morning assembly and the habits about praying before enter the class, praying before leaving the class and also here in Don Bosco we are practising the actual practicing in the work. (6,2,3).

These excerpts support as well an instructor’s statement who enjoyed the most when his duties include deepening the trainee’s faith. Furthermore, the trainees’ statements reflected a positive working attitude because they feel well prepared for the world of work. Especially the trainees and a technician of agriculture training expressed their appreciation for the profession. When asking what he or she liked the best about his or her works the technician answered as follows:

20. 3: in agriculture there is no worse madam...we are producing foods, that’s my opinion madam.(6,5,3)
   [...] 
   3: I am planting to ... to fruit trees because if you plant more, more trees, you, you ano iyan you produce more carbon dioxide that we inhale, am I right madam? (6,5,3)

This technician emphasises the importance of his work because he contributes to a better environment. In his comments a very positive working attitude is reflected. He could not find a negative aspect in his work.
6.2.4 Individual perspective on education delivery and content

The following questions were addressed to gain further information about how the key informants examine the content and the education in the training centre in general. The key informants perceived their program as comprehensive and expressed satisfaction concerning their TVET in general.

21. "But if you send trainees in our school……but the fact that we are training three, three things, the one I mentioned earlier….. plus the skills… now you compare it with that two...our trainee, trainees are better than the others. Plus the fact that they have their values [...] And that is the reason why companies are running after our graduates" (7,1,1,1).

"For me, a Salesian will educate...ah, the Salesian educating system is, I think.......this is the program ...ah....that is for me the best program in the Philippines, something like that” (7.1, 1,3).

Especially, the instructors are very confident about the way how TVET is taught in DB Legazpi as stated in extract 21. A common feature is the comparison of the training centre to other TVET institutions in the Philippines. They do not see a reason for changes but for “improvement” such as the provision of sufficient and better teaching materials. Every group of key informants observed a lack of demo-tools, small engines or animals for each trainee. Additionally, the introduction of new technologies in the programs or even the dedication of additional programs to catch up with the technical progress were proposed in order to improve the TVET in DB Legazpi. But there are as well elemental needs which have to be addressed before introducing new technologies in the training programs. The voltage is too low to run engines properly because the training centre is situated 16km far from the city centre in the rural area. Another instructor proposed to address as well the older farmers in the area and offer classes in agriculture for them to further develop their skills. Trainees from the agriculture program were very keen to develop the compostery technology to bring forward the organic farming in the training centre.

22. 2: for me not to change but to improve! The resources....we have enough but for the future, I want it to be more, you know, resource must be and more...more technology. Since we are into organic farming, I want to improve the, you know, especially in our...this...using our composting...in our new generation not going to use a synthetic...
Jow: ...chemicals...
E: ...pesticides...
2:....that would destroy the environment but uhm...the, the natural resources give us the....like the organism or the nutrients that the plants needed and animals. So that’s what I’m...I was just hoping for, you know...some research for that...maybe some knowledge from an expert like giving us. Uhm...they are giving us enough....going to ask for more.
3: you can say she wants to...to sustain the organic compost that we have already here. It could be...in...it could be...just be by the next generation, they
could adopt it the...they could be adopted the, ano, the compost that we having used, what I mean is uhm... E: reuse it, or recycle it or...
Jow: yes mam. We, we resegregation all the...recyclable...ano, what I mean is ano...the next generation cannot use sedantic chemicals that destroy our human resources or our environment. That’s all. (7.1,2,1).

This trainee expressed a lot of passion for what they are doing in the farm. The other trainee pointed out the relation between their activities today and the consequences for the subsequent generation.

The majority of the instructors wished further development in their teaching profession and liked to meet other instructors at a national and even international level for professional exchange. Another instructor suggested to strengthen close linkages between the training centre and the industry. Although the stakeholders perceived the need for improvement to update the trainees’ skills and knowledge to increase their chances to find an appropriate employment, they appreciate the most the trainees’ “good” values and attitudes. As “good” values and attitudes were used descriptions such as to be honest, to be good to others, to be helpful, to be social, to share talents and to be humble. Generally, a Christian attitude was emphasised. The trainees described here Don Bosco as a role model. Hence, every group of key informants emphasised the need and the development of faith. Additionally, the integration of a positive working attitude was a highly appreciated aspect in the education of the training centre. Especially observed among trainees and technicians was their intention always to give “the best” in the school and later on at work and the importance “to love” what they do.

23. "We know that but most using part is the heart of the profession that they get. That is the, that is the thing I am teaching. Is to know, why you are here, why you choosing, even though it is not you, this is not your best choice, even though this, this is only your alternative. That is why ....that your...ah...ah...let your, your year...place being in a ...ah...ah...cooperate and let see what we can do, and what will be...after training, something like that" (8,1,3).

This instructor highlights the need to encourage the trainees for their chosen profession. Notwithstanding, the TVET program might not be the first-choice profession but they should do it “with their heart”.

The groups of key informants were asked how to address the described challenges in their institution. The encouragement of co-workers, the involvement of the institution to increase local and global sponsors in order to increase financial resources were proposed as possible approaches to address challenges. The introduction of obligatory lifelong learning for instructors was suggested to improve the instructors’ knowledge to catch up with the technical progress. Addressing the efficiency of education, the group of instructors and supervisors seek to improve their knowledge. Other key informants are of the mind that modesty and acceptance are important to introduce these changes. To pray is emphasised as well in order to introduce changes.
24. I: if something, actually there is a ano iyan, acronym that push, P-U-S-H. Pray until something Happens (laugh).
E: (laugh) Pray until something happens....
I: PUSH. That’s the best thing that are you do.
E: okay, but...
I: Because this time it is for me impossible (laugh). Because we are, because the lacking equipment’s, the lacking founds, because this is too expensive. (10,4,1).

This instructor did not see the possibility to address the lack of equipment. At this point he is praying to overcome the impossibility.

The stakeholders named their families as the greatest benefactors of the trainees TVET education after the trainees themselves. The future employers and the community were mentioned as further benefactors. Co-workers and citizens in the village were as well identified because they are able to benefit from the alumni’s knowledge. Among further benefactors a group of trainees identified the subsequent generation as benefactors of their skills and knowledge:

25. 4 via 2": "he says that if we can come up with this new technology because the...our compost is not...if we make it now it will going...tomorrow, you can, you said tomorrow. Unlikely this synthetic chemicals. Once we have it, it’s going into the plants. So. He was saying that if we can come up with this new technology for, for the compost, to become easier to make the compost...about this technology to process it easily. And next generation ...the generation will benefit because we came up with this new technology. They are not going to use any chemicals. If we develop this new technology of compost, so in the new future is specialised in organic farming" (13,2,1).

The general atmosphere in the training centre was described as very good. The climate in the institution was most frequently describe with the expression “family spirit”. They call the older personnel “big brother” (Kuya) and “big sister” (Ate). The trainees described the staff and the Salesians as “good parents”. Personal differences among trainees, instructors and staff were described as acceptable and normal and generally better as in other TVET centres. The key informants related the good relationship among the members to different aspects: team building sessions among the staff members, the catholic school, the Christian values, the democratic system in the

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7 This trainee asked a fellow pupil for translation from Bicolano to English.
8 In the Filipino culture the oldest brother is called Kuya and the oldest sister Ate. These expressions are as well used towards the elders and betters.
Philippines, and the joint education and graduation in the training centre. The trainees described their relation to the instructors and to the Salesian as very good. The trainees characterised them as being humble and having a good personality. Additionally, the instructors try to bond with them insight and outside school. The same was confirmed by the instructors and supervisors. In the training centre they employ the “prevented system”, which aims to build up a good student-teacher relationship.

Chapter 7
Discussion

The previous chapter presented the data analysis and delivered first implications for answers to the research questions. This step is further developed in this chapter. The research findings are tied to the research questions and further findings are synthesised through comparative analysis.

7.1 Integration of UNESCO’s ESD concept in the training centre’s practice

The first objective of the study was to explore to which extent DB Legazpi considers UNESCO’s ESD concept as an integrated part of the school’s practice. For the investigation of this research question a document analysis and an observation of the setting were employed.

The analysis of the NTESDP 2011-2016 revealed the role of ESD at the national level. The TVET development plan addressed primarily economic challenges concerning the TVET sector. The Philippines suffer from high youth unemployment, underemployment and job mismatches. The proposed solutions are strongly market driven and adopted to industrial needs. The PG emphasised the “production” of job ready Filipino workers (TESDA, 2006, p.28), which is as well expressed in the title of the document “Investing in the 21st century skilled workforce”. The PG considers Filipino employees as an internationally-shared workforce. In the NTESDP the adaption of Philippine TVET is emphasised to the demands of the international employment market.

However, the PG’s effort may bear the risk to prioritise the wrong industry sector in Philippine’s TVET. Firstly, brain-drain could be supported, which means the emigration
of a skilled workforce. Secondly, decisions for studying in a certain program could be influenced by the opportunity to work abroad. Other sectors, which are highly important to meet Philippines’ basic needs, may suffer a lack of human resources. Thirdly, the PG may support an industrial sector, which does not serve primarily the Philippines’ basic needs. The PG’s efforts to support overseas employment may advantages the two million overseas Filipino workers (OFW) and their families but not the national economy in a long-term perspective. But, in the context of a fastly growing population, a sustainable national economy needs to be further developed to serve increasing needs and to address Philippines economic sustainability.

To work abroad is very common in the Philippines and manifested in the society’s culture. An OFW brings an increased income to the family as well as a distinguished family status. But the recently published report “’My sleep is my break’: Exploitation of domestic workers in Qatar” (2014) by Amnesty International point out the negative sides of Philippine work migration. In the report violations of human rights and employment laws are described. Approximately 30,000 Filipinos are employed in the domestic work sector, which makes them the biggest group of migrant workers in Qatar. Work immigration is supported by the PG, which used to have bilateral agreements with Arabian states. If this approach is beneficial for the Philippine population in a long-term perspective is questionable. Economic SD aims to attain development to improve everyone’s life quality but the NTESDP rather aims to serve the national and international industries.

The agricultural sector was revealed as the key-employment generator. In any case, it was not identified as one of the high potential sectors in order to reduce youth unemployment. However, an expansion of the agriculture sector in terms of quantity and quality is needed to support the local food production. Changing demographics have increasingly challenged the national agriculture and led to increased import of aliment. The NTESD missed to address basic needs in order to increase the life quality for everyone by fostering certain key sectors. Besides the need for skilled workers in the agricultural sector, the support of vocational professions addressing the provision and expansion of electricity, the supply of clean water and the extension of the infrastructure, and communication would address national issues in a sustainable way. So the impact of the NTESD is ambiguous: it has an impact on the trainees in the vocational education sector but at the same time, the future employment can contribute to local and national sustainable development.

In the NTESDP the term “sustainability” is limited to its environmental dimension. The plan emphasised the education and preparation of trainees for national and international employment in the industrial or service sector under low consideration of the economic, environmental and social dimension of SD. UNESCO’s ESD concept is insufficiently regarded in the NTESDP. Corresponding to that finding, the expected impact of UNESCO’S ESD concept at the micro level is rather low.

The ODEA holds another impact on the training centre under consideration. They emphasise the connection of both aims, to provide TVET aligned with the industry and the Christian value formation of the trainees. The ODEA of DB devoted itself on the
training of marginalised youth to provide an improved access to the labour market. Although the environmental dimension cannot be revealed, a strong economic sustainable impact was highlighted. The directory’s approach puts the trainee in the centre of the development strategy. By focusing on the youth from low financial backgrounds, DB offers a minority group the chance to improve their quality of life.

This principle is as well reflected in DB Legazpi’s documents. The themes derived from the analysis of DB Legazpi’s documents indicated how the economic dimension of sustainability is addressed. The TVET, especially the agribusiness and the agro-mechanics program are primarily aligned with local issues and needs. In the agribusiness program trainees are trained to cultivate the hilly upland area in the region. The school fosters mechanisation and the introduction of technologies to maximise the work. Additionally trainees in agro-mechanics are trained to produce and repair those machines. As a second category, “empowerment” was identified. The training centre prepares the trainees, again the agricultural technicians, to be independent and run their own livelihood projects back at their homes. To support these projects, the school supports the graduates through the multipurpose cooperative and micro financing. In doing so all factors describing economic sustainability are addressed (Majumdar 2010a, p.6): economic literacy, sustainable production, sustainable consumption and the management of a small business. Independence is a significant factor to attain sustainable development because it provides transparency, control and awareness in all processes of production.

Religion is an integrated part in DB Legazpi’s TVET. The education of Christian values and attitudes is emphasised and is considered to be as important as the training of skills and knowledge. But this fact reflects not only the institution’s intention in TVET but also the value of religion in the society. Far more than 80% of the Philippine population is Roman-Catholic. Considering this fact, TVET, which covers Christian education considers and values the cultural background of the Philippine society. The Saint Don Bosco is an inspiration and motivation for the employees of the school and their trainees. In order to bring social sustainability forward, the knowledge and religious practice need to be integrated in the TVET.

The observation of the setting confirmed the great role of religion in the TVET institution. The practice of Christianity in DB Legazpi contributes to the people’s life quality and the social sustainability of the institution. Additionally efforts are done to increase the trainees’ awareness for the environment. This method has limited informative value concerning the actual practice but it confirms the findings of the document analysis.

The environmental dimension in DB Legazpi was again touched by the agribusiness program. Its connection with the natural environment is apparent and its dimension is easiest to reveal. However, the number of research findings, which could be related to the environmental sustainability in the agribusiness program might be high. This finding highlights the differences of the TVET programs which affect sustainability in different ways. The self-production of organic fertilisers is fostered in DB Legazpi. The supply of animal feeds is covered as well through organic cultivation farming. The cultivation of
soya beans in this area was newly established by the training centre. The process with the farm own extruder machine generates nourishing soya beans for the human and animal consumption. Before the agricultural sector was identified as having a strong impact on the natural environment. Due to the use of organic agriculture DB Legazpi reduces its impact on the nature and on the climate. One document stated the use of layer houses which could be identified as laying batteries from the pictures. At the point of the data collection the laying battery was not in use. In any case, the pictures reveal animal husbandry which is not aligned with the standards of the International Federation of Organic Agriculture Movements (IFOAM) (2012). Therefore the cattle breeding in DB Legazpi cannot be identified as being organic.

In any case, these findings are confirmed by the NC. The analysis of the NC revealed TVET, which integrates the training of the application of chemical fertilisers and pesticides and the pharmaceutical treat of animals. These training standards and recommendations are referred to industrial and national standards in the Philippines. The NC use the demands of the agricultural sector as the norm for animal production and horticulture, which is at odds with the environmental sustainability.

Summing up, UNESCO’s ESD concept can be revealed in DB Legazpi. But the extent is limited, especially concerning the environmental sustainability of following (possible) reasons:

1. The PG’s efforts in TVET are aligned with industrial demands but not with sustainable needs at all dimensions. The TESDA aims to increase economic development by following the “training-for-growth” principle (Majumdar 2010). The PG’s priority goal is the internationalisation of Filipino employees but these efforts do not contribute to the economic sustainable development of the country. Economic development needs to be approached more human-centred. Notwithstanding, great poverty and unemployment, especially among the youth are the biggest challenges of the Philippines and need to be addressed in a sustainable way.

2. As communicated by the ODEA, the focus of the ODEA and the DB Legazpi address the economic and social sustainability. Their human-centred approach is promising to alleviate poverty and increase everyone’s life quality. However, the environmental dimension is rather under-addressed in the documents. A possible reason could be the high demand for the local social and economic development.

3. The agriculture industry indicates the norm for animal production and horticulture in the Philippines. The NCs are adopted to these standards and its impact is distinctly in DB Legazpi. Conflicting interests are revealed in TVET between human development, which is often driven by neo-liberal market principles and human-development based on UNESCO’s SD concept.

The conflict described in point three is best exemplified in the animal production. This example is based on an informal talk during an interview with a technician. The agriculture industry uses certain breeds for animal production. These animals are often highly efficient in terms of weight gaining or layering. At the same time these animals react sensitively under environmental influences. They are vulnerable to diseases and
have a high demand on pharmaceutics. For instance, the Philippine native chicken is a breed of chicken and predominantly raised by rural farmers for their meat and eggs. It is highly adapted to the environmental circumstances. They can live from household garbage (e.g. rice) and use to look for their own feeds. They are very strong and not prone to diseases. The native chicken holds several advantages in comparison to the commercial chicken, which is widespread in the agricultural industry. But its disadvantages from the economic perspective are obvious: the native chickens are smaller and they gain weight slower. Notwithstanding, it is described as being delicious but the cooking time for native chickens is increased. Hence, special chicken breeds for laying produce around 300 eggs per year whereas the native chicken lays among 40-60 eggs during a year. Additionally, the native chicken has laying periods which are interrupted by laying breaks. The upbringing of native chickens requires space so they can express their patterns of behaviour. All this described features are rather inefficient from the economic perspective. A commercial chicken, which gains weight faster in a short period of time or produce 80% more eggs per period. This supports the increase of turnover and is preferred in the industrial animal production. These disadvantages like the sensitivity to temperature changes especially during upbringing and the need for pharmaceuticals to protect them from diseases are compensated by the income return.

DB Legazpi’s scope to foster ESD as described by the UNESCO is limited. TVET cannot be developed and trained in a vacuum. To provide the trainees the access to the labour market, TVET needs to consider the training of skills which are in demand by the industries. TVET needs to consider the economic context even if it contrasts with the ESD concept. The PG and the ODEA are setting another frame within DB Legazpi’s has to deliver TVET.

7.2 Perception of UNESCO’s ESD concept by the key informants

The interview revealed that the key informants were not familiar with UNESCO’s ESD concept or the DESD. The interviewee’s description of sustainability revealed a linear connection of education, employment and the preservation of the human race. Education was suggested as an appropriate and single instrument to achieve sustainability. The fact that the key informants are all involved in TVET and the training centre the setting of the investigation was, implies a possible reason for this suggestion.

But the limited education impact was figured out by two interviewees. They identified corruption and the dynamics of the national labour market as obstacles to achieve sustainability. These limitations were already highlighted by Stolte (2009) in chapter 1.3: a "lack of coherent national policies, discontinuity in teacher training, delay in
identifying national occupational needs, unclear policies at the regional level, inadequate registers of training opportunities, and a shortage of VET teacher trainers” slow down or even frustrate a successful introduction of ESD.

In contrast to the aim of UNESCO’s SD concept – the increase of quality in life without limiting resources for future generations – the key informants described the assurance of basic needs – food – as the overall aim. This finding highlights the importance for the interviewees to assure basic needs. However, this finding is not surprising considering the 17 million Filipinos who live under the international poverty line of US$1.25 per day. The descriptions of sustainability included not the three dimensions of sustainability. Additionally, the descriptions were rather specific and came along with examples connected to the people’s life in the school. The international context was not considered. The impact was rather seen at the community or national level. For instance, saving energy at the level of the TVET institution was not perceived as a positive contribution to the global climate. Generally, the understanding of SD as a holistic concept addressing the economy, the environment and the society at the global level was not reflected in the interviewees’ answers.

Some aspects in DB education were identified by the key informants as a contributor to ESD like the classes in entrepreneurship or the use of organic fertilisers. But further aspects were identified as the motivation of trainees, daily prayers, poverty alleviation, or the monitoring of the classes. The variation of the answers suggested a misunderstanding of the scientific term sustainability and ESD. As stated before, sustainability and ESD are perceived as something positive. By asking the interviewees about ESD there was the risk to have explored positive aspects in their education in DB Legazpi without pointing out an actual ESD aspect.

The interviewees’ answers to the question of how to increase the integration of sustainable activities during school and work day confirms the idea of sustainability as a general term for positive subjects. Therefore instructors claimed the improvement of their lesson planning as a sustainable act. Or, as one supervisor said, the budgeting of financial resources, time and personal attention. Some of the mentioned aspects could be identified as being supportive to achieve ESD but they were rather puzzle pieces and did not reflect the view on ESD as a whole. However, since sustainability might be employed by the key informants as a term for normative positive subjects, this finding gives an important hint: In the “sustainable” aspects is reflected what the interviewees’ value as desirable and important in their education.

Based on this finding, Figure 11 needs to be revised. It indicates rather the requested aims and aspects of TVET as described by the key informants in DB Legazpi as the perception of ESD. However, these findings point out the role of UNESCO’s ESD concept in DB Legazpi and understand individual perceptions of education and general needs in life.
7.3 Interferences of the school’s assumption and the key informants’ interpretations on ESD

The description of the TVET in DB Legazpi revealed aspects, which contribute to the achievement of ESD in the institution. The key informants from DB Legazpi were asked to describe ESD from their own perspective. The descriptions about the TVET in DB Legazpi are indeed rather comprehensive and detailed as the information obtained from the documents as the interview was directed to approach the individual perception of ESD and SD.

The findings retrieved from the document analysis the DB Legazpi documents suggest the application of a rather human-centred development approach in the TVET institution. The TVET in DB Legazpi is characterised by economic sustainable aspects. The key informants’ interpretation of ESD suggest a similar approach. The features of TVET are described in the same way: education should aim to provide the trainees with relevant skills and knowledge to increase his or her chances to find employment or self-employment. The TVET is accompanied by Christian value formation. However, certain aspects from the interview analysis could be linked to environmental sustainability. But this finding was not confirmed by the documents.

7.4 Approaching ESD from the individual perspective

The attainment of a “better and good” life for the individual and his or her families was described by the key informants as the overall aim of ESD. Employment or self-employment and “good” values based on Christian ethics are crucial to attain sustainability. Therefore, the TVET plays an important role, which has to integrate the latest knowledge, lifelong learning, entrepreneurship, and is responsive to the labour market. Furthermore, instructors should be motivated, ambitious and encourage the trainees to work in their profession. The instructors see relevance for their profession and the teaching of the programs, especially in agriculture. A technician and the trainees of the agribusiness program see themselves as producer of food which is highly needed in the Philippines. The answers to the question, what the key informants value the most and what they liked the least concerning their work and training in the training centre opened an interesting perspective. Their answers provided an idea on the key informants values and estimation in their training, work and life in the school. Hence, an inclusive TVET system, which follows the K-12 mandate of the government and has no shortcomings of resources was described as being important to achieve ESD.

Further aspects were distinguished as desirable and important in the education of DB Legazpi. In general, all groups of key informants expressed complete satisfaction concerning the TVET in DB Legazpi. The education is perceived as being “complete”:
the TVET is aligned with the NC, additional classes such as entrepreneurship and bookkeeping are instructed, teaching is done in lectures and skills are trained in workshops, in-centre training is combined with OJT, and Christian education is an integrated part of the program. Some key informants stated that they would not like to change but to “improve” the program. Those improvements were addressed towards the provision of sufficient or better teaching materials and the extension of programs under the consideration of new technologies. The lack of energy supply in the training centre was as well addressed. The trainees from the agriculture program suggested the improved application of technologies for organic farming. Hence, some instructors were missing professional and additional teacher education.

Additional aspects were highly valued in DB Legazpi. Two instructors were offered another work placement with better wages. However, they decided to stay and work for DB Legazpi because of personal commitment and the feeling to be in favour to the training centre. Further aspects were the personal value of the work task to educate and support marginalised adolescents, and the working atmosphere, which was often put on the level with “being in a family”. The value of Christian education was strongly emphasised by the trainees. Key informants value the morning assembly, the inspirational talks and the prayers. The trainees described the relation to the instructors as very good. This impression was confirmed by the instructors who put this down to the use of the “prevented system” in DB Legazpi. Among further principles, the system highlights mingling during breaks and outside class to strengthen the instructor-student relationship.

Chapter 8
Conclusion

This study aimed to investigate the impact of UNESCO’s ESD concept in a Philippine TVET institution. Data was collected from documents, an observation, and semi-structured interviews. The data has been analysed and discussed in the previous chapters. The last chapter of this thesis builds up on the findings from the discussion. Significant findings are concluded and possible implications for ESD recommendations are reflected in the light of the case study findings.
8.1 The findings in the school

Both the document and the interview analysis revealed the TVET practice and perception of the TVET concept in the DB Legazpi. The comparison of both findings suggested a high overlap of the identified dimensions of ESD in the documents and the interviewees’ perception of ESD. In the DB Legazpi documents sustainable aspects in the education considering the economic, environmental, and social dimension could be identified. SD and the integration of ESD was perceived as highly relevant to the key informants and perceived as an integrated part of the school’s practice. At the same time a lack of knowledge concerning UNESCO’s ESD concept was revealed. These described findings were as well described in the case studies by Dubois et al. (2010) in the African context.

The findings suggest that DB Legazpi contribute with its TVET to human development in a sustainable way. The trainees as well as the employees in DB Legazpi express great satisfaction concerning the way how TVET is delivered. The national statistics about certification rates and employment rates speak in the institution’s favour. The Philippine TVET certification rate from 2005 to 2010 added up to 76.35% (TESDA 2011), whereas DB Legazpi certificated on average 93.43% of its batches in the same period. The training centre is locally accepted because its benefits are shared with the trainee’s families and the communities in the province. The training centre uses the people’s needs in the region as their point of reference. In doing so, DB Legazpi contributes to human development at the grass-root level in the Bicol region. Anyway the findings can be connected to UNESCO’s ESD concept, the training centre’s contribution to SD is not based on UNESCO’s concept.

The CA approach emphasises the role of key informants and the necessity to integrate individual life trajectories in development processes. Additionally, the country’s cultural habits and regional knowledge needs to be considered when implementing ESD at national level. The TVET in DB Legazpi aims to integrate certain aspects such as classes in entrepreneurship to foster human development based on the independence of the key informants. Notwithstanding, the training centre’s education uses the present context of the local and national level as another point of reference. In consideration of the changing demographics in the Philippines the agriculture has been increasingly challenged. In order to assure the basic needs of the population, agriculture needs to be more efficient and needs to integrate new technology to boosts harvests. The TVET in DB Legazpi facilitates graduates the access to employment by taking the demands of the labour market into consideration.
8.2 The role of religion in development

DB Legazpi is a Roman-Catholic based institution. The religion has been the driving force and incentive to build the training centre in this region and to educate adolescents from low economic backgrounds. The practice of Christianity was commonly perceived sustainable practice. This finding reflects the key informants’ perception of ESD. As mentioned earlier, the term “sustainable” might be misunderstood as its use indicates the employment of the term to describe normative positive aspects in DB Legazpi’s TVET. Anyway, the finding expresses the general value of religion in the TVET institution. It indicates to reconsider the role of religion in education and development as it serves as the underlying cultural dimension of ESD (UNESCO 2009). Habitually, religion is spreading in industrialising countries and plays an important role in the societies. Religion has an impact on people’s way to behave or to think and influences daily routines. To consider the cultural backgrounds in education, religion needs to be reflected and valued in the education to be sustainable.

However, the role of religion in education and development is biased and might fail to address development issues such as the spreading of HIV or birth control in certain regions in the world.

8.3 The limitations of ESD

The findings from the document analyses indicate barriers for the successful integration of UNESCO’s ESD concept for the case at hand. The authorities set a certain frame within which TVET is to be delivered. The NTESDP 2011-2016 was identified as such a frame which sets limitations to the scope of DB Legazpi. Considering these national and organisational limitations, the use of sustainable principles was in the specific case as great as possible. National restrictions have the strongest impact on ESD and are crucial to achieve a successful implementation of UNESCO’s ESD concept. Nonetheless, a “political dimension” of SD remains untouched. National and local authorities need to be considered as key actors to achieve ESD. Another and rather indirect but strong impact recovers the national and international industries. The PG employs the industrial demands on agriculture and horticulture as guiding principles for TVET policy development.

The notion of the abstinence of a “political sustainable” dimension was emphasised by Bosselmann, Engel and Taylor’s (2008) report “Governance for Sustainability – Issues, Challenges, Successes”: “While the word sustainable has been slapped onto everything from sustainable development to sustainable economic growth, sustainable communities to sustainable energy production, the theory of sustainability and what it means to the concept of (democratic) governance has hardly been discussed” (ibid.). However, the
development of a sustainable governance theory was identified to “make a difference in practice” (ibid).

8.4 Balancing ESD

In 1987 the UN employed SD as the overarching paradigm, which focus on the pursuit of development and an improvement of life quality in balance with environmental, social and economic considerations. Nevertheless, the achievement of such a balance was challenged in the case at hand.

The NTESDP indicates a developmental approach, which is dominated by a “neo-liberal market economy ideology nationally and internationally” (Cars 2013, p.2). However, national challenges are addressed such as high unemployment rates among young people or the need for well-trained workers. The increasing Philippine population demands the extension of the agriculture sector. When trying to assure basic needs, the efficiency of harvests is increased by chemical fertilisers and the area of cultivated land is provided by clearance of tropical forest. Similar example was provided in “The chicken question”. The local and industrial interests are at odds. The commercial chicken is favoured by the industries and its breeding is emphasised in the NC. DB Legazpi trains its students in breeding commercial chicken to train the skills in demand and to provide a National Certificate to the trainees. Again, the PG has a strong impact on the achievement of ESD and is capable to introduce national sustainable restriction in agriculture and horticulture production.

The Australian-based research and evaluation organization for Vocational Education and Training, NCVER (2007) stated the need to consider the integration of ESD in TVET: “to remain relevant in the changing workplace and community in general, the integration of sustainability education in policy and practice should become mandatory” (Goldney, Murphy, Fien, and Kent, 2007, p.9.). This quote implies the adoption of ESD as a response to a sustainable changing work sectors. However, in the case of DB Legazpi “Green Skills” are not requested by the employment sectors. Consequently, the integration of ESD in TVET cannot succeed if “Green Skills” are not in demand. Furthermore additional skills, which are at odds with SD are requested like the extensive use of chemical fertilisers and pesticides in horticulture. Education has to be contextualised within the employment sectors which first and foremost need to integrate sustainable principles.

The SD concept was to the greatest extent involved in countries which are able to assure basic needs or provide even more (Whitesides 2013, xxvii). As stated in chapter one, “To be told to eat less, and forego electricity, by those who have never thought of doing either is annoying” (ibid.). In case of DB Legazpi the electricity supply is too low to run engines properly. This finding indicates that first and foremost, individuals need to have
the access to resources before SD is reasonable to them. When resources are already limited, sustainable efforts such as energy saving are hindered.

The framework of Greening TVET (Majumdar 2010a) presented in chapter two indicates a difference between industrialised and industrialising countries concerning sustainable opportunities. The proposed activities in the five identified dimensions in Greening TVET have little relevance for DB Legazpi. The UNESCO (2006) proposed indicators to “relate to the orientation to sustainability in the management of the campus operations” (UNESCO, 2006, p.28) such as the percentage of generated and consumed renewable energy or the percentage of locally and organically grown served food (ibid.). In the case at hand, the percentage of locally grown food is rather a small challenge but the consumption of renewable energy is hard to manage for the school considering its financial resources. An instructor’s contribution to SD was the removal of reflectors from classroom lamps to save energy. The purchase of energy-saving lamps would be more cost intensive for actual savings from energy-use. This finding exemplifies the need for financial resources to build on.

ESD is described as a concept which is particularly integrated in developed countries (Whitesides 2013, xxvii). Besides the availability of financial resources to foster sustainable changes, industries have first and foremost to integrate SD to create a demand for “Green Skills”. This notion is important to consider in the Philippine context where unemployment rates among the youth are high. Consequently there is a lot of competitions for jobs in the Philippines, so employees have to fit to the values and respond to the skill-demands of the companies they work for.

Consequently, one issue when implementing UNESCO’s ESD concept is to balance the economic, environmental and social dimensions of sustainability without reducing any of them. The consideration of this notion is challenging since the support of one dimension might be at odds with one another. Similar the training of commercial chicken breeding supports the economic dimension of TVET but does not contribute to the social dimension in the particular case.

8.5 Recommendations

The key informants in DB Legazpi are very satisfied and confident about the way in which TVET is delivered. Their contribution to human development is very promising and can be employed as an example of “good practice”. Therefore the importance to integrate UNESCO’s ESD concept into TVET in DB Legazpi is hard to point out. Nevertheless, the integration of the concept contributes to holistic human development at a global and intergenerational scale. Therefore efforts need to be done to increase the awareness of economic, environmental and social activities in DB Legazpi. In the International Implementation Scheme (IIS) (UNESCO 2005, p.19) pre-service and in-service teachers were identified as key persons to foster UNESCO’s ESD concept.
The agribusiness program in DB Legazpi highlights the possibility to manage efficient organic farming in the up-land area of Bicol. Considering the increasing demand of food due to a rapidly growing population, organic farming contributes both to the economic and environmental sustainability at the national level. Notwithstanding, organic agriculture as in DB is a chance if authorities foster national legislations and restrictions in the industries. Therefore new technologies for efficient organic farming are in need to meet national challenges. However, the PG and the agriculture and food industry have a strong impact on the successful establishment of organic farming in both the Bicol Province and at the national level.
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91
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Appendix

Appendix 1: Interview Guide for semi-structured interviews for all groups key informant

Q1: When you think about a normal workday/school-day here in the training centre, how does it looks like? Please describe it to me as detailed as possible!

Q2: Think about the word "sustainability" - could you describe it to me? How do you understand that term?

Q3: Considering this explanation of sustainability, what does "Education for Sustainable Development" mean?

Q4: At which point(s) during the day is what you do sustainable?

Q5: What could you do in order to act more "sustainable" during that day?

Q6: What do you like the best about your job/your TVET program and what do you consider as the worst?

Q7: What should be more taught in school?

Q7.1§: Do you feel like something is missing in the your (agribusiness, agro-mechanics or general electricity program) TVET program? / technicians: did you miss anything in the your (agribusiness, agro-mechanics or general electricity program) TVET program?

Q8: What do you consider as the most important to teach?/ Trainees: What do you consider as the most important to learn?

Q9: Is there anything in the program that you would like to be different?

Q10: Could you bring changes forward in the near future?

Q11: Who could support you to make changes happen?

Q12: Did you ever hear about the Decade for Education for Sustainable Development?

Q13: To which extent do others benefit from the students’ skills and knowledge?

Q14: How would you describe the relationship between you and your colleagues?

§ Additional question raised from second interviewee onwards.
Q15: How would you describe the relationship between you and the students/teachers?

Q16: How would you describe the "general atmosphere" in the school?

Q17: Do you want to add something? Did I miss asking you something?

Appendix 2: Observation Guide

<table>
<thead>
<tr>
<th>Economic Sustainability</th>
<th>Environmental Sustainability</th>
<th>Social Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Object/aspect</strong></td>
<td><strong>Comment</strong></td>
<td><strong>Object/aspect</strong></td>
</tr>
<tr>
<td>Old barrels as trash cans</td>
<td>“reuse” → five “R”s</td>
<td></td>
</tr>
</tbody>
</table>

The finding of the new function of the old barrels as trash cans in DB Legazpi serves here as one example for the use of the observation guide. All findings from the setting observation were categorised in the same way, considering their contribution to one or more sustainable dimensions.
### Appendix 3: Contents of the National Curricula

<table>
<thead>
<tr>
<th>Animal Production NC II</th>
<th>Electrical installation and maintenance NC II (402h)</th>
<th>Horticulture NC II (1440h/ 10 months)</th>
<th>Shield Metal Arc Welding (SMAW) NCII (268h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Modules of Instruction</td>
<td>B. Modules of Instruction</td>
<td>B. Modules of Instruction</td>
<td>B. Modules of Instruction</td>
</tr>
</tbody>
</table>

#### BASIC COMPETENCIES

- **Animal Production NC II**
  - Participate in workplace communication
  - Work in a team environment
  - Practice career professionalism
  - Practice occupational health and safety procedures

- **Electrical installation and maintenance NC II (402h)**
  - Participating in workplace communication
  - Working in a team environment
  - Practicing career professionalism
  - Practicing occupational health and safety procedures

- **Horticulture NC II (1440h/ 10 months)**
  - Receive and respond to workplace communication
  - Work with others
  - Participate in workplace communication
  - Work in a team environment

- **Shield Metal Arc Welding (SMAW) NCII (268h)**
  - Participating in workplace communication
  - Working in a team environment
  - Practicing career professionalism
  - Practicing occupational health and safety procedures
<table>
<thead>
<tr>
<th>Animal Production NC II</th>
<th>Electrical installation and maintenance NC II (402h)</th>
<th>Horticulture NC II (1440h/ 10 months)</th>
<th>Shield Metal Arc Welding (SMAW) NCII (268h)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMMON COMPETENCIES</strong></td>
<td><strong>COMMON COMPETENCIES</strong></td>
<td><strong>COMMON COMPETENCIES</strong></td>
<td><strong>COMMON COMPETENCIES</strong></td>
</tr>
<tr>
<td>• Apply safety measures in farm operations</td>
<td>• Preparing construction materials and tools</td>
<td>• Apply safety measures in farm operations</td>
<td>• Applying safety practice</td>
</tr>
<tr>
<td>• Use farm tools and equipment</td>
<td>• Observing procedures, specifications and manuals of instructions</td>
<td>• Use farm tools and equipment</td>
<td>• Interpreting drawing and sketches</td>
</tr>
<tr>
<td>• Perform estimation and calculations</td>
<td>• Interpret technical drawings and plans</td>
<td>• Perform estimation and calculations</td>
<td>• Performing industry calculation</td>
</tr>
<tr>
<td></td>
<td>• Performing mensuration and calculation</td>
<td></td>
<td>• Contributing to quality system</td>
</tr>
<tr>
<td></td>
<td>• Maintaining tools and equipment</td>
<td></td>
<td>• Using hand tools</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Preparing weld materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Setting-up welding equipment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Fitting-up weld materials</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>• Repairing weld</td>
</tr>
<tr>
<td>Animal Production NC II</td>
<td>Electrical installation and maintenance NC II (402h)</td>
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<tr>
<td><strong>CORE COMPETENCIES</strong></td>
<td><strong>CORE COMPETENCIES</strong></td>
<td><strong>CORE COMPETENCIES</strong></td>
<td><strong>CORE COMPETENCIES</strong></td>
</tr>
<tr>
<td>• Raise poultry</td>
<td>• Prepare electrical power and hydraulic tools</td>
<td>• Conduct pre-horticultural farm operations</td>
<td>• Performing groove welding on carbon steel plate</td>
</tr>
<tr>
<td>• Raise small ruminants</td>
<td>• Perform roughing-in activities for communication and distribution</td>
<td>• Produce vegetables</td>
<td>• Performing groove welding on carbon steel pipe</td>
</tr>
<tr>
<td>• Raise swine</td>
<td>• Install wiring devices for floor and ground fault current interrupting outlets</td>
<td>• Produce fruit bearing crops</td>
<td></td>
</tr>
<tr>
<td>• Raise large ruminants</td>
<td>• Install electrical protection system for lighting and grounding</td>
<td>• Perform post-harvest operations of major tropical fruits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Install electrical lighting systems on auxiliary outlets and lighting fixtures</td>
<td>• Perform post-harvest operations of major lowland and semi-temperate vegetable crops</td>
<td></td>
</tr>
</tbody>
</table>